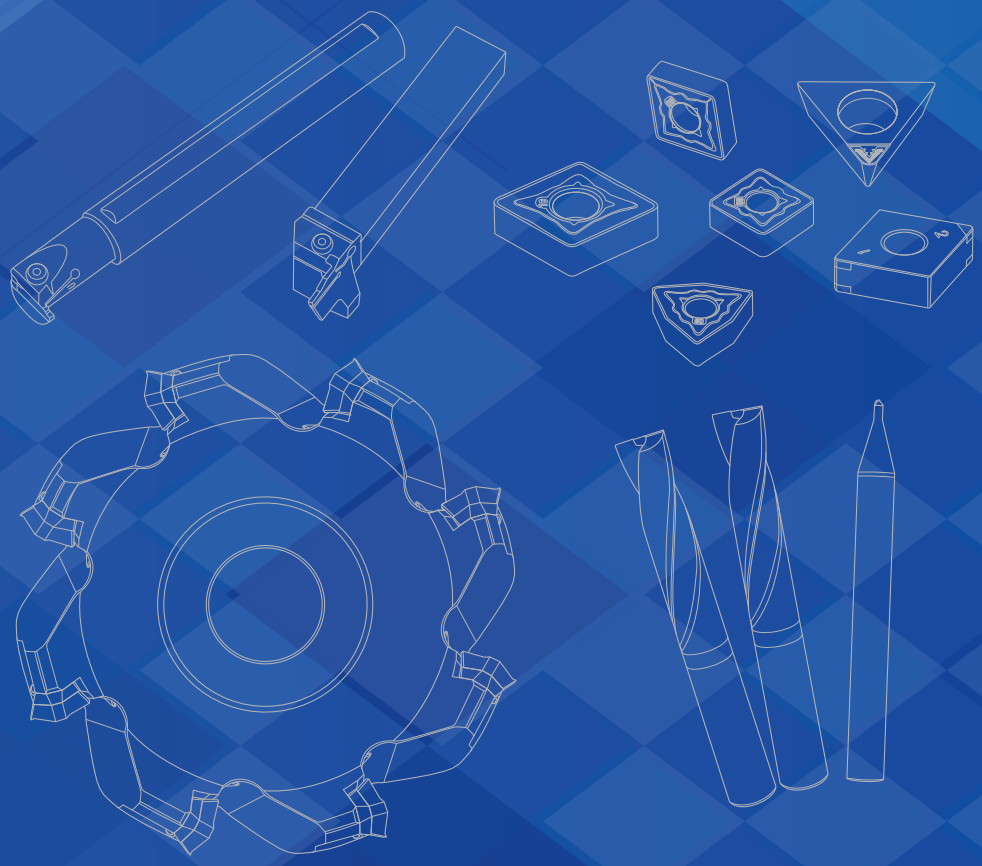
2017►2018
General Catalog

SUMITOMO

CARBIDE - CBN - DIAMOND

HIGH PERFORMANCE CUTTING TOOLS



SUMITOMO
ELECTRIC
GROUP

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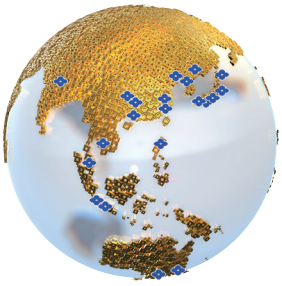


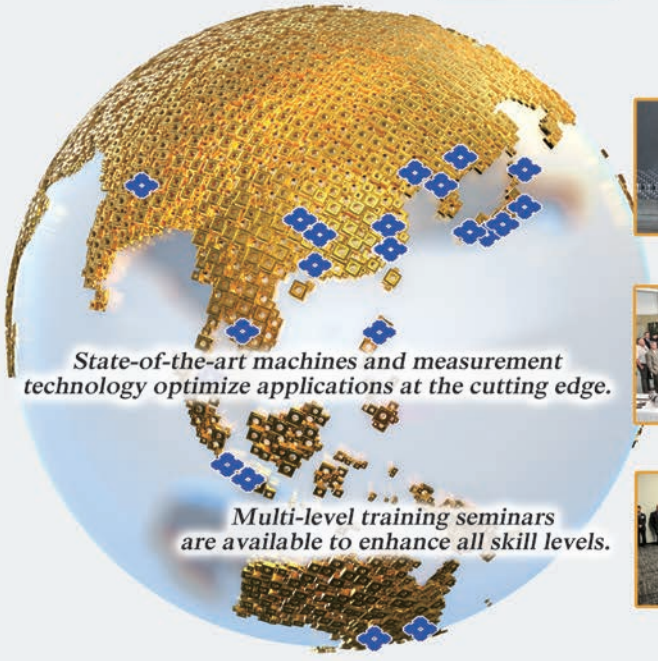
Offering our customers training courses to enhance customer satisfaction.

Please contact training@sumicarbide.com for registration & detailed curriculum of the all training courses.

Global Support. Global Solutions.

Sumitomo has established a global network of Tool Engineering Centers (TECs) to service industrial metalworking markets worldwide. Currently there are 10 locations globally with plans to add more every year.



State-of-the-art machines and measurement technology optimize applications at the cutting edge.

Part runoffs are performed at our facilities to eliminate customer production interruptions when testing application improvements.

Multi-level training seminars are available to enhance all skill levels.

SUMITOMO
CARBIDE - CBN - DIAMOND

- Learn about machining concepts and state-of-the-art Sumitomo tooling!

- See the tooling in action!

FREE TRAINING

- See how the tools are made during our Plant Tours!

Contact us at training@sumicarbide.com for more information.

Come visit Sumitomo's Tooling Engineering Center (TEC) in New Berlin, Wisconsin!

- Training Seminars
- Part Runoffs
- Tooling and Application Optimization

Sumitomo offers 3 courses to suit our customers' requirements and proficiency.

Course Name	Description	Trainee Level	Intended for		Course Duration
			Distribution	Endusers	
Level 1) Beginners' Course	Beginners' Course is an entry-level course for those who are just starting to learn about cutting tools, like new employees or customer support staff. In this course, trainees will be introduced to different types of cutting tools and will also learn how to select required tools from the catalog.	New employee, Customer support staff	○	-	1 Day
Level 2) Basic Course	Level 2 training is catered for those with less than 5 years experience with cutting tools by providing an enjoyable learning experience through a mix of classroom and machine demos. In this course, trainees will learn, in an easy-to-understand way, the fundamentals of machining on a wide range of topics for turning, drilling, CBN and milling.	Less than 5 years experience with cutting tools	○	○	2 Days
Level 3) Advanced Course	Level 3 is a mix of Classroom and Machine Demos going over several troubleshooting and problem solving techniques. Team pick selecting cutting conditions and trying on machines. Each class has a theme and focus of either Milling, Drilling, Turning or CBN.	More than 3 years experience with cutting tools	○	○	1 Day

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Turning Systems

SUMITOMO
CARBIDE - CBN - DIAMOND
1-800-950-5202
www.sumicarbide.com

General Information - Turning

Pages 5-15

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A.N.S.I.	C	N	M	G	4
I.S.O.	C	N	M	G	12
	Insert Shape Chart 1	Relief Angle Chart 2	Tolerance Chart 3	Type Chart 4	I.C. Chart 5

Chart 1 Insert Shape

Symbol	Insert Shape
V	35˚ Diamond
D	55˚ Diamond
T	60˚ Triangle
C	80˚ Diamond
W	80˚ Trigon
S	90˚ Square
R	Round
A, K, M	Parallelogram

Chart 2 Relief Angle

Symbol	Relief Angle
N	0°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°

Chart 3 Tolerance

Symbol	Insert I.C.	Thickness	Nose Position
A	±.001	±.001	±.0002
C	±.001	±.001	±.0005
E	±.001	±.001	±.001
F	±.0005	±.001	±.0002
G	±.001	±.005	±.001
J	±..002	±.001	±.002
M	See Chart 3.1		
U	See Chart 3.1		

Chart 5 Inscribed Circle

Sumitomo Number	I.S.O. Number							
SHAPE / SIZE	R	S	T	C	D	V	W	I.C.
(5)			06				03	5/32"
(6)			08					3/16"
1.8			09					7/32"
	06							(.236)
2		06	11	06	07	11	04	1/4"
2.5		07		08	09			5/16"
	08							(.315)
3	09	09	16	09	11	16	06	3/8"
	10							(.394)
	12							(.472)
4	12	12	22	12	15	22	08	1/2"
5	15	15	27	16				5/8"
	16							(.630)
6	19	19	33	19				3/4"
	20							(.787)
	25							(.984)
8	25	25						1
	31							1-1/4"
	32							(1.260)

Chart 6 Thickness

Sumitomo Number	I.S.O. Number	Thickness
(2)	01	1/16″
1.5	02	3/32″
2	03	1/8″
2.5	T3	5/32″
3	04	3/16″
—	05	7/32″
4	06	1/4″
5	07	5/16″
5	08	5/16″
6	09	3/8″

Insert Nomenclature

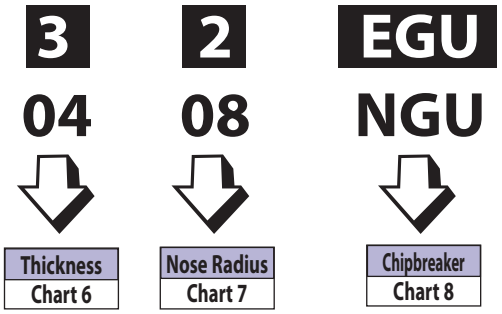


Chart 3.1 **"M" and "U" Class Tolerance's**

	Inscribed Circle		Nose Position Tolerance				Thickness
Symbol	M	U	M			U	M & U
Shapes	All	All	S,T, C, R, W	D	V	All	All
I.C. Size							±.005
5/32 - 3/8	±.002	±.003	±.003	±.004	±.007	±.005	
7/16 - 9/16	±.003	±.005	±.005	±.006	±.010	±.008	
5/8 - 3/4	±.004	±.007	±.006	±.006	–	±.001	
7/8	±.006	±.010	±.006	±.006	–	±.015	
1	±.006	±.010	±.007	±.007	–	±.015	
11/4	±.006	±.010	±.008	±.008	–	±.015	

Chart 4

Symbol	Hole	Chipbreaker	Hole Style
A	Yes	No	Straight
G	Yes	Double	Straight
M	Yes	Single	Straight
N	No	No	None
R	No	Single	None
D	Yes	No	Countersunk
T	Yes	Single	Countersunk
X	Yes	10° Rake Angle	Straight or Countersunk
E	No	No	None

Chart 7 **Nose Radius**

Sumitomo Number	I.S.O. Number	Nose Radius
.001	003	.0012"
0	01	.0039"
0.5	02	.0079"
1	04	.0156"
—	05	.0197"
2	08	.0312"
—	10	.0394"
3	12	.0469"
—	15	.0591"
4	16	.0625"
6	24	.0938"
8	32	.1250"
—	40	.1575"

Chart 8 **Chipbreaker**

See Pages 9-10 for chipbreaker information.

CVD Coated Grades

Class	Grade	Hardness (HRA)	TRS (GPa)	Coating Type	Coating Thickness (µm)	Characteristics	Old Grades
P Steel	AC810P	91.0	2.2	Super FF Coat	18	A P10 grade with excellent wear resistance that features stability and longer tool life. Utilises a special carbide substrate with Super FF Coat for high to medium speed cutting.	AC700G
P Steel	AC820P	90.1	2.2	Super FF Coat	14	A P20 grade that features stability and longer tool life. Employs special carbide substrate and Super FF Coat to improve on P20 wear and fracture resistance.	AC2000
P Steel	New AC8025P	90.1	2.3	Absotech Platinum	12	A P25 Grade that features adhesion and chipping resistance, with a special carbide substrate and AbsoTech Platinum coating.	AC820P
P Steel	AC830P	89.4	2.6	Super FF Coat	8	Stable long-life grade employs special tough, carbide substrate and Super FF Coat. Improves on P30 grade fracture resistance and approaches P20 grade in terms of wear resistance.	AC3000
P Steel	AC630M	89.5	2.7	Super FF Coat	5	Superior performance in continuous and light cutting, and other low-speed applications that require sharp edges.	AC230
M Stainless Steel	AC610M	91.0	2.2	Super FF Coat	5	A high efficiency M10 grade featuring improved wear resistance during stainless steel cutting. Employs special, ultra-hard substrate and thin Super FF Coat.	—
M Stainless Steel	AC6020M	90.1	2.3	Absotech Coat	5	A M20 Grade that features high chipping and wear resistance, with the AbsoTech Platinum coat that helps improve adhesion resistance	AC610M
M Stainless Steel	New AC6030M	90.0	2.7	Absotech Coat	5	A general purpose grade featuring improved wear and fracture resistance during stainless steel cutting. Utilizes a special tough carbide substrate with our patented Absotech Coat.	AC630M
K Cast Iron	AC405K	92.0	2.4	Super FF Coat	18	Employs an ultra-hard substrate and ultra-hard Super FF Coating to provide excellent resistance to wear and plastic deformation. Suitable for high-speed continuous cutting of cast iron.	AC410K
K Cast Iron	AC415K	91.1	2.5	Super FF Coat	18	Employs a special dedicated ultra-hard substrate that is also suitable for interrupted cutting and ultra-hard Super FF Coating to provide stability and long tool life. Recommended grade for cast iron turning.	AC410K
K Cast Iron	AC420K	91.1	2.5	Super FF Coat	12	A new, extremely versatile grade that can be used for rough, interrupted cutting of ductile and grey cast iron. Employs special, ultra-hard carbide substrate and Super FF Coat to provide stability and long tool life.	AC700G
K Cast Iron	AC820P	90.1	2.2	Super FF Coat	14	A grade suited to heavy interrupted cutting of ductile cast iron.	AC2000

PVD Coated Grades

Class	Grade	Hardness (HRA)	TRS (GPa)	Coating Type	Coating Thickness (µm)	Characteristics	Old Grades
P Steel	New T1500Z (Cermet)	92.0	2.2	Brilliant Coat	3	• Brilliant Coat PVD coating gives excellent lubricity for higher quality machining. General-purpose coated cermet grade that can maintain high-quality machined surfaces and also gives excellent wear resistance.	T2000Z
P Steel	T3000Z (Cermet)	91.3	2.4	ZX Coat	3	• An ultra-reliable coating grade with tough cermet substrate.	—
P Steel	AC530U	91.4	3.3	Super ZX Coat	3	• For interrupted and general steel cutting. • Utilizing the new super multi-layered PVD coating of nanometer thick TiAlN and AlCrN layers, coupled with a fine-grained super tough substrate for excellent fracture resistance.	ACZ310
P Steel	AC520U	91.7	3.0	Super ZX Coat	3	• Interrupted machining and stainless steel machining. • Utilizing the new super multi-layered PVD coating of nanometer thick TiAlN and AlCrN layers, coupled with a super tough substrate for excellent fracture resistance.	EH520Z EH20Z
M Stainless Steel	New AC6040M	91.4	3.8	Absotech Coat	3	• Heavy interrupted machining and stainless steel machining. • Utilizing the new super multi-layered PVD coating of nanometer thick TiAlN and AlCrN layers, coupled with a fine-grained super tough substrate for excellent fracture resistance.	ACZ310 AC530U
K Cast Iron	AC510U	92.6	2.6	Super ZX Coat	3	• General to interrupted machining of cast iron and ductile cast iron. • Utilizing the new super multi-layered PVD coating of nanometer thick TiAlN and AlCrN layers, coupled with a fine-grained super tough substrate for excellent fracture resistance.	EH510Z EH10Z
S Exotic Alloy	AC510U	92.6	2.6	Super ZX Coat	3	• Finishing to medium cutting of exotic alloys. • Utilizing the new super multi-layered PVD coating of nanometer thick TiAlN and AlCrN layers. Superior wear and heat resistance, and stable, long tool life.	EH510Z EH10Z
S Exotic Alloy	AC520U	91.7	3.0	Super ZX Coat	3	• Medium to rough cutting of exotic alloys. • Utilizing the new super multi-layered PVD coating of nanometer thick TiAlN and AlCrN layers. Superior wear and heat resistance, and stable, long tool life even in interrupted cutting.	EH520Z EH20Z
Small Product Machining	ACZ150	91.4	3.3	ZX Coat	1	• For small tools, and high-precision finishing to general finishing applications. • TiN ultra-thin coating and fine-grained, super tough substrate combine to give good edge sharpness and superior cut finish.	—

Ceramic Grades For Turning

Class	Grade	Hardness (HRA)	TRS (GPa)	Main Coating Components	Coating Thickness (µm)	Characteristics
K Cast Iron	SN2000K	94.9	1.2	—	—	Contains Si_3N_4. Suitable for medium to finishing of cast iron.
S Exotic Alloy	SN1000S	93.0	0.76	—	—	SiAlON grade for high speed machining of Nickel-based alloys
	WX1500	94.4	—	—	—	Cold-pressed Whisker reinforced ceramic for high efficiency machining of hardened steels, and Ni and Co-based alloys
	SN2000S	94.6	7.2	—	—	Sialon designed for high speed roughing and semi finishing of high temperature alloys like Inconel 718.
	WX2000	90.0	1.2	—	—	Enhanced with SiC whiskers. For heat-resistant alloy and ultra-hard roll cutting.
	WX2500	—	—	—	—	Hot pressed Whisker reinforced designed for machining of high temperature alloys and hardened steel. Excellent thermal shock and crack resistance.
H Hardened Steel	NB150H	96.0	4.5	TiCN	—	AI2O2+TICN Execellent wear resistance. The best choice for machining alloy steel and hardened steel
	NB90S	95.0	1.0	TiAlN	2	Ultra-strong. Contains AI2O3 and ZX Coat. Continuous low-speed turning of hardened steel.

Ceramic Grades For Milling

Class	Grade	Hardness (HRA)	TRS (GPa)	Main Coating Components	Coating Thickness (µm)	Characteristics
K Cast Iron	SN2100K	93.2	0.7	—	—	Contains Si_3N_4. For high speed finish milling of cast iron.

Uncoated Carbide Grades

Application	Grade	Hardness (HRA)	TRS (GPa)	Young Modulus (GPa)	Thermal Conductivity (W/m·°C)	Compressive Strength (GPa)	Linear-Thermal Expansion Coefficient (X 10^{-6}/°C)
P Steel	A30N	91.2	2.2	520	-	-	-
M Stainless Steel	EH510	92.6	2.6	-	-	-	-
	EH520	91.7	3.0	-	-	-	-
K Cast Iron	BL130	94.3	2.9	-	-	-	-
	H1	92.9	2.1	650	109	6.1	4.7
	EH10	92.4	3.4	640	105	-	4.5
	EH510	92.6	2.6	-	-	-	-
	EH520	91.7	3.0	-	-	-	-
	G10E	91.1	2.2	620	105	5.7	-
N Non-Ferrous Metal	H10	91.1	2.2	620	105	5.7	-
	H1	92.9	2.1	650	109	6.1	4.7
S Exotic Alloy	EH510	92.6	2.6	-	-	-	-
	EH520	91.7	3.0	-	-	-	-

CBN Grades

Class	Grade	Binder	Carbon Content (%)	Grain Size (µm)	Hardness HV (GPa)	TRS (GPa)	Series	Characteristics
H Hardened Steel	**BNC2010**	TiCN	50 to 55	2	30 to 32	1.10 to 1.20	Coated SUMIBORON (Coated)	Highly wear resistant coating makes this grade suited for high speed finishing.
	BNC2020	TiN	70 to 75	5	34 to 36	1.20 to 1.30		High crater wear and breakage resistance make this grade suited for high load and interrupted cutting.
	BNC100	TiN	40 to 45	1	29 to 32	1.05 to 1.15		Highly wear resistant coating makes this grade suited for high speed finishing.
	BNC160	TiN	60 to 65	3	31 to 33	1.10 to 1.20		Stable, high precision finishing of hardened steel.
	BNC200	TiN	65 to 70	4	34 to 36	1.15 to 1.25		Tough substrate with high wear resistant coating provide longer tool life.
	BNC300	TiN	60 to 65	1	33 to 35	1.15 to 1.25		Suited for finishing when there is a combination of continuous and interrupted cutting.
	BNX10	TiCN	40 to 45	3	27 to 31	0.80 to 0.90	SUMIBORON (Uncoated)	Optimum wear resistance. Suited to continuous, high-speed cutting.
	BN1000	TiCN	40 to 45	1	27 to 31	0.90 to 1.00		Ultimate wear and fracture resistance. Suited to high-speed cutting.
	BNX20	TiN	55 to 60	3	31 to 33	0.95 to 1.10		Crater resistant grade, suitable for high efficiency cutting under high temperature conditions.
	BNX25	TiN	65 to 70	4	29 to 31	1.00 to 1.10		Excellent fracture resistance during high speed cutting. Suited to high speed interrupted cutting of hardened steel.
	BN2000	TiN	50 to 55	2	31 to 34	1.05 to 1.15		A general purpose grade for hardened steel that provides a high degree of fracture and wear resistance.
	BN350	TiN	60 to 65	1	33 to 35	1.20 to 1.30		High cutting edge strength, suited to heavy interrupted cutting.
Sintered Components	**BN7500**	Co Compound	90 to 95	1	41 to 44	1.40 to 1.50		Maintains optimum cutting edge sharpness. Suited for finishing of sintered alloy.
	BN700	Co Compound	90 to 95	2	40 to 43	1.20 to 1.30		Maintains good wear and fracture resistance in rough cutting of sintered components.
	BN7000	Co Compound	90 to 95	2	41 to 44	1.30 to 1.40		Improved wear and fracture resistance in rough cutting of sintered components.
K Cast Iron	**BN700**	Co Compound	90 to 95	2	40 to 43	1.20 to 1.30		Maintains good wear and fracture resistance in rough cutting of cast iron and exotic alloy.
	BN7000	Co Compound	90 to 95	2	41 to 44	1.30 to 1.40		Improved wear and fracture resistance in rough cutting of cast iron and exotic alloy.
	BNS800	Al Alloy	85 to 90	8	39 to 42	0.95 to 1.10		100% solid CBN structure with good thermal impact resistance.
	BNC500	TiC	60 to 65	4	32 to 34	1.00 to 1.10	Coated SUMIBORON (Coated)	Substrate with excellent wear resistance and coating makes this grade suited for hard-to-cut cast iron.

PCD Grades

Class	Grade	Binder	Carbon Content (%)	Grain Size (µm)	Hardness HV (GPa)	TRS (GPa)	Characteristics
N Non-Ferrous Metal	**DA1000**	Co	90 to 95	Up to 0.5	110 to 120	≈ 2.60	High density sintered material made of ultra-fine diamond particles that demonstrates optimum wear and fracture resistance, and edge sharpness.
	DA2200	Co	85 to 90	0.5	90 to 100	≈ 2.45	Sintered material made of ultra-fine diamond particles that demonstrates optimum wear and fracture resistance, and edge sharpness.
	DA150	Co	85 to 90	5	100 to 120	≈ 1.95	Sintered material made of fine diamond particles that provides a good balance of workability and wear resistance.
	DA90	Co	90 to 95	50	100 to 120	≈ 1.10	Sintered material made of coarse diamond particles with high diamond content and excellent wear resistance.

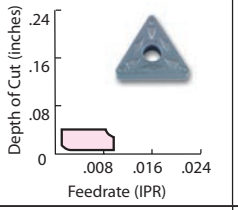
Sumitomo Negative Chipbreakers

Turning

(Bumpy breaker Standard breaker)

Fine Finishing

EFA
Type (20°)



EFL
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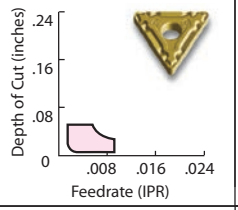

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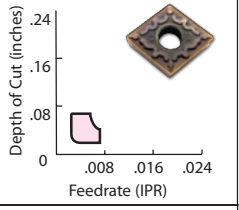
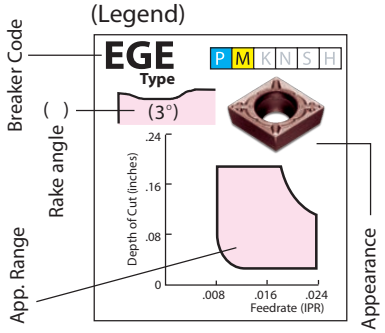


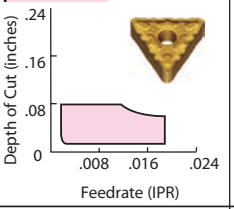
Work Material: P M K N S H
Steel
Stainless Steel
Cast Iron
Non-ferrous Metal
Exotic Metal
Hardened Steel

(Legend)



Finishing

ESE
Type (5°)



ESEW
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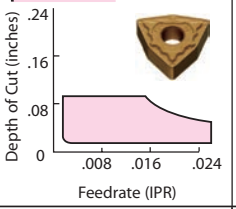

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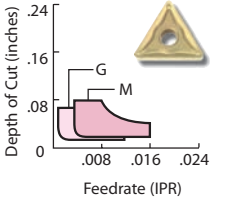

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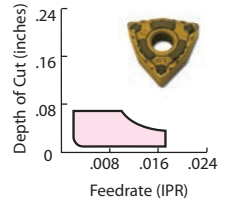

ELUW
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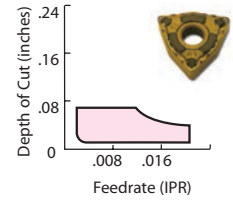
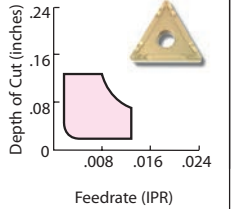


Light - Medium Cut

ESX
Type (3°)



EEX
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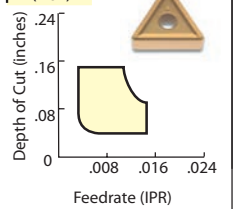
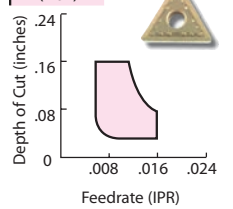
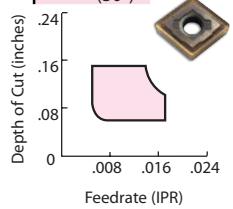


EUP
Type (10°)

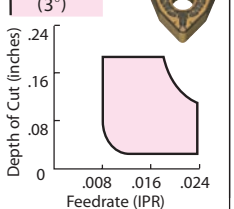


EEG
Type (30°)

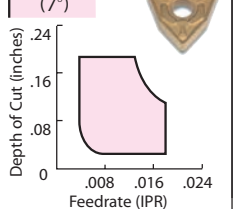


Medium Cut

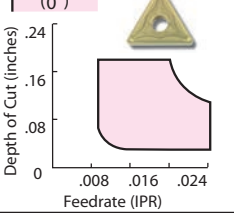
EGE
Type (3°)



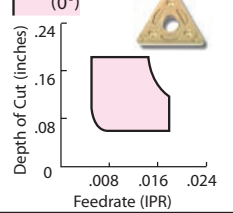
EGU
Type (7°)



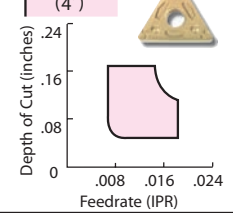
EGUW
Type (0°)



EUX
Type (0°)



ENG
Type (4°)



EGZ
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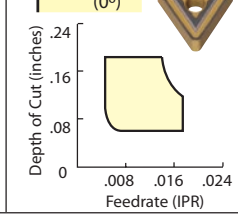
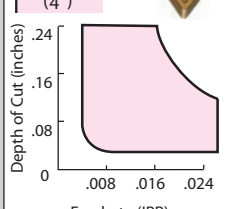
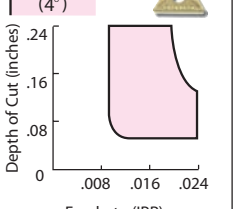


Medium - Rough Cut

EME
Type (4°)



EMU
Type (4°)



EEM
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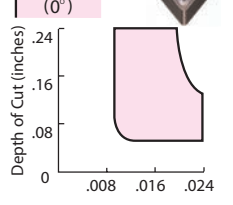
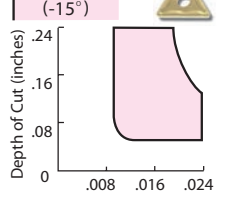
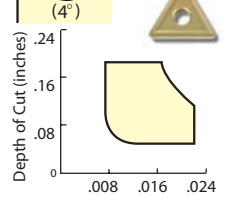


EMX
Type (-15°)

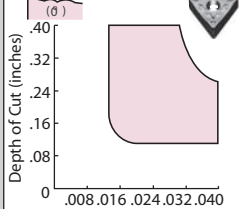


ENZ
Type (4°)

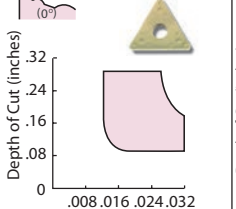


Rough - Heavy Cut

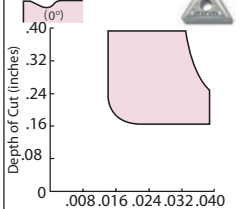
EHG
Type (0°)



ENP
Type (0°)



EHP
Type (0°)



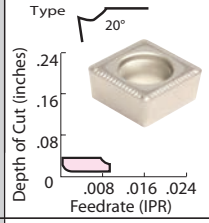
SUMITOMO POSITIVE CHIPBREAKERS

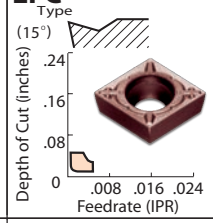
Part Material

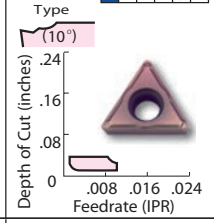
P	M	K	N	S	H
Steel	Stainless Steel	Cast Iron	Non-ferrous Metal	Exotic Metal	Hardened Steel

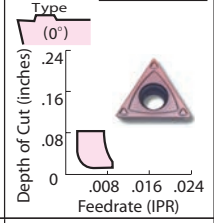
(Bumpy breaker Standard breaker)

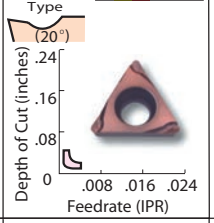
Finishing

EFB
Type 20°


EFC
Type (15°)


EFP
Type (10°)


EFK
Type (0°)


FW
Type (20°)


FX
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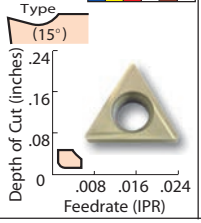

FY
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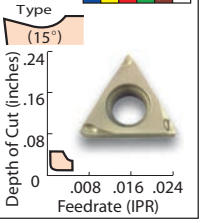
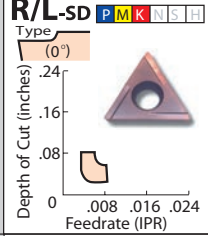
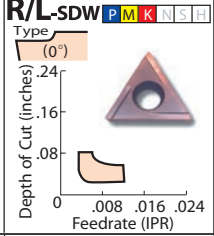
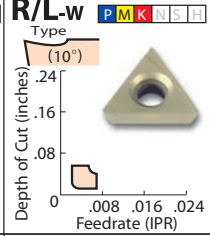
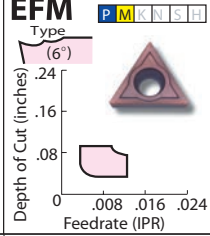


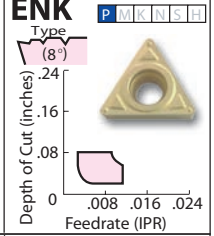
Finish - Light Cut

R/L-SD
Type (0°)


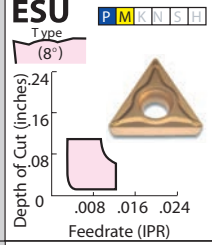
R/L-SDW
Type (0°)


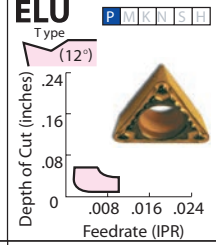
R/L-W
Type (10°)


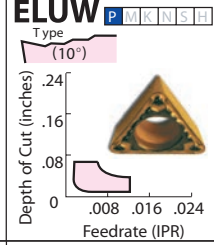
EFM
Type (6°)


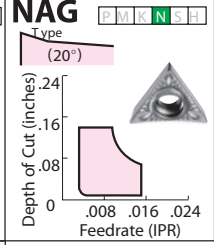
ENK
Type (8°)


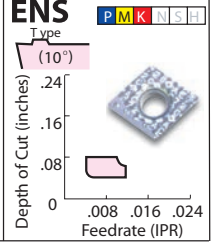
Light Cut

ESU
Type (8°)


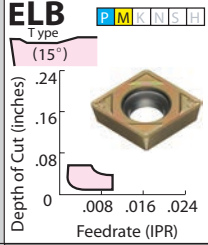
ELU
Type (12°)


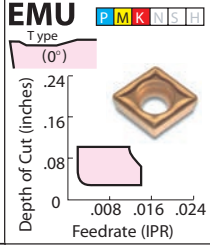
ELUW
Type (10°)


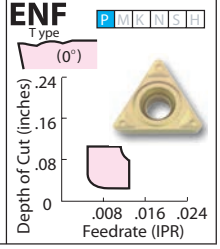
NAG
Type (20°)


ENS
Type (10°)


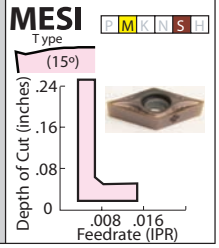
Light~Medium Cut

ELB
Type (15°)


EMU
Type (0°)


ENF
Type (0°)


Rough - Heavy Cut

MESI
Type (15º)


Steel

Application	High Speed			Medium		
ISO Classification	-	P05	P10	P20	P30 (M30)	P40 (M40)
COATED CARBIDE	AC810P					
		AC820P				
			AC8025P			
				AC830P		
COATED CERMET	T1500Z					
		T3000Z				
CERMET		T1500A				
CERAMIC						
CARBIDE					A30	

Cast Iron

High Speed	Finishing	Medium		
——	K01	K10	K20	K30
AC405K				
	AC415K			
		AC420K		
			AC820P	
SN2000K				
SN2100K				
		G10E		

Stainless Steels

Application	Finishing~Light Cut	Medium~Roughing
COATED CARBIDE	AC610M	
	AC6020M	
	AC630M	
	AC6030M	
	AC520U	
	AC6040M	
	AC530U	
CERMET	T1500A	

Exotic Materials

Application	Finishing~Light Cut	Medium
COATED CARBIDE	AC510U	
	AC520U	
	AC530U	
CARBIDE	EH510	
	EH520	
CERAMIC	SN1000S	
	WX1500	
	SN2000S	
	WX2500	
	WX2000	
CBN	BN7000	
	BNS800	

Ceramic Grades

For Turning	High-Speed	Finishing to Light		Medium	Rough to Heavy	
	—	01	10	20	30	40
K Cast Iron	SN2000K					
S Exotic Alloy	SN1000S					
		WX1500				
			SN2000S			
			WX2500			
			WX2000			
H Hardened Steel		NB150H				
			NB90S			

For Milling	High-Speed	Finishing to Light		Medium	Rough to Heavy	
	—	01	10	20	30	40
K Cast Iron	SN2100K					

CBN Grades

Class	Series	Finishing to Light		Medium	Rough to Heavy
H Hardened Steel	Classification	H01	H10	H20	H30
	Coated SUMIBORON	BNC2010		BNC2020	
		BNC100	BNC160		
			BNC200		BNC300
	Uncoated SUMIBORON	BNX10,BN1000	BN2000		
				BNX20	BNX25,BN350
Sintered Components	Classification	01	10	20	30
	Uncoated SUMIBORON			BN7000, BN700	
			BN7500		
K Cast Iron	Classification	K01	K10	K20	K30
	Coated SUMIBORON	BNC500			
	Uncoated SUMIBORON		BN7000,BN700		
			BN7500		
				BNS800	

SUMITOMO

CARBIDE - CBN - DIAMOND

1-800-950-5202

www.sumicarbide.com

INDEXABLE INSERTS

Pages 17-141

80° DIAMOND TYPE
NEGATIVE INSERT

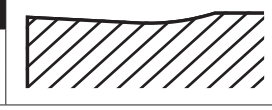
CN — 80° Diamond Type / Negative / With Insert Hole

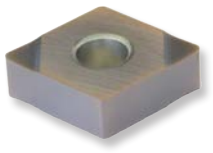
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

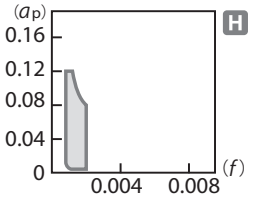
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

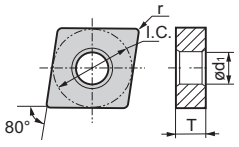
CNGG EGH

Rake Angle: 4°







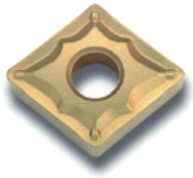


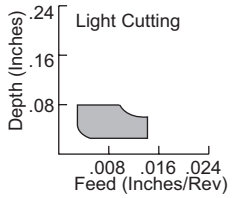
Cutting Conditions:	Coated	Cermet	Uncoated
Continuous Cut	●		
Medium Cut	●		
Interrupted Cut	●		

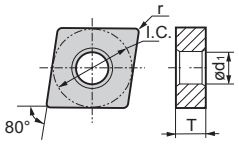
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC503U
CNGG430.5EGH	CNGG120402N-GH	.500	.1875	.0078	.2031	★
CNGG431EGH	CNGG120404N-GH			.0156		★
CNGG432EGH	CNGG120408N-GH			.0313		★

CNGG ESU

Rake Angle: 13°







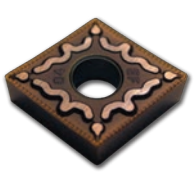
Cutting Conditions:	Coated		Cermet					Uncoated
Continuous Cut	●		●	●		●	●	●
Medium Cut	●	●	●	●	●	●	●	●
Interrupted Cut		●			●	●	●	

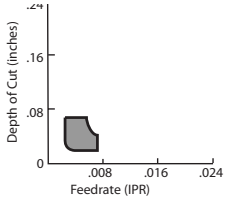
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A	H1
CNGG430ESU	CNGG120401N-SU	.500	.1875	.0039	.2031	●	●						
CNGG430.5ESU	CNGG120402N-SU			.0078		●	●	●	●	●	●	▲	
CNGG431ESUJ	CNGG120404N-SUJ			.0156									●
CNGG431ESU	CNGG120404N-SU			.0156		●	●	●	●	★	●		
CNGG432ESUJ	CNGG120408N-SUJ			.0313									●
CNGG432ESU	CNGG120408N-SU			.0313		●	●	●	●		★	▲	

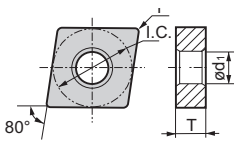
J in ESUJ = J Polish

CNGG EEF

Rake Angle: 20°







Cutting Conditions:	Coated		Cermet	Uncoated
Continuous Cut	●			
Medium Cut	●	●		
Interrupted Cut		●		

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC510U	AC520U
CNGG431EEF	CNGG1240404N-EF	.500	.1875	.0156	.2031	●	●

80° DIAMOND TYPE
NEGATIVE INSERT

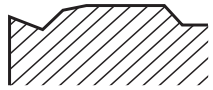
CN — 80° Diamond Type / Negative / With Insert Hole

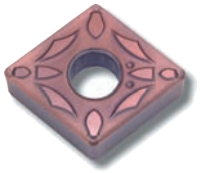
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

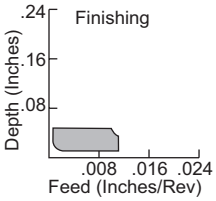
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

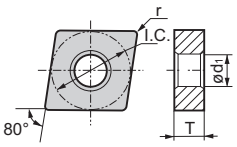
CNMG EFA

Rake Angle: 20°







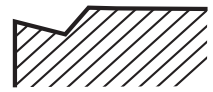


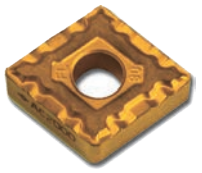
Cutting Conditions:	Coated			Cermet					Uncoated							
Continuous Cut				●	●		●	●								
Medium Cut				●	●	●	●	●								
Interrupted Cut						●	●	●								
				T1500Z	T2000Z	T3000Z	T1500A	T1200A								

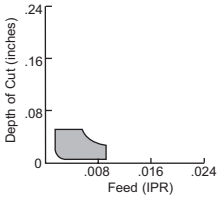
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG430.5EFA	CNMG120402N-FA	.500	.1875	.0078	.2031
CNMG431EFA	CNMG120404N-FA			.0156	
CNMG432EFA	CNMG120408N-FA			.0313	

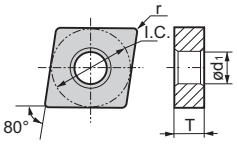
CNMG EFL

Rake Angle: 10°







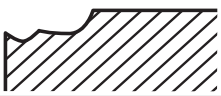


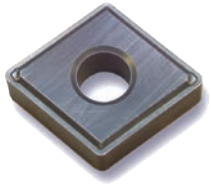
Cutting Conditions:	Coated				Cermet			Uncoated							
Continuous Cut	●	●	●		●	●									
Medium Cut	●	●	●		●	●	●								
Interrupted Cut	●	●	●				●								
	AC8025P	AC820P	YB100		T1500Z	T2000Z	T3000Z								

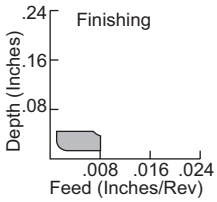
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG431EFL	CNMG120404N-FL	.500	.1875	.0156	.2031
CNMG432EFL	CNMG120408N-FL			.0313	

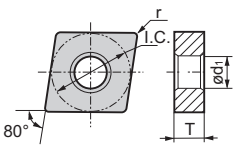
CNMG EFP

Rake Angle: 10°









Cutting Conditions:	Coated			Cermet					Uncoated							
Continuous Cut				●												
Medium Cut				●												
Interrupted Cut				●												
				T1200A												

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG430.5EFP	CNMG120402N-FP	.500	.1875	.0078	.2031
CNMG431EFP	CNMG120404N-FP			.0156	
CNMG432EFP	CNMG120408N-FP			.0313	

80° DIAMOND TYPE
NEGATIVE INSERT

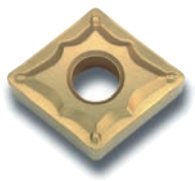
CN — 80° Diamond Type / Negative / With Insert Hole

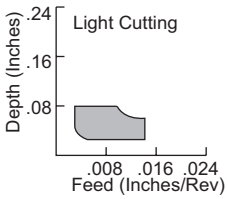
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

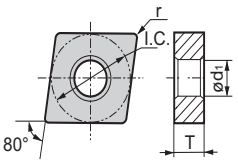
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMG ESU

Rake Angle: 13°







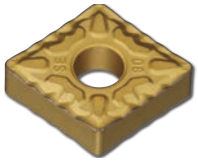
Cutting Conditions:	AC810P	AC820P	AC830P	AC700G	YB100	AC610M	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A	EH510
	Coated												Cermet					UC
Continuous Cut	○	○		○	○	○	○	○	○	○	○		○	○		○	○	○
Medium Cut	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Interrupted Cut		○	○	○	○		○	○	○	○		○			○	○	○	

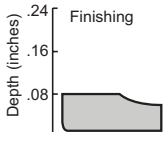
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG321ESU	CNMG090304N-SU	.375	.125	.0156	.150
CNMG322ESU	CNMG090308N-SU			.0313	
CNMG331ESU	CNMG090404N-SU		.1875	.0156	
CNMG332ESU	CNMG090408N-SU			.0313	
CNMG430.5ESU	CNMG120402N-SU	.500		.0078	.2031
CNMG431ESU	CNMG120404N-SU			.0156	
CNMG432ESU	CNMG120408N-SU			.0313	
CNMG433ESU	CNMG120412N-SU			.0469	

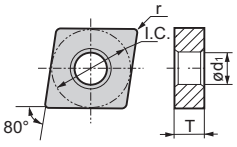
Sumitomo Catalog #	AC810P	AC820P	AC830P	AC700G	YB100	AC610M	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A	EH510
CNMG321ESU		★																
CNMG322ESU		★																
CNMG331ESU		★																
CNMG332ESU		★																
CNMG430.5ESU											●	●						
CNMG431ESU	●	●	●	●	●		●	●	●	★	●	●	●	●	●	●	▲	
CNMG432ESU	●	●	●	●	●	●	●	●	●	★	●	●	●	●	●	●	▲	●
CNMG433ESU	●	●	●	●			●	●	●	★		●	●	●	●	★	▲	

CNMG ESE

Rake Angle: 5°







Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	T1500A
	Coated				Cermet
Continuous Cut	○	○	○		○
Medium Cut	○	○	○	○	○
Interrupted Cut		○	○	○	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG431ESE	CNMG120404N-SE	.500	.1875	.0156	.2031
CNMG432ESE	CNMG120408N-SE			.0313	
CNMG433ESE	CNMG120412N-SE			.0469	

Sumitomo Catalog #	AC810P	AC8025P	AC820P	AC830P	T1500A
CNMG431ESE	●	●		★	●
CNMG432ESE	●	●	●	●	●
CNMG433ESE	●	●			

80° DIAMOND TYPE
NEGATIVE INSERT

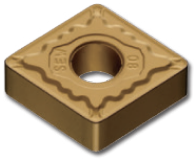
CN — 80° Diamond Type / Negative / With Insert Hole

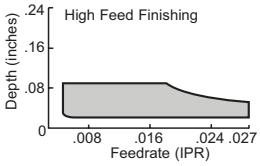
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

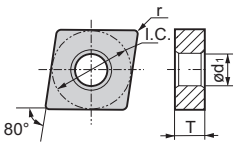
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMG ESEW
Wiper Insert

Rake Angle: 5°





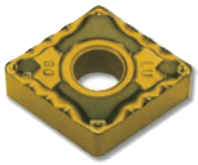


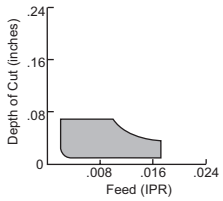
Cutting Conditions:	Coated					Cermet					Uncoated						
Continuous Cut	●	●	●	●		●											
Medium Cut		●	●	●		●											
Interrupted Cut			●	●		●											

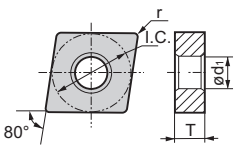
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC805P	AC810P	AC8025P	AC820P	T1500A
CNMG431ESEW	CNMG120404N-SEW	.500	.1875	.0156	.2031		●	●	●	●
CNMG432ESEW	CNMG120408N-SEW			.0313		●	●	●	●	●
CNMG433ESEW	CNMG120412N-SEW			.0469			●	●	●	

CNMG ELU

Rake Angle: 10°





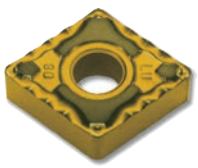


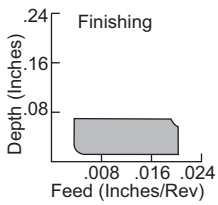
Cutting Conditions:	Coated					Cermet					Uncoated						
Continuous Cut	●	●	●	●	●	●	●		●	●							
Medium Cut	●	●	●	●	●	●	●	●	●	●							
Interrupted Cut		●	●	●	●			●	●	●							

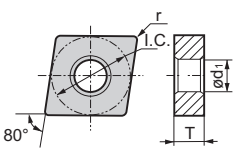
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	YB100	T1500Z	T2000Z	T3000Z	T1500A	T1200A
CNMG321ELU	CNMG090304N-LU	.375	.125	.0156	.150	●		★	★		★	★	★		
CNMG322ELU	CNMG090308N-LU			.0313		★		★	★		★	★	★		
CNMG431ELU	CNMG120404N-LU	.500	.1875	.0156	.2031	●	●	●	●		●	●	●	★	▲
CNMG432ELU	CNMG120408N-LU			.0313		●	●	●	●	●	●	●	●	★	▲
CNMG433ELU	CNMG120412N-LU			.0469		●		●			★	●	●	★	▲

CNMG ELUW
Wiper Insert

Rake Angle: 10°







Cutting Conditions:	Coated					Cermet					Uncoated						
Continuous Cut	●	●	●	●	●	●	●										
Medium Cut	●	●	●	●	●	●	●	●									
Interrupted Cut		●	●	●	●			●									

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	YB100	T1500Z	T2000Z	T3000Z
CNMG431ELUW	CNMG120404N-LUW	.500	.1875	.0156	.2031	●	●	●	●		●	●	●
CNMG432ELUW	CNMG120408N-LUW			.0313		●	●	●	●	●	●	●	●
CNMG433ELUW	CNMG120412N-LUW			.0469		●	●	●	●		●	●	★

80° DIAMOND TYPE
NEGATIVE INSERT

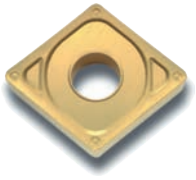
CN — 80° Diamond Type / Negative / With Insert Hole

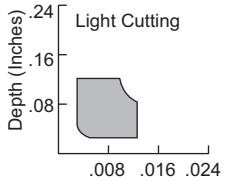
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

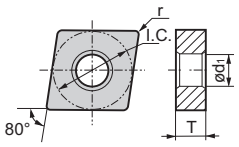
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMG ENK

Rake Angle: 10°





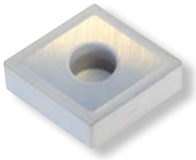


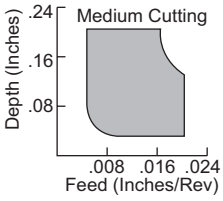
Cutting Conditions:	Coated				Cermet				Uncoated							
	AC820P				T1200A											
Continuous Cut	●				●											
Medium Cut	●				●											
Interrupted Cut	●				●											

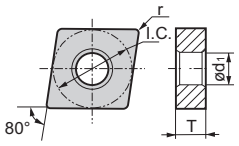
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG431ENK	CNMG120404N-SK	.500	.1875	.0156	.2031
CNMG432ENK	CNMG120408N-SK			.0313	

CNMG FNJ

Rake Angle: 0°





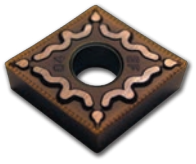


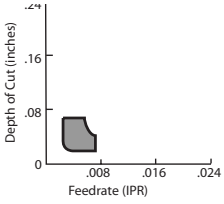
Cutting Conditions:	Coated				Cermet				Uncoated							
									G10E							
Continuous Cut									●							
Medium Cut																
Interrupted Cut																

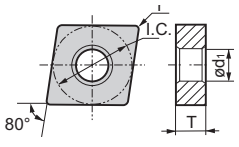
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG431FNJ	CNMG120404N-UJ	.500	.1875	.0156	.2031

CNMG EEF

Rake Angle: 20°







Cutting Conditions:	Coated						Cermet				Uncoated							
	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U					EH510	EH520						
Continuous Cut	○	○	○	○	●						●							
Medium Cut		○	○	○	●	●					●	●						
Interrupted Cut		○	○	○		●												

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG331EEF	CNMG090404N-EF	.375	.1875	.0156	.150
CNMG332EEF	CNMG090408N-EF			.0313	
CNMG431EEF	CNMG120404N-EF	.500		.0156	.2031
CNMG432EEF	CNMG120408N-EF			.0313	
CNMG433EEF	CNMG120412N-EF			.0469	

80° DIAMOND TYPE
NEGATIVE INSERT

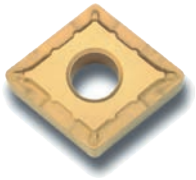
CN — 80° Diamond Type / Negative / With Insert Hole

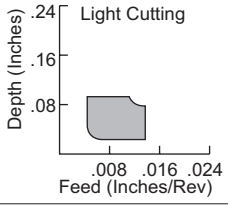
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

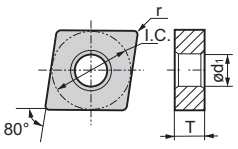
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMG ESX

Rake Angle: 3°





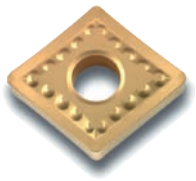


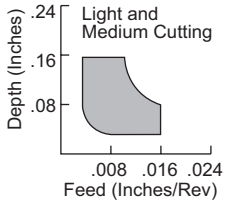
Cutting Conditions:	Coated										Cermet										Uncoated							
Continuous Cut	●	●	●		●	●	●		●	●																		
Medium Cut	●	●	●	●	●	●	●	●	●	●																		
Interrupted Cut		●	●	●	●			●	●	●																		

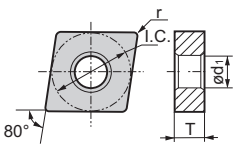
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	T1500Z	T2000Z	T3000Z	T1500A	T1200A
CNMG431ESX	CNMG120404N-SX	.500	.1875	.0156	.2031	●	●	●	●	●	●	●	★	★	▲
CNMG432ESX	CNMG120408N-SX			.0313		●	●	●	●	●	●	●	★	●	▲
CNMG433ESX	CNMG120412N-SX			.0469		●	●	●	●	●					

CNMG EUP

Rake Angle: 10°





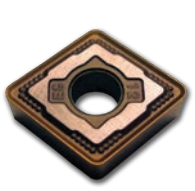


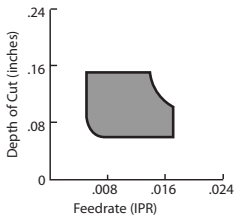
Cutting Conditions:	Coated										Uncoated						
Continuous Cut	●	●		●	●	●	●	●	●			●					
Medium Cut	●	●	●	●	●	●	●	●	●	●	●	●					
Interrupted Cut	●	●	●	●	●		●	●		●							

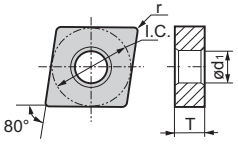
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC6030M	AC6040M	AC610M	AC630M	AC530U	AC510U	AC520U	G10E	EH510
CNMG431EUP	CNMG120404N-UP	.500	.1875	.0156	.2031	●	●	●	●	●		●	★	●	●	●	
CNMG432EUP	CNMG120408N-UP			.0313		●	●	●	●	●	●	●	★	●	●	●	●
CNMG433EUP	CNMG120412N-UP			.0469			●	●	●	●	●	●	★	●	●		
CNMG542EUP	CNMG160608N-UP	.625	.250	.0313	.250	●	●	●									
CNMG543EUP	CNMG160612N-UP			.0469		●	●	●									
CNMG643EUP	CNMG190612N-UP	.750		.0469	.3126		●	●								★	

CNMG EEG

Rake Angle: 0°







Cutting Conditions:	Coated							Cermet				Uncoated					
Continuous Cut	●	●	●	●	●	●	●					●					
Medium Cut	●		●	●	●	●	●		●			●	●				
Interrupted Cut	●		●	●		●			●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC510U	AC520U	EH510	EH520
CNMG332EEG	CNMG090408N-EG	.375	.1875	.0313	.150		○								
CNMG333EEG	CNMG090412N-EG			.0469			○								
CNMG431EEG	CNMG120404N-EG	.500		.0156	.2031	●	○								
CNMG432EEG	CNMG120408N-EG			.0313		●	○	●	●	●	●	●	●	●	●
CNMG433EEG	CNMG120412N-EG			.0469		●	○	●	●		●	●	●	●	●
CNMG543EEG	CNMG160612N-EG	.625	.250	.0469	.250		○								
CNMG544EEG	CNMG160616N-EG			.0625		●	○	●	●	●		●	●		
CNMG643EEG	CNMG190612N-EG	.750		.0469	.3126		○								
CNMG644EEG	CNMG190616N-EG			.0625		●	○	●	●	●	●	●	●		

80° DIAMOND TYPE
NEGATIVE INSERT

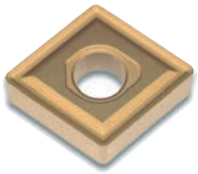
CN — 80° Diamond Type / Negative / With Insert Hole

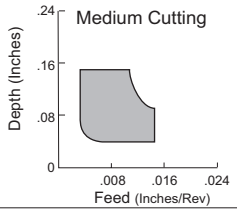
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

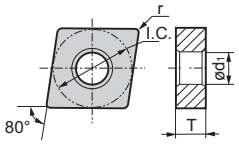
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMG EEX

Rake Angle: 16°





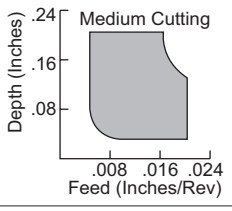


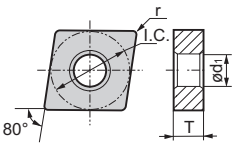
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG431EEX	CNMG120404N-EX	.500	.1875	.0156	.2031
CNMG432EEX	CNMG120408N-EX			.0313	
CNMG433EEX	CNMG120412N-EX			.0469	
CNMG543EEX	CNMG160612N-EX	.625	.250	.0469	.250
CNMG643EEX	CNMG190612N-EX	.750		.0469	.3126

Cutting Conditions:	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC530U	AC510U	AC520U	EH510	EH520
Continuous Cut	○	●	●	●	●	★	●	●	●	●
Medium Cut	○	●	●	●	●	★	●	●		●
Interrupted Cut	○	●	●	●	●	★	●	●		
			●			●	●	●		
							●	●		

CNMG EGU

Rake Angle: 7°





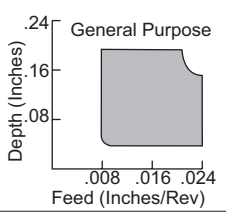
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG322EGU	CNMG090308N-GU	.375	.125	.0313	.150
CNMG431EGU	CNMG120404N-GU	.500	.1875	.0156	.2031
CNMG432EGU	CNMG120408N-GU			.0313	
CNMG433EGU	CNMG120412N-GU			.0469	
CNMG434EGU	CNMG120416N-GU			.0625	
CNMG542EGU	CNMG160608N-GU	.625	.250	.0313	.250
CNMG543EGU	CNMG160612N-GU			.0469	
CNMG544EGU	CNMG160616N-GU			.0625	

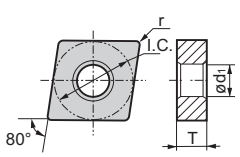
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC610M	AC6020M	AC6030M	AC6040M	AC630M	AC530U	T1500A	T1200A
Continuous Cut	●	●	★	★	●	●	●	○	●	●	●	★	★	▲
Medium Cut	●	●	●	●	●	●	●	○	●	●	●	●	●	▲
Interrupted Cut	●	●	●	●	●	●	●	○	●	●	●	★		▲
			●	●	●									
	★	●	●	●					★	★				
	●	●	●	●	●	●			★	★				
	●		●	●	●				★	★				

CNMG EGUW

Wiper Insert

Rake Angle: 0°





Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CNMG432EGUW	CNMG120408N-GUW	.500	.1875	.0313	.2031
CNMG433EGUW	CNMG120412N-GUW			.0469	
CNMG543EGUW	CNMG160612N-GUW	.625	.250	.0469	.250

Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC6030M	AC630M	AC405K	AC410K	AC415K
Continuous Cut	●	●	●	●	●	●	●	●	●	▲	●
Medium Cut	●	●	●		●	●	●	●	●	▲	●
Interrupted Cut	●	●	●	●							

80° DIAMOND TYPE
NEGATIVE INSERT

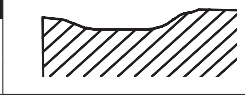
CN — 80° Diamond Type / Negative / With Insert Hole

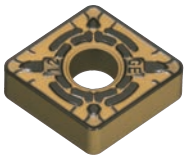
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

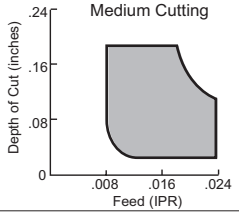
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

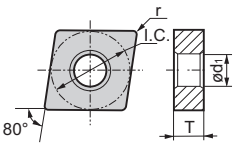
CNMG EGE

Rake Angle: 3°







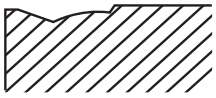


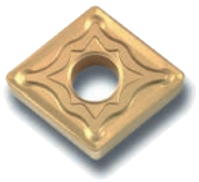
Cutting Conditions:	AC805P	AC810P	AC8025P	AC820P	AC830P	AC700G
Continuous Cut	○	○	○	○		○
Medium Cut		○	○	○	○	○
Interrupted Cut		○	○	○	○	○

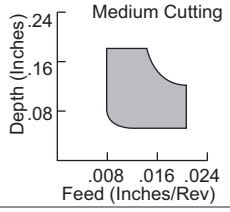
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC805P	AC810P	AC8025P	AC820P	AC830P	AC700G
CNMG431EGE	CNMG120404N-GE	.500	.1875	.0156	.2031		★	●	●	●	
CNMG432EGE	CNMG120408N-GE			.0313		●	●	●	●	●	●
CNMG433EGE	CNMG120412N-GE			.0469		●	●	●	●	●	●
CNMG434EGE	CNMG120416N-GE			.0625			★	●	●	●	
CNMG543EGE	CNMG160612N-GE	.625	.250	.0469	.250		●	●	●	●	●
CNMG544EGE	CNMG160616N-GE			.0625			●		●	●	●
CNMG643EGE	CNMG190612N-GE	.750		.0469	.3126		●	●	●	●	
CNMG644EGE	CNMG190616N-GE			.0625			●	●	●	●	

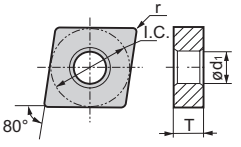
CNMG EUX

Rake Angle: 0°









Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC410K	T1200A
Continuous Cut	○	○	○		○	○	○	○
Medium Cut	○	○	○	○	○	○	○	○
Interrupted Cut		○	○	○	○	○		○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC410K	T1200A
CNMG322EUX	CNMG090308N-UX	.375	.125	.0313	.150				●				
CNMG431EUX	CNMG120404N-UX	.500	.1875	.0156	.2031	●	●	●	●	●			
CNMG432EUX	CNMG120408N-UX			.0313		●	●	●	●	●	●	▲	▲
CNMG433EUX	CNMG120412N-UX			.0469		●	●	●	●	●	●		
CNMG434EUX	CNMG120416N-UX			.0625		●	●	●	●	●			
CNMG542EUX	CNMG160608N-UX	.625	.250	.0313	.250	●	●	●	●	★			
CNMG543EUX	CNMG160612N-UX			.0469		●	●	●	●	●	●	▲	
CNMG544EUX	CNMG160616N-UX			.0625		●	●	●	●	●		▲	
CNMG642EUX	CNMG190608N-UX	.750	.250	.0313	.3126	●		●	●	●			
CNMG643EUX	CNMG190612N-UX			.0469		●	●	●	●	●	●		
CNMG644EUX	CNMG190616N-UX			.0625		●		●	●	●			

80° DIAMOND TYPE
NEGATIVE INSERT

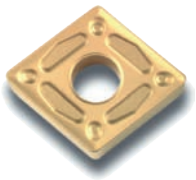
CN — 80° Diamond Type / Negative / With Insert Hole

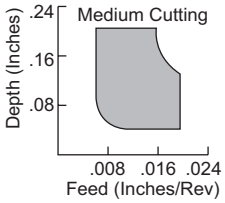
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

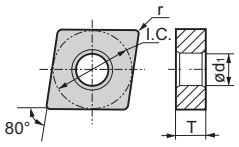
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMG ENG

Rake Angle: 4°





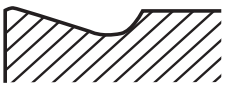


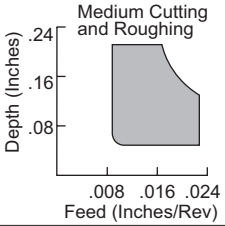
Cutting Conditions:	Coated								Cermet							
Continuous Cut	●	●		●					●							
Medium Cut	●	●	●	●					●							
Interrupted Cut	●	●	●	●					●							

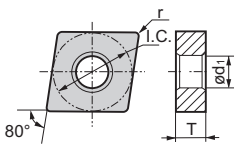
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G	T1200A
CNMG321ENG	CNMG090304N-UG	.375	.125	.0156	.150		★			
CNMG322ENG	CNMG090308N-UG			.0313		●	●			
CNMG431ENG	CNMG120404N-UG	.500	.1875	.0156	.2031	●	●	●	●	
CNMG432ENG	CNMG120408N-UG			.0313		●	●	●	●	▲
CNMG433ENG	CNMG120412N-UG			.0469		●	●	●	●	▲
CNMG434ENG	CNMG120416N-UG			.0625			★	★		
CNMG542ENG	CNMG160608N-UG	.625	.250	.0313	.250	●	●	●		
CNMG543ENG	CNMG160612N-UG			.0469		●	●	●		
CNMG544ENG	CNMG160616N-UG			.0625				★		
CNMG642ENG	CNMG190608N-UG	.750	.250	.0313	.3126	●	●	●		
CNMG643ENG	CNMG190612N-UG			.0469		●	●	●		
CNMG644ENG	CNMG190616N-UG			.0625		●	●	★		

CNMG FNZ/ENZ

Rake Angle: 4°







Cutting Conditions:	Coated								Uncoated							
Continuous Cut	●	●		●	●	●	●									
Medium Cut	●	●	●	●		●	●	●	●							
Interrupted Cut	●	●	●	●				●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G	AC405K	AC410K	AC415K	AC420K	G10E
CNMG431ENZ	CNMG120404N-UZ	.500	.1875	.0156	.2031								●	
CNMG432ENZ	CNMG120408N-UZ			.0313		●	●	●	●	●	▲	●	●	
CNMG433ENZ	CNMG120412N-UZ			.0469		●	●	●	●	●	▲	●	●	
CNMG434ENZ	CNMG120416N-UZ			.0625			●	●	●	●		●	●	
CNMG542ENZ	CNMG160608N-UZ	.625	.250	.0313	.250	●	●	●						
CNMG543ENZ	CNMG160612N-UZ			.0469		●	●	●	●	●		●	●	
CNMG544ENZ	CNMG160616N-UZ			.0625			●	●		●	▲	●	●	
CNMG642ENZ	CNMG190608N-UZ	.750		.0313	.3126	●	●	●						
CNMG643ENZ	CNMG190612N-UZ			.0469		●	●	●	●	●		●	●	
CNMG644ENZ	CNMG190616N-UZ			.0625		●	●	★		●	●		●	
CNMG432FNU	CNMG120408N-NU	.500	.1875	.0313	.2031									●
CNMG432FNZ	CNMG120408N-UZ			.0313										●

80° DIAMOND TYPE
NEGATIVE INSERT

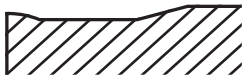
CN — 80° Diamond Type / Negative / With Insert Hole

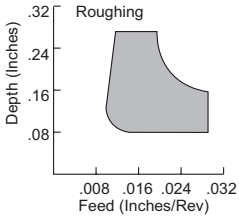
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

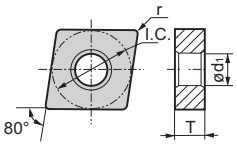
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMG EEM

Rake Angle: 0°





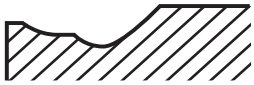


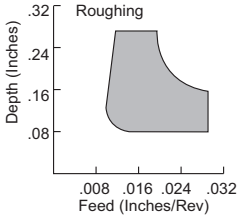
Cutting Conditions:	Coated													Uncoated			
Continuous Cut	●	○	●	●	●												
Medium Cut	●		○	○	●	●											
Interrupted Cut	●		○	○		●											

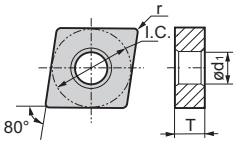
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6020M	AC6030M	AC6040M	AC510U	AC520U
CNMG432EEM	CNMG120408N-EM	.500	.1875	.0313	.2031	●	○	●	●	●	●
CNMG433EEM	CNMG120412N-EM			.0469		●	○	●	●	●	●
CNMG434EEM	CNMG120416N-EM			.0625			○	●			
CNMG542EEM	CNMG160608N-EM	.625	.250	.0313	.250		○	●	●		
CNMG543EEM	CNMG160612N-EM			.0469		●	○	●	●	●	●
CNMG544EEM	CNMG160616N-EM			.0625			○	●	●	●	●
CNMG643EEM	CNMG190612N-EM	.750	.250	.0469	.3126	●	○	●	●	●	●
CNMG644EEM	CNMG190616N-EM			.0625			○	●	●	●	●
CNMG646EEM	CNMG190624N-EM			.0938			○				
CNMG866EEM	CNMG250724N-EM	1.000	.3125	.0938	.3622			●	●		●

CNMG EMU

Rake Angle: 4°







Cutting Conditions:	Coated															Uncoated			
Continuous Cut	●	●	●		●	●	●	●	●	●	●	●	●						
Medium Cut	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Interrupted Cut		●	●	●	●	●		●	●	●	●				●				

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC610M	AC6030M	AC6040M	AC630M	AC530U	AC410K	AC510U	AC520U	EH510	EH520
CNMG432EMU	CNMG120408N-MU	.500	.1875	.0313	.2031	●	●	●	●	●	●	●	●	●	●	●	▲	●	●	★	●
CNMG433EMU	CNMG120412N-MU			.0469		●	●	●	●	●	●	●	●	●	●	●	▲	●	●	★	●
CNMG434EMU	CNMG120416N-MU			.0625		●	●	●	●	●			●	●	●	●					
CNMG542EMU	CNMG160608N-MU	.625	.250	.0313	.250	●	●	●	●	●	●							●	●		
CNMG543EMU	CNMG160612N-MU			.0469		●	●	●	●	●	●		●		●			●	●		
CNMG544EMU	CNMG160616N-MU			.0625		●	●	●	●	●	▲		●		●			●	●		
CNMG642EMU	CNMG190608N-MU	.750	.250	.0313	.3126	●			●										●		
CNMG643EMU	CNMG190612N-MU			.0469		●	●	●	●	●	●		●		●			●	●		
CNMG644EMU	CNMG190616N-MU			.0625		●	●	●	●	●			●		●			●	●		●
CNMG866EMU	CNMG250924N-MU	1.000	.3125	.0938	.3622	●	●	●	●												

80° DIAMOND TYPE
NEGATIVE INSERT

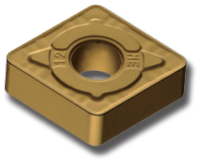
CN — 80° Diamond Type / Negative / With Insert Hole

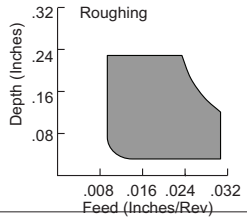
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

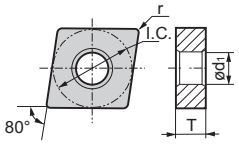
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMG EME

Rake Angle: 4°





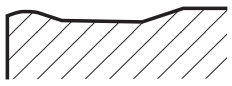


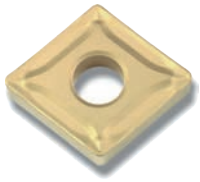
Cutting Conditions:	Coated													Uncoated			
	AC805P	AC810P	AC8025P	AC820P	AC830P												
Continuous Cut	○	○	○	○													
Medium Cut		○	○	○	○												
Interrupted Cut			○	○	○												

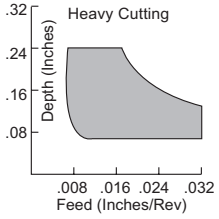
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC805P	AC810P	AC8025P	AC820P	AC830P
CNMG432EME	CNMG120408N-ME	.500	.1875	.0313	.2031		●	●	●	●
CNMG433EME	CNMG120412N-ME			.0469		●	●	●	●	●
CNMG434EME	CNMG120416N-ME			.0625			●	●	●	●
CNMG542EME	CNMG160608N-ME	.625	.250	.0313	.250		●	●	●	●
CNMG543EME	CNMG160612N-ME			.0469		●	●	●	●	●
CNMG544EME	CNMG160616N-ME			.0625		●	●	●	●	●
CNMG643EME	CNMG190612N-ME	.750		.0469	.3126		●	●	●	●
CNMG644EME	CNMG190616N-ME			.0625			●	●	●	●
CNMG866EME	CNMG250924N-ME	1.000	.3125	.0938	.3622		●	●	●	●

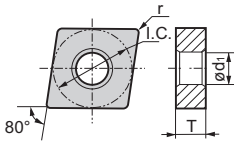
CNMG EMX

Rake Angle: -15°









Cutting Conditions:	Coated					Uncoated
	AC810P	AC8025P	AC820P	AC830P	YB100	
Continuous Cut	○	○	○		○	
Medium Cut	○	○	○	○	○	
Interrupted Cut		○	○	○	○	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	YB100
CNMG432EMX	CNMG120408N-MX	.500	.1875	.0313	.2031		●	●	●	
CNMG433EMX	CNMG120412N-MX			.0469			●	●	●	
CNMG434EMX	CNMG120416N-MX			.0625			●	●		
CNMG542EMX	CNMG160608N-MX	.625	.250	.0313	.250		●	●	●	
CNMG543EMX	CNMG160612N-MX			.0469			●	●	●	
CNMG544EMX	CNMG160616N-MX			.0625			●	●	●	
CNMG643EMX	CNMG190612N-MX	.750		.0469	.3126	●	●	●	●	●
CNMG644EMX	CNMG190616N-MX			.0625		●	●	●	●	

80° DIAMOND TYPE
NEGATIVE INSERT

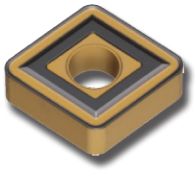
CN — 80° Diamond Type / Negative / With Insert Hole

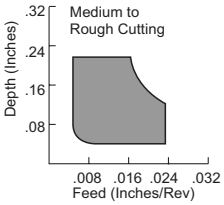
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

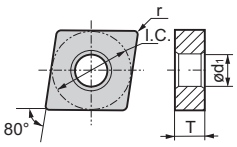
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMG EGZ

Rake Angle: 0°





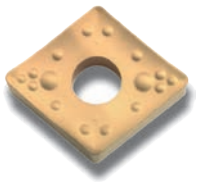


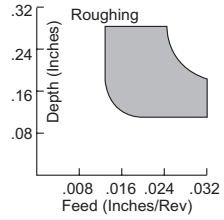
Cutting Conditions:	Coated			Uncoated
Continuous Cut	●	●		
Medium Cut		●	●	
Interrupted Cut			●	

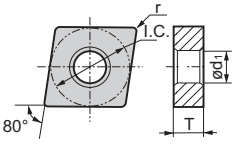
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC405K	AC415K	AC420K
CNMG431EGZ	CNMG120404N-GZ	.500	.1875	.0156	.2031	●	●	●
CNMG432EGZ	CNMG120408N-GZ			.0313		●	●	●
CNMG433EGZ	CNMG120412N-GZ			.0469		●	●	●
CNMG434EGZ	CNMG120416N-GZ			.0625			●	●
CNMG542EGZ	CNMG160608N-GZ	.625	.250	.0313	.250			●
CNMG543EGZ	CNMG160612N-GZ			.0469		★	●	
CNMG544EGZ	CNMG160616N-GZ			.0625		●	●	●

CNMM ENP

Rake Angle: 0°







Cutting Conditions:	Coated		Uncoated
Continuous Cut	●		
Medium Cut	●	●	
Interrupted Cut	●	●	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC820P	AC830P
CNMM646ENP	CNMM190624N-MP	.750	.250	.0938	.3126	★	●

80° DIAMOND TYPE
NEGATIVE INSERT

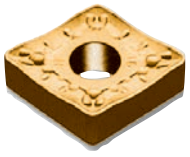
CN — 80° Diamond Type / Negative / With Insert Hole

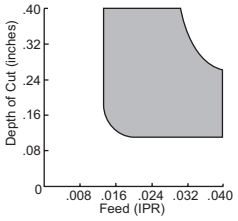
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

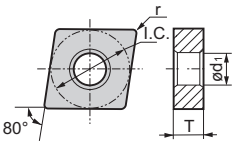
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CNMM EHG

Rake Angle: 0°





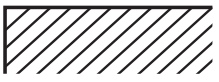


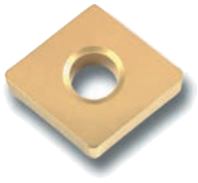
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G
Continuous Cut	●	●	●		●
Medium Cut	●	●	●	●	●
Interrupted Cut		●	●	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G
CNMM432EHG	CNMM120408N-HG	.500	.1875	.0313	.2031	★	●	●	●	★
CNMM433EHG	CNMM120412N-HG			.0469		★	●	●	●	
CNMM543EHG	CNMM160612N-HG	.625	.250	.0469	.250	★		●	●	
CNMM544EHG	CNMM160616N-HG			.0625		★		●	●	
CNMM643EHG	CNMM190612N-HG	.750		.0469	.3126	★	●	●	●	
CNMM644EHG	CNMM190616N-HG			.0625		★		●	●	●
CNMM646EHG	CNMM190624N-HG			.0938		★		★	●	

CNMA —

No Breaker





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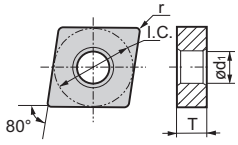


Cutting Conditions:	AC700G	YB100	AC405K	AC410K	AC415K	AC420K
Continuous Cut	●		●	▲	●	●
Medium Cut	●	●	●	▲	●	●
Interrupted Cut	●		●	▲	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	YB100	AC405K	AC410K	AC415K	AC420K
CNMA431	CNMA120404	.500	.1875	.0156	.2031	●		●	▲	●	●
CNMA432	CNMA120408			.0313		●	●	●	▲	●	●
CNMA433	CNMA120412			.0469		●		●	▲	●	●
CNMA434	CNMA120416			.0625		●		●	▲	●	●
CNMA543	CNMA160612	.625	.250	.0469	.250	●		●	▲	●	●
CNMA544	CNMA160616			.0625				●	▲	●	●
CNMA643	CNMA190612	.750		.0469	.3126	●		●		●	●
CNMA644	CNMA190616			.0625		●		●	▲	●	●

55° DIAMOND TYPE
NEGATIVE INSERT

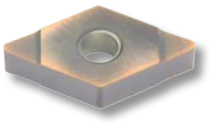
DN — 55° Diamond Type / Negative / With Insert Hole

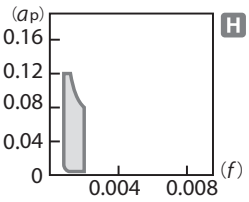
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

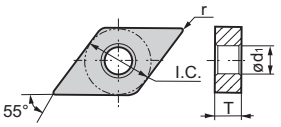
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DNGG EGH

Rake Angle: 4°





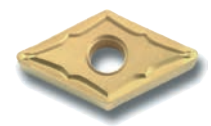


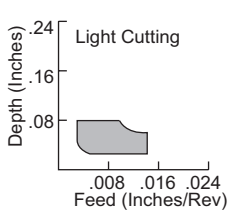
Cutting Conditions:	Coated	Cermet	Uncoated
	AC503U		
Continuous Cut	●		
Medium Cut	●		
Interrupted Cut	●		

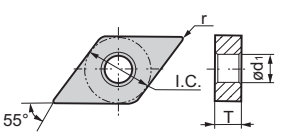
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC503U
DNGG430.5EGH	DNGG150402N-GH	.500	.1875	.0078	.2031	★
DNGG431EGH	DNGG150404N-GH			.0156		★
DNGG432EGH	DNGG120408N-GH			.0313		★

DNGG ESU

Rake Angle: 13°







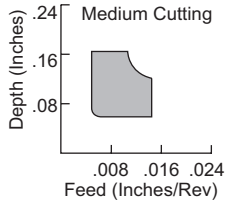
Cutting Conditions:	Coated				Cermet				Uncoated			
	AC520U				T1500A	T1500Z	T2000Z	T3000Z	H1			
Continuous Cut					●	●	●		●			
Medium Cut	●				●	●	●	●	●			
Interrupted Cut	●				●			●				

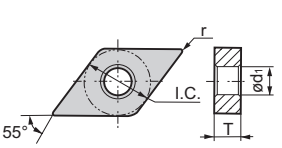
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC520U	T1500A	T1500Z	T2000Z	T3000Z	H1
DNGG430ESU	DNGG150401N-SU	.500	.1875	.0039	.2031	●					
DNGG430.5ESU	DNGG150402N-SU			.0078		●	●	●	●	●	
DNGG430.5ESUJ	DNGG150402N-SUJ			.0078							●
DNGG431ESU	DNGG150404N-SU			.0156		●	●	●	●	★	
DNGG431ESUJ	DNGG150404N-SUJ			.0156							●
DNGG432ESU	DNGG150408N-SU			.0313		●	●	●	●	★	
DNGG432ESUJ	DNGG150408N-SUJ			.0313							●

J in ESUJ = J Polish

DNJG UM

Rake Angle: 14°





Cutting Conditions:	Coated				Cermet				Uncoated			
					T1500A	T1200A						
Continuous Cut					●	●						
Medium Cut					●	●						
Interrupted Cut					●	●						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500A	T1200A
DNJG431L	DNGG150404L-UM	.500	.1875	.0156	.2031	●	▲
DNJG431R	DNGG150404R-UM			.0156		●	▲
DNJG432L	DNGG150408L-UM			.0313		●	▲
DNJG432R	DNGG150408R-UM			.0313		●	▲

55° DIAMOND TYPE
NEGATIVE INSERT

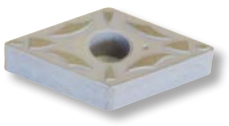
DN — 55° Diamond Type / Negative / With Insert Hole

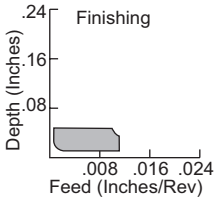
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

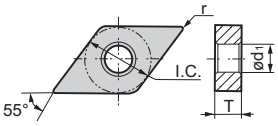
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DNMG EFA

Rake Angle: 20°







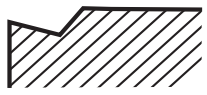
Cutting Conditions:	Coated					Cermet					Uncoated				
						T1500Z	T2000Z	T3000Z	T1500A	T1200A					
Continuous Cut						●	●		●	●					
Medium Cut						●	●	●	●	●					
Interrupted Cut								●	●	●					

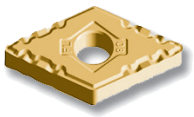
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DNMG431EFA	DNMG150404N-FA	.500	.1875	.0156	.2031
DNMG432EFA	DNMG150408N-FA			.0313	
DNMG441EFA	DNMG150604N-FA		.250	.0156	
DNMG442EFA	DNMG150608N-FA			.0313	

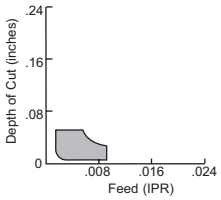
DNMG431EFA	DNMG150404N-FA	.500	.1875	.0156	.2031	●	●	★	●	●						
DNMG432EFA	DNMG150408N-FA			.0313		●	●	★	●	●						
DNMG441EFA	DNMG150604N-FA		.250	.0156			★									
DNMG442EFA	DNMG150608N-FA			.0313						★						

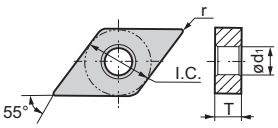
DNMG EFL

Rake Angle: 10°









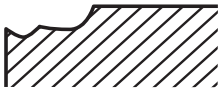
Cutting Conditions:	Coated					Cermet					Uncoated				
	AC810P	AC8025P	AC820P	YB100		T1500Z	T2000Z	T3000Z							
Continuous Cut	●	●	●	●		●	●								
Medium Cut	●	●	●	●		●	●	●							
Interrupted Cut		●	●	●				●							

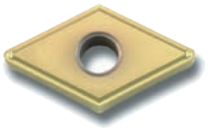
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DNMG431EFL	DNMG150404N-FL	.500	.1875	.0156	.2031
DNMG432EFL	DNMG150408N-FL			.0313	
DNMG433EFL	DNMG150412N-FL			0469	

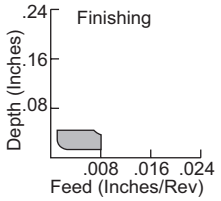
DNMG431EFL	DNMG150404N-FL	.500	.1875	.0156	.2031	●	●	●	●	●	●	★				
DNMG432EFL	DNMG150408N-FL			.0313		●	●	●	●	●	●	●				
DNMG433EFL	DNMG150412N-FL			0469				●								

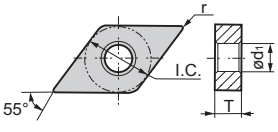
DNMG EFP

Rake Angle: 10°









Cutting Conditions:	Coated					Cermet					Uncoated				
						T1200A									
Continuous Cut						●									
Medium Cut						●									
Interrupted Cut						●									

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DNMG431EFP	DNMG150404N-FP	.500	.1875	.0156	.2031
DNMG432EFP	DNMG120408N-FP			.0313	

DNMG431EFP	DNMG150404N-FP	.500	.1875	.0156	.2031	▲										
DNMG432EFP	DNMG120408N-FP			.0313		▲										

55° DIAMOND TYPE
NEGATIVE INSERT

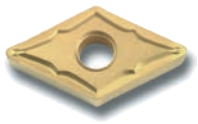
DN — 55° Diamond Type / Negative / With Insert Hole

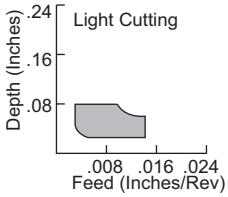
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

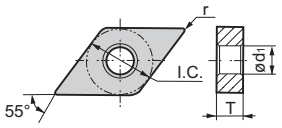
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DNMG ESU

Rake Angle: 13°





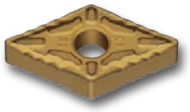


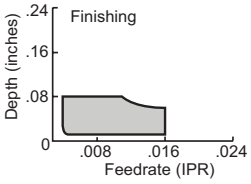
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC610M	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A	EH510
	Coated													Cermet					UC
Continuous Cut	○	○	○		○	○	○	○	○	○	○	○		○	○		○	○	○
Medium Cut	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Interrupted Cut		○	○	○	○	○		○	○	○	○		○			○	○	○	

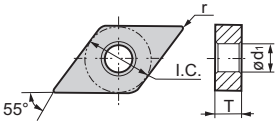
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC610M	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A	EH510
DNMG331ESU	DNMG090404N-SU	.375	.1875	.0156	.150		●				●											★		
DNMG332ESU	DNMG090408N-SU			.0313		●	●				●		●	●										
DNMG333ESU	DNMG090412N-SU			.0469			●																	
DNMG431ESU	DNMG150404N-SU	.500		.0156	.2031	●	●	●	●	●			●	●	●	★	●	●	●	●	●	●	▲	
DNMG432ESU	DNMG150408N-SU			.0313		●	●	●	●	●	●	●	●	●	●	★	●	●	●	●	●	●	▲	●
DNMG433ESU	DNMG150412N-SU			.0469		●	●	●	●	●	●				●		●	●	●	●	●	●	▲	
DNMG441ESU	DNMG150604N-SU		.250	.0156																★			▲	
DNMG442ESU	DNMG150608N-SU			.0313																			▲	

DNMG ESE

Rake Angle: 13°







Cutting Conditions:	AC805P	AC810P	AC8025P	AC820P	T1500A
	Coated				Cermet
Continuous Cut	○	○	○	○	○
Medium Cut		○	○	○	○
Interrupted Cut			○	○	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC805P	AC810P	AC8025P	AC820P	T1500A
DNMG332ESE	DNMG090408N-SE	.375	.1875	.0313	.150		●	●	●	
DNMG431ESE	DNMG150404N-SE	.500		.0156	.2031		●			●
DNMG432ESE	DNMG150408N-SE			.0313		●	●	●	●	●
DNMG433ESE	DNMG150412N-SE			.0469		●	●	●	●	●

55° DIAMOND TYPE
NEGATIVE INSERT

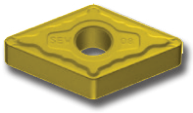
DN — 55° Diamond Type / Negative / With Insert Hole

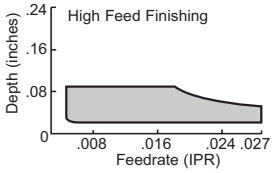
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

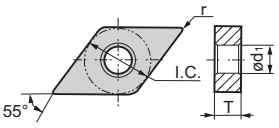
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DNMX ESEW
Wiper Insert

Rake Angle: 13°





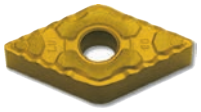


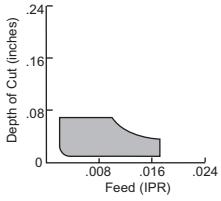
Cutting Conditions:	AC805P	AC810P	AC8025P	AC820P	AC830P	T1500Z	T2000Z	T1500A
Continuous Cut	●	●	●	●		●	●	●
Medium Cut		●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●			●

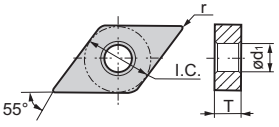
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC805P	AC810P	AC8025P	AC820P	AC830P	T1500Z	T2000Z	T1500A
DNMX331ESEW	DNMX110404N-SEW	.375	.1875	.0156	.150		★		★	★			
DNMX332ESEW	DNMX110408N-SEW			.0313			●	●	●	●			
DNMX333ESEW	DNMX110412N-SEW			.0469			★		★	★			
DNMX431ESEW	DNMX150404N-SEW	.500	.1875	.0156	.2031		●				●		
DNMX432ESEW	DNMX150408N-SEW			.0313			●	●	●		●	●	●
DNMX433ESEW	DNMX150412N-SEW			.0469		●	●		●				

DNMG ELU

Rake Angle: 10°







Cutting Conditions:	AC810P	AC8025P	AC820P	AC700G	T1500Z	T2000Z	T3000Z	T1500A	T1200A
Continuous Cut	●	●	●	●	●	●		●	●
Medium Cut	●	●	●	●	●	●	●	●	●
Interrupted Cut		●	●	●			●	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	T1500Z	T2000Z	T3000Z	T1500A	T1200A
DNMG331ELU	DNMG110404N-LU	.375	.1875	.0156	.150		●						★	
DNMG332ELU	DNMG110408N-LU			.0313			●							
DNMG431ELU	DNMG150404N-LU	.500		.0156	.2031	●	●	●	●	●	●	●	●	▲
DNMG432ELU	DNMG150408N-LU			.0313		●	●	●	●	●	●	●	●	▲
DNMG433ELU	DNMG150412N-LU			.0469		●		●	●	●	●	●	★	▲

55° DIAMOND TYPE
NEGATIVE INSERT

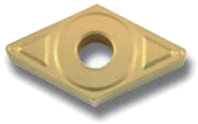
DN — 55° Diamond Type / Negative / With Insert Hole

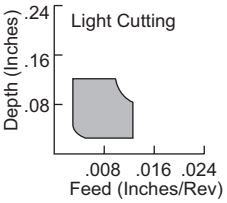
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

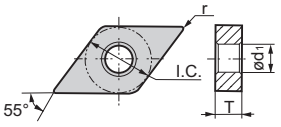
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DNMG ENK

Rake Angle: 10°





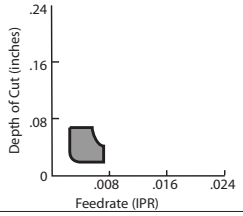


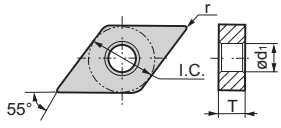
Cutting Conditions:	Coated						Cermet						Uncoated					
	AC820P						T1200A											
Continuous Cut	●						●											
Medium Cut	●						●											
Interrupted Cut	●						●											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC820P	T1200A
DNMG431ENK	DNMG150404N-SK	.500	.1875	.0156	.2031	●	▲
DNMG432ENK	DNMG150408N-SK			.0313		●	▲
DNMG441ENK	DNMG150604N-SK		.250	.0156		●	
DNMG442ENK	DNMG150608N-SK			.0313		●	

DNMG EEF

Rake Angle: 20°



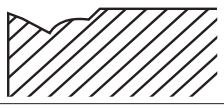


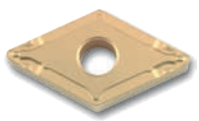
Cutting Conditions:	Coated						Cermet						Uncoated					
	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U							EH510	EH520				
Continuous Cut	○	○	○	○	○								○					
Medium Cut		○	○	○	○	○							○	○				
Interrupted Cut		○	○	○		○												

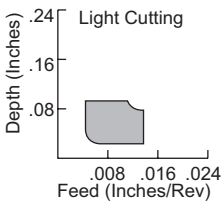
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	EH510	EH520
DNMG331EEF	DNMG110404N-EF	.375	.1875	.0156	.150	○	○						
DNMG332EEF	DNMG110408N-EF			.0313		○	○						
DNMG333EEF	DNMG110412N-EF			.0469		○	○						
DNMG431EEF	DNMG150404N-EF	.500		.0156	.2031	○	○	●	●	●	●	●	●
DNMG432EEF	DNMG150408N-EF			.0313		○	●	●	●	●	●	●	●
DNMG433EEF	DNMG150412N-EF			.0469		○	●	●	●	●	●		

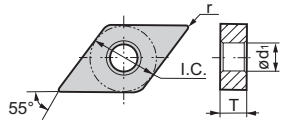
DNMG ESX

Rake Angle: 3°









Cutting Conditions:	Coated						Cermet						Uncoated					
	AC810P	AC820P	AC830P	AC700G	YB100		T1500Z	T2000Z	T3000Z	T1500A	T1200A							
Continuous Cut	●	●	●	●	●		●	●	★	●	●							
Medium Cut	●	●	●	●	▲		●	●	★	★	●							
Interrupted Cut	●	●	●	●	▲													

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC820P	AC830P	AC700G	YB100	T1500Z	T2000Z	T3000Z	T1500A	T1200A
DNMG431 ESX	DNMG150404N-SX	.500	.1875	.0156	.2031	●	●	●	●		●	●	★	●	●
DNMG432 ESX	DNMG150408N-SX			.0313		●	●	●	●	▲	●	●	★	★	●
DNMG433 ESX	DNMG150412N-SX			.0469		●	●	●	●	▲					

55° DIAMOND TYPE
NEGATIVE INSERT

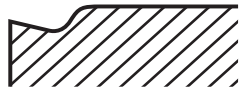
DN — 55° Diamond Type / Negative / With Insert Hole

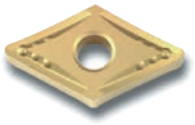
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

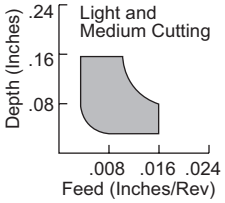
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

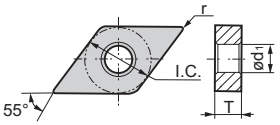
DNMG EUP

Rake Angle: 10°







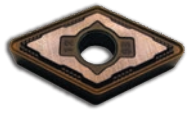


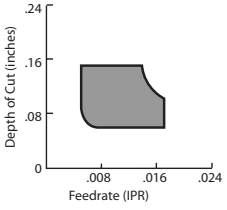
Cutting Conditions:	Coated											Uncoated					
	AC6040M	AC8025P	AC820P	AC830P	AC530U	AC510U	AC520U					G10E	EH510				
Continuous Cut	●	●	●		●	●							●				
Medium Cut	●	●	●	●	●	●	●					●	●				
Interrupted Cut	●	●	●	●	●		●										

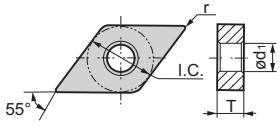
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6040M	AC8025P	AC820P	AC830P	AC530U	AC510U	AC520U	G10E	EH510
DNMG431EUP	DNMG150404N-UP	.500	.1875	.0156	.2031	●	●	●	●	★	●	●	●	
DNMG432EUP	DNMG150408N-UP			.0313		●	●	●	●	★	●	●	●	★
DNMG433EUP	DNMG150412N-UP			.0469				●	●	★	▲	●		

DNMG EEG

Rake Angle: 0°





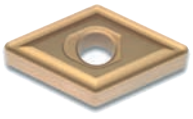


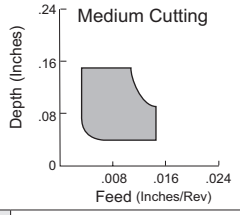
Cutting Conditions:	Coated								Cermet				Uncoated				
	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC8025P	AC510U	AC520U					EH510	EH520			
Continuous Cut	●	●	●	●	●	●	●						●				
Medium Cut		●	●	●	●	●	●	●					●	●			
Interrupted Cut		●	●		●	●		●									

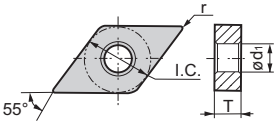
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC8025P	AC510U	AC520U	EH510	EH520
DNMG332EEG	DNMG110408N-EG	.375	.1875	.0313	.150	○	●	●					●		
DNMG333EEG	DNMG110412N-EG			.0469		○	●	●					●		
DNMG431EEG	DNMG150404N-EG	.500		.0156	.2031	○	●		●	●	●	●	●	●	●
DNMG432EEG	DNMG150408N-EG			.0313		○	●	●	●	●	●	●	●	●	●
DNMG433EEG	DNMG150412N-EG			.0469		○	●	●		●		●	●	●	●

DNMG EEX

Rake Angle: 16°







Cutting Conditions:	Coated								Uncoated								
	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC530U	AC510U	AC520U									
Continuous Cut	○	●	●	●	●	★	●	●	●								
Medium Cut	○	●	●	●	●	★	●	●	●	●							
Interrupted Cut	○	●		●	●	★	●	●	●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC530U	AC510U	AC520U	EH510	EH520
DNMG431EEX	DNMG150404N-EX	.500	.1875	.0156	.2031	○	●	●	●	●	★	●	●	●	●
DNMG432EEX	DNMG150408N-EX			.0313		○	●	●	●	●	★	●	●	●	
DNMG433EEX	DNMG150412N-EX			.0469		○	●		●	●	★	●	●	●	

55° DIAMOND TYPE
NEGATIVE INSERT

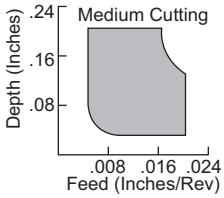
DN — 55° Diamond Type / Negative / With Insert Hole

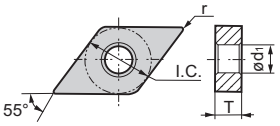
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DNMG EGU

Rake Angle: 7°



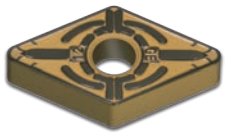


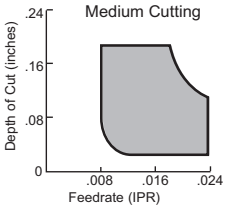
Cutting Conditions:	Coated												Cermet				
Continuous Cut	●	●	●		●	●	●	●	●	●	●	●	●	●			
Medium Cut	●	●	●	●	●	●		●	●	●	●	●	●	●			
Interrupted Cut		●	●	●	●	●		●	●		●	●	●	●			

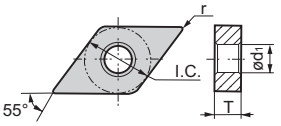
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC530U	T1500A	T1200A
DNMG331EGU	DNMG110404N-GU	.375	.1875	.0156	.150		●	●	●		●								
DNMG332EGU	DNMG110408N-GU			.0313			●	●	●		●	○							
DNMG431EGU	DNMG150404N-GU	.500		.0156	.2031	●	●	●	●	●	●	○	●	●	●	●	★	●	▲
DNMG432EGU	DNMG150408N-GU			.0313		●	●	●	●	●	●	○	●	●	●	●	★	●	▲
DNMG433EGU	DNMG150412N-GU			.0469		●	●	●	●	●	●	○	●		●	●	★	★	
DNMG441EGU	DNMG150604N-GU		.250	.0156				★	★										
DNMG442EGU	DNMG150608N-GU			.0313		★				★					★				▲
DNMG443EGU	DNMG150612N-GU			.0469						★						★			▲

DNMG EGE

Rake Angle: 3°







Cutting Conditions:	Coated						Cermet					Uncoated					
Continuous Cut	●	●	●	●		●											
Medium Cut		●	●	●	●	●											
Interrupted Cut			●	●	●	●											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC805P	AC810P	AC8025P	AC820P	AC830P	AC700G
DNMG332EGE	DNMG110408N-GE	.375	.1875	.0313	.150			●			
DNMG333EGE	DNMG110412N-GE			.0469			●	●	●	●	
DNMG431EGE	DNMG150404N-GE	.500		.0156	.2031		★	●	●	●	
DNMG432EGE	DNMG150408N-GE			.0313		●	●	●	●	●	●
DNMG433EGE	DNMG150412N-GE			.0469			●	●	●	●	●

55° DIAMOND TYPE
NEGATIVE INSERT

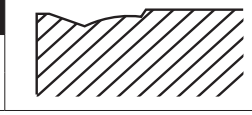
DN — 55° Diamond Type / Negative / With Insert Hole

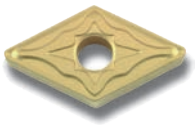
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

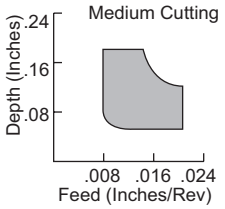
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

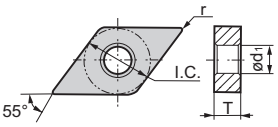
DNMG EUX

Rake Angle: 0°







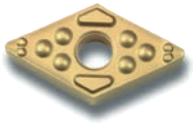


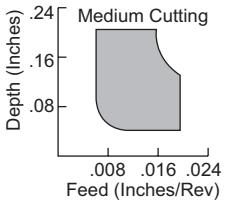
Cutting Conditions:	Coated												Cermet					
Continuous Cut	●	●	●		●	●	●						●					
Medium Cut	●	●	●	●	●	●	●						●					
Interrupted Cut		●	●	●	●	●							●					

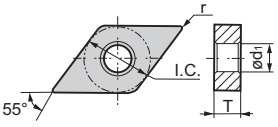
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC410K	T1200A
DNMG332EUX	DNMG110408N-UX	.375	.1875	.0313	.150				●	●		▲	
DNMG431EUX	DNMG150404N-UX	.500		.0156	.2031	●	●	●	●	●		▲	
DNMG432EUX	DNMG150408N-UX			.0313		●	●	●	●	●	●	▲	▲
DNMG433EUX	DNMG150412N-UX			.0469		●	●	●	●	●			
DNMG442EUX	DNMG150608N-UX		.250	.0313						★		▲	
DNMG443EUX	DNMG150612N-UX			.0469		★				★		▲	

DNMG ENG

Rake Angle: 4°







Cutting Conditions:	Coated									Cermet								
Continuous Cut	●	●		●						●								
Medium Cut	●	●	●	●						●								
Interrupted Cut	●	●	●	●						●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G	T1200A
DNMG331ENG	DNMG110404N-UG	.375	.1875	.0156	.150	●	●	●		
DNMG332ENG	DNMG110408N-UG			.0313		●	●	★		
DNMG431ENG	DNMG150404N-UG	.500		.0156	.2031	●	●	●	●	▲
DNMG432ENG	DNMG150408N-UG			.0313		●	●	●	●	▲
DNMG433ENG	DNMG150412N-UG			.0469			★	★	●	▲
DNMG542ENG	DNMG190608N-UG	.625	.250	.0313	.250	●	●	●		
DNMG543ENG	DNMG190612N-UG			.0469		●	●	●		

55° DIAMOND TYPE
NEGATIVE INSERT

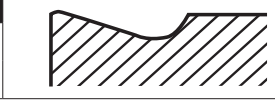
DN — 55° Diamond Type / Negative / With Insert Hole

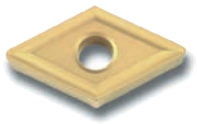
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

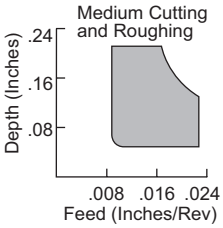
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

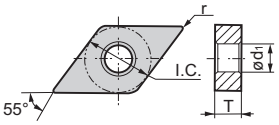
DNMG ENZ/FNZ

Rake Angle: 4°







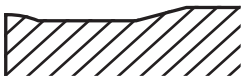


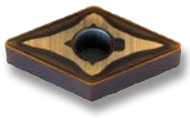
Cutting Conditions:	Coated									Uncoated						
Continuous Cut	●	●		●	●	●	●									
Medium Cut	●	●	●	●		●	●	●		●						
Interrupted Cut	●	●	●	●				●								

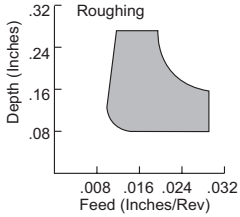
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G	AC405K	AC410K	AC415K	AC420K	G10E
DNMG431ENZ	DNMG150404N-UZ	.500	.1875	.0156	.2031			●		●			●	
DNMG432ENZ	DNMG150408N-UZ			.0313		●	●	●	●	●	▲	●	●	
DNMG433ENZ	DNMG150412N-UZ			.0469		●	●	●	●	●		●	●	
DNMG442ENZ	DNMG150608N-UZ		.250	.0313									●	
DNMG443ENZ	DNMG150612N-UZ			.0469							▲		●	
DNMG542ENZ	DNMG190608N-UZ	.625		.0313	.250	●	●	●						
DNMG543ENZ	DNMG190612N-UZ			.0469		●	●	●						
DNMG544ENZ	DNMG190616N-UZ			.0625		●	●	●						
DNMG432FNZ	DNMG150408N-UZ	.500	.1875	.0313	.2031									▲

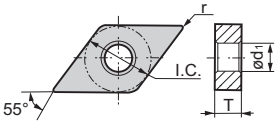
DNMG EEM

Rake Angle: 0°









Cutting Conditions:	Coated						Uncoated					
Continuous Cut	●	●	●	●	●							
Medium Cut	●		●	●	●	●						
Interrupted Cut	●		●	●		●						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6020M	AC6030M	AC6040M	AC510U	AC520U
DNMG432EEM	DNMG150408N-EM	.500	.1875	.0313	.2031	●	○	●	●	●	●
DNMG433EEM	DNMG150412N-EM			.0469			○	●	●	●	●
DNMG434EEM	DNMG150416N-EM			.0625			○				

55° DIAMOND TYPE
NEGATIVE INSERT

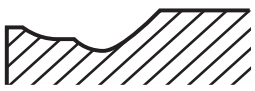
DN — 55° Diamond Type / Negative / With Insert Hole

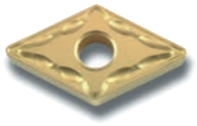
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

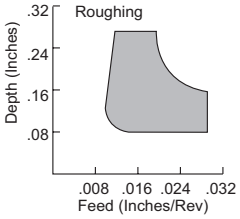
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

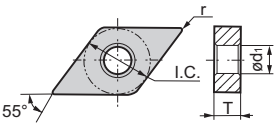
DNMG EMU

Rake Angle: 4°







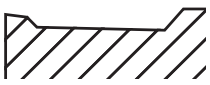


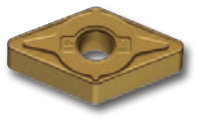
Cutting Conditions:	Coated													Uncoated		
Continuous Cut	●	●	●		●	●	●	●	●	●	●					
Medium Cut	●	●	●	●	●	●	●	●	●	●	●	●		●		
Interrupted Cut		●	●	●	●	●	●	●	●	●		●				

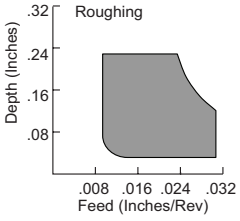
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	EH520
DNMG432EMU	DNMG150408N-MU	.500	.1875	.0313	.2031	●	●	●	●	●	●	●	●	●	★	●	●	●
DNMG433EMU	DNMG150412N-MU			.0469		●	●	●	●	●	●	●	●	●	★	●	●	●
DNMG434EMU	DNMG150416N-MU			.0625				★	★						★			
DNMG442EMU	DNMG150608N-MU			.0313		★		★	★					★				
DNMG443EMU	DNMG150612N-MU		.250	.0469						★				★				
DNMG444EMU	DNMG150616N-MU			.0625						●								

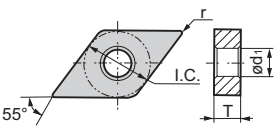
DNMG EME

Rake Angle: 4°









Cutting Conditions:	Coated					Uncoated		
Continuous Cut	●	●	●	●				
Medium Cut		●	●	●	●			
Interrupted Cut			●	●	●			

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC805P	AC810P	AC8025P	AC820P	AC830P
DNMG432EME	DNMG150408N-ME	.500	.1875	.0313	.2031	●	●	●	●	●
DNMG433EME	DNMG150412N-ME			.0469			●	●	●	●
DNMG442EME	DNMG150608N-ME			.0313			●		●	●
DNMG443EME	DNMG150612N-ME		.250	.0469			●		●	●
DNMG444EME	DNMG150616N-ME			.0625			●		●	●

55° DIAMOND TYPE
NEGATIVE INSERT

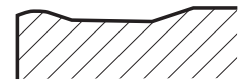
DN — 55° Diamond Type / Negative / With Insert Hole

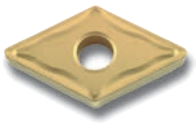
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

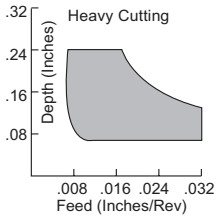
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

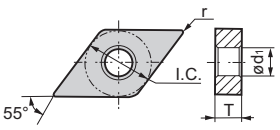
DNMG EMX

Rake Angle: -15°







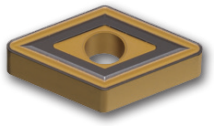


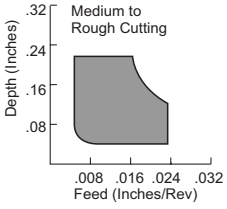
Cutting Conditions:	Coated										Uncoated					
	AC8025P	AC820P	AC830P													
Continuous Cut	●	●														
Medium Cut	●	●	●													
Interrupted Cut	●	●	●													

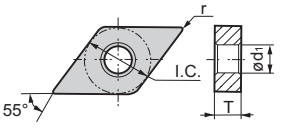
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DNMG432EMX	DNMG150408N-MX	.500	.1875	.0313	.2031
DNMG433EMX	DNMG150412N-MX			.0469	
DNMG434EMX	DNMG150416N-MX			.0625	

DNMG EGZ

Rake Angle: 0°





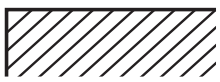


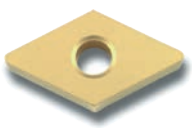
Cutting Conditions:	Coated					Cermet					Uncoated					
	AC405K	AC410K	AC415K	AC420K												
Continuous Cut	●	●	●													
Medium Cut		●	●	●												
Interrupted Cut				●												

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DNMG332EGZ	DNMG110408N-GZ	.375	.1875	.0313	.150
DNMG333EGZ	DNMG110412N-GZ			.0469	
DNMG431EGZ	DNMG150404N-GZ	.500		.0156	.2031
DNMG432EGZ	DNMG150408N-GZ			.0313	
DNMG433EGZ	DNMG150412N-GZ			.0469	

DNMA —

No Breaker





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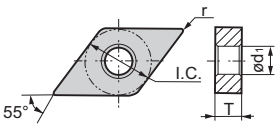


Cutting Conditions:	Coated						Uncoated					
	AC700G	AC405K	AC410K	AC415K	AC420K							
Continuous Cut	●	●	●	●								
Medium Cut	●		●	●	●							
Interrupted Cut	●				●							

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DNMA431	DNMA150404	.500	.1875	.0156	.2031
DNMA432	DNMA150408			.0313	
DNMA433	DNMA150412			.0469	
DNMA442	DNMA150608		.250	.0313	
DNMA443	DNMA150612			.0469	

C D R S T V W Swiss Tooling

ROUND TYPE
NEGATIVE INSERT

RN — Round Type / Negative / With Insert Hole

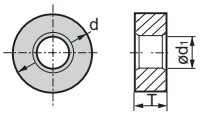
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

RNMG ENT

Rake Angle: 0°

Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut																
Medium Cut	●															
Interrupted Cut	●															

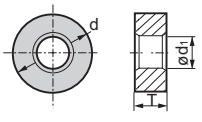


Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC830P
RNMG43ENT		.500	.1875	-	.2031	●

RNMG ENU

Rake Angle: 0°

Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut																
Medium Cut	●															
Interrupted Cut	●															



Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC830P
RNMG54ENU		.625	.250	-	.250	●

ROUND TYPE
NEGATIVE INSERT

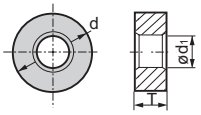
RN — Round Type / Negative / With Insert Hole

- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

RNMG ENV

Rake Angle: 0°

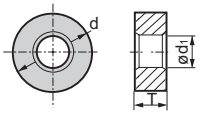


Cutting Conditions:	AC830P (Coated)
Continuous Cut	
Medium Cut	○
Interrupted Cut	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC830P
RNMG64ENV		.750	.250	-	.3126	●

RNMG ENY

Rake Angle: 0°

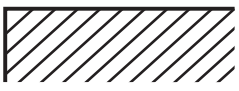


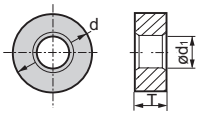
Cutting Conditions:	AC830P (Coated)
Continuous Cut	
Medium Cut	○
Interrupted Cut	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC830P
RNMG84ENY		1.00	.250	-	.3622	●
RNMG86ENY			.375	-		●

RNMA

No Breaker





Cutting Conditions:	AC700G (Coated)	AC405K (Cermet)	AC415K (Cermet)
Continuous Cut	○	○	
Medium Cut	○		○
Interrupted Cut	○		

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC405K	AC415K
RNMA43		.500	.1875	-	.2031	●	●	●

90° SQUARE TYPE
NEGATIVE INSERT

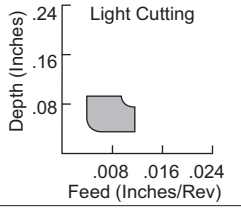
SN — 90° Square Type / Negative

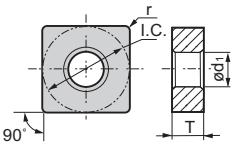
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNP R/L — T

Rake Angle: 0°



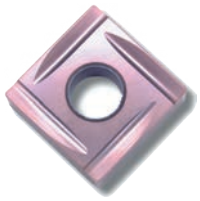


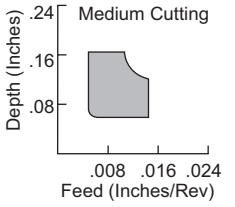
Cutting Conditions:	Coated				Cermet						Uncoated					
Continuous Cut					●	●	●				●					
Medium Cut					●	●	●				●	●				
Interrupted Cut						●	●				●					

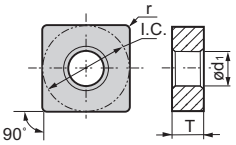
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T2000Z	T1500A	T1200A	ST20E	G10E
SNPR321T	SNGG090304R-ST	.375	.125	.0156	.150		★	▲	★	★
SNPL321T	SNGG090304L-ST			.0156			●	▲	★	★
SNPR322T	SNGG090308R-ST			.0313			★		★	★
SNPL322T	SNGG090308L-ST			.0313			●	▲	★	★
SNPR323T	SNGG090312R-ST			.0469		●				

SNP R/L — M

Rake Angle: 14°





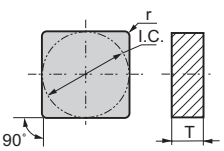


Cutting Conditions:	Coated				Cermet						Uncoated					
Continuous Cut					●	●	●				●					
Medium Cut					●	●	●				●	●	●			
Interrupted Cut						●	●				●		●			

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T2000Z	T1500A	T1200A	ST20E	G10E	A30
SNPR431M	SNGG120404R-UM	.500	.1875	.0156	.2031	●	★	▲	★	★	
SNPL431M	SNGG120404L-UM			.0156			★	▲	★		
SNPR432M	SNGG120408R-UM			.0313			★	▲	★	★	★
SNPL432M	SNGG120408L-UM			.0313			★	▲	★	★	★
SNPR433M	SNGG120412R-UM			.0469			●	▲			
SNPL433M	SNGG120412L-UM			.0469				▲			

SNG — —

No Breaker



Cutting Conditions:	Coated				Cermet						Uncoated					
Continuous Cut					●	●										
Medium Cut					●	●										
Interrupted Cut					●	●										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500A	T1200A
SNG432	SNGN120408	.500	.1875	.0313	-	★	▲

90° SQUARE TYPE
NEGATIVE INSERT

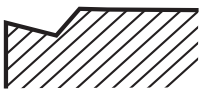
SN — 90° Square Type / Negative / With Insert Hole

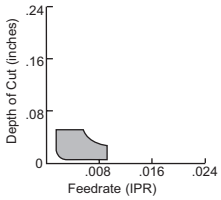
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

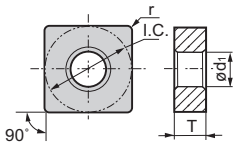
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMG EFL

Rake Angle: 10°





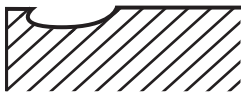


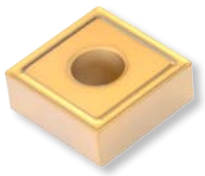
Cutting Conditions:	Coated			Cermet						Uncoated						
	AC8025P	AC820P		T1500Z	T2000Z	T3000Z										
Continuous Cut	●	●		●	●											
Medium Cut	●	●		●	●	●										
Interrupted Cut	●	●				●										

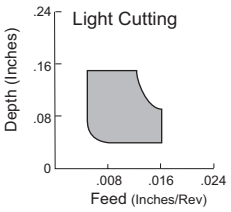
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P		T1500Z	T2000Z	T3000Z								
SNMG432EFL	SNMG120408N-FL	.500	.1875	.0313	.2031	●	●		●	★	★								

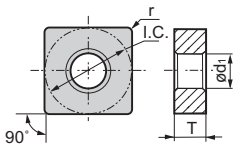
SNMG EFJ

Rake Angle: 0°







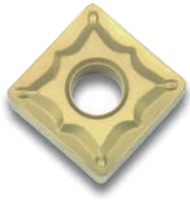


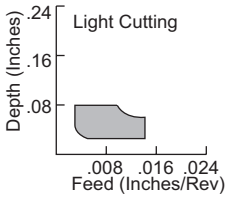
Cutting Conditions:	Coated			Cermet						Uncoated						
	T1500A	T1200A														
Continuous Cut				●	●											
Medium Cut				●	●											
Interrupted Cut				●	●											

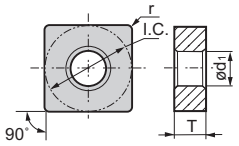
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500A	T1200A												
SNMG322EFJ	SNMG090308N-FJ	.375	.125	.0313	.150		●												
SNMG431EFJ	SNMG120404N-FJ	.500	.1875	.0156	.2031	★	●												

SNMG ESU

Rake Angle: 13°







Cutting Conditions:	Coated										Cermet					Uncoated
	AC810P	AC8025P	AC820P	AC830P	AC700G	AC6030M	AC630M	AC530U	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A	EH510
Continuous Cut	●	●	●	●	●	●	●	★	●	●	●	●	★	●	▲	●
Medium Cut	●	●	●	●	●	●	●	★	●	●	●	●	★	●	▲	●
Interrupted Cut		●	●	●	●	●	●	★	●	●			●	●	▲	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC6030M	AC630M	AC530U	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A	EH510
SNMG432 ESU	SNMG120408N-SU	.500	.1875	.0313	.2031	●	●	●	●	●	●	●	★	●	●	●	●	★	●	▲	●

90° SQUARE TYPE
NEGATIVE INSERT

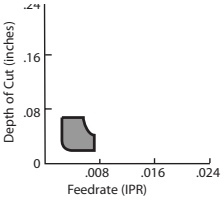
SN — 90° Square Type / Negative / With Insert Hole

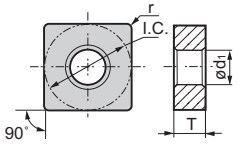
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMG EEF

Rake Angle: 20°



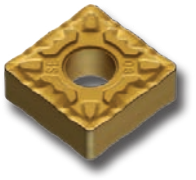


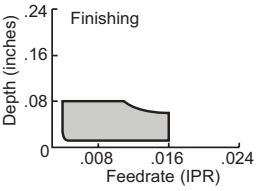
Cutting Conditions:	Coated							Cermet					Uncoated				
Continuous Cut	○	○															
Medium Cut		○															
Interrupted Cut		○															
	AC6020M	AC6040M															

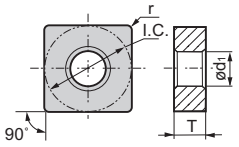
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6020M	AC6040M
SNMG431EEF	SNMG120404N-EF	.500	.1875	.0156	.2031	○	●
SNMG432EEF	SNMG120408N-EF			.0313		○	

SNMG ESE

Rake Angle: 5°





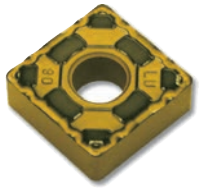


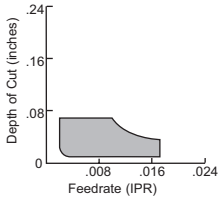
Cutting Conditions:	Coated				Cermet					Uncoated						
Continuous Cut	●	●	●													
Medium Cut	●	●	●	●												
Interrupted Cut		●	●	●												
	AC810P	AC8025P	AC820P	AC830P												

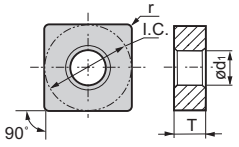
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P
SNMG432ESE	SNMG120408N-SE	.500	.1875	.0313	.2031	●	●	●	●
SNMG433ESE	SNMG120412N-SE			.0469		●			

SNMG ELU

Rake Angle: 10°







Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut	●	●	●		●	●		●								
Medium Cut	●	●	●		●	●	●	●								
Interrupted Cut		●	●				●	●								
	AC810P	AC820P	AC700G		T1500Z	T2000Z	T3000Z	T1500A								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC820P	AC700G	T1500Z	T2000Z	T3000Z	T1500A
SNMG432ELU	SNMG120408N-LU	.500	.1875	.0313	.2031	●	●	●	★	●	★	
SNMG433ELU	SNMG120412N-LU			.0469		●	★	★		★	★	●

90° SQUARE TYPE
NEGATIVE INSERT

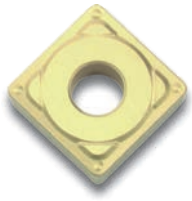
SN — 90° Square Type / Negative / With Insert Hole

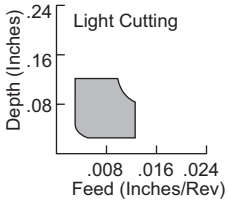
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

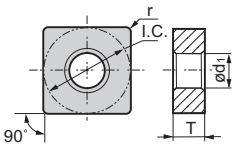
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMG ENK

Rake Angle: 10°





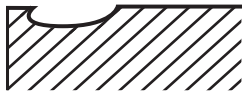


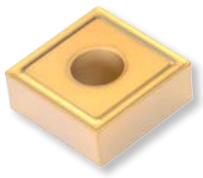
Cutting Conditions:	Coated								Cermet				Uncoated				
	AC820P								T1200A								
Continuous Cut	●								●								
Medium Cut	●								●								
Interrupted Cut	●								●								

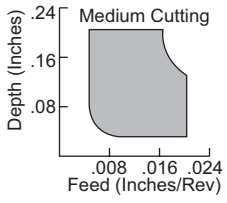
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC820P	T1200A
SNMG321ENK	SNMG090304N-SK	.375	.125	.0156	.150	●	
SNMG322ENK	SNMG090308N-SK			.0313		●	▲
SNMG431ENK	SNMG120404N-SK	.500	.1875	.0156	.2031	●	
SNMG432ENK	SNMG120408N-SK			.0313		●	

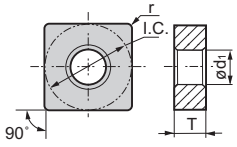
SNMG ENJ

Rake Angle: 0°







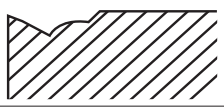


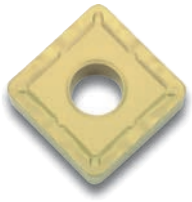
Cutting Conditions:	Coated								Cermet				Uncoated				
	AC820P	AC830P															
Continuous Cut	●	●															
Medium Cut	●	●															
Interrupted Cut	●																

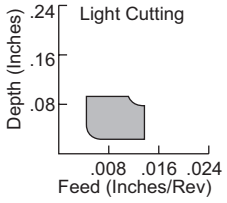
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC820P	AC830P
SNMG322ENJ	SNMG090308N-UJ	.375	.125	.0313	.150		●
SNMG431ENJ	SNMG120404N-UJ	.500	.1875	.0156	.2031	●	●

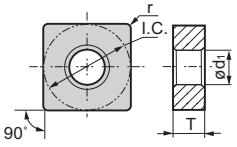
SNMG ESX

Rake Angle: 3°









Cutting Conditions:	Coated						Cermet					Uncoated				
	AC810P	AC8025P	AC820P	AC830P	AC700G		T1500Z	T2000Z	T3000Z	T1500A	T1200A					
Continuous Cut	●	●	●		●		●	●		★						
Medium Cut	●	●	●	●	●		●	●	★	★	▲					
Interrupted Cut		●	●	●	●				●	●	●					

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G
SNMG431ESX	SNMG120404N-SX	.500	.1875	.0156	.2031					
SNMG432ESX	SNMG120408N-SX			.0313		●	●	●	●	●
SNMG433ESX	SNMG120412N-SX			.0469		●		●	●	●

90° SQUARE TYPE
NEGATIVE INSERT

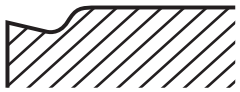
SN — 90° Square Type / Negative / With Insert Hole

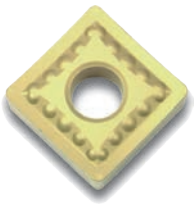
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

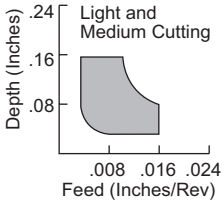
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

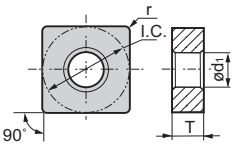
SNMG EUP

Rake Angle: 10°







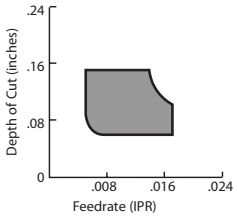


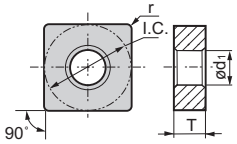
Cutting Conditions:	AC6040M	AC8025P	AC820P	AC830P	AC530U
Continuous Cut	○	●	●		●
Medium Cut	○	●	●	●	●
Interrupted Cut	○	●	●	●	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6040M	AC8025P	AC820P	AC830P	AC530U
SNMG431 EUP	SNMG120404N-UP	.500	.1875	.0156	.2031		★	★	●	
SNMG432 EUP	SNMG120408N-UP			.0313		●	●	●	●	★
SNMG433 EUP	SNMG120412N-UP			.0469				★	▲	★

SNMG EEG

Rake Angle: 0°





Cutting Conditions:	AC6020M	AC6030M	AC6040M	AC630M	AC8025P	AC510U	AC520U	EH510	EH520
Continuous Cut	○	○	○	○	●	●		●	
Medium Cut		○	○	○	●	●	●	●	●
Interrupted Cut		○	○	○	●		●		

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6020M	AC6030M	AC6040M	AC630M	AC8025P	AC510U	AC520U	EH510	EH520
SNMG431EEG	SNMG120404N-EG	.500	.1875	.0156	.2031	○								
SNMG432EEG	SNMG120408N-EG			.0313		○	●	●	●	●	●	●	●	●
SNMG433EEG	SNMG120412N-EG			.0469		○	●	●	●		●	●	●	●
SNMG542EEG	SNMG120608N-EG	.625	.250	.0313	.250	○								
SNMG543EEG	SNMG120612N-EG			.0469		○	●	●	●		●	●		
SNMG544EEG	SNMG120616N-EG			.0625		○		★	★		★	★		
SNMG643EEG	SNMG190612N-EG	.750		.0469		○	●	●	●		●	●		
SNMG644EEG	SNMG190616N-EG			.0625		○	●		●	●	●	●		

90° SQUARE TYPE
NEGATIVE INSERT

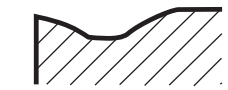
SN — 90° Square Type / Negative / With Insert Hole

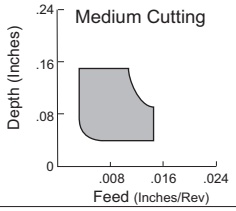
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

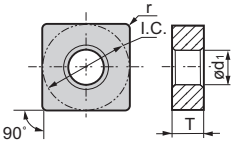
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMG EEX

Rake Angle: 16°





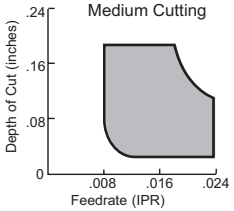


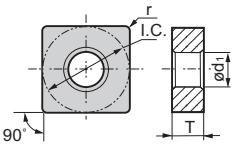
Cutting Conditions:	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC530U	AC510U	AC520U	EH510	EH520
	Coated								Uncoated	
Continuous Cut	○	○	○	○	○	◐	●		●	
Medium Cut	○	○	○	○	○	◐	●	●	●	●
Interrupted Cut	○	○	○		○	◐		●		

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC530U	AC510U	AC520U	EH510	EH520
SNMG322EEX	SNMG090308N-EX	.375	.125	.0313	.150		●			●					
SNMG431EEX	SNMG120404N-EX	.500	.1875	.0156	.2031	○			★	★		●	●		
SNMG432EEX	SNMG120408N-EX			.0313		○	●	●	●	●	★	●	●	●	●
SNMG433EEX	SNMG120412N-EX			.0469		○	●		●	●	★	●			
SNMG543EEX	SNMG150612N-EX	.625	.250	.0469	.250							●	●		
SNMG643EEX	SNMG190612N-EX	.750		.0469	.3126							●	●		

SNMG EGE

Rake Angle: 3°





Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P
	Coated			
Continuous Cut	○	○	○	
Medium Cut	○	○	○	○
Interrupted Cut		○	○	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P
SNMG432EGE	SNMG120408N-GE	.500	.1875	.0313	.2031	●	●	●	●
SNMG433EGE	SNMG120412N-GE			.0469		●	★	●	●
SNMG434EGE	SNMG120416N-GE			.0625		●	●	●	●
SNMG543EGE	SNMG150612N-GE	.625	.250	.0469	.250	●		●	●
SNMG544EGE	SNMG150616N-GE			.0625		●	●	●	●

90° SQUARE TYPE
NEGATIVE INSERT

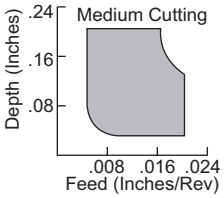
SN — 90° Square Type / Negative / With Insert Hole

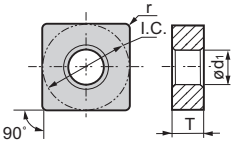
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMG EGU

Rake Angle: 7°





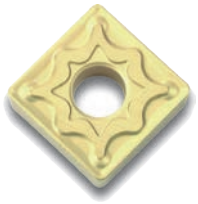
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC530U	T1500A	T1200A
Continuous Cut	●	●	●		●	●	●	●	●	●	●	●	●
Medium Cut	●	●	●	●	●		●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●		●			●	●	●	●

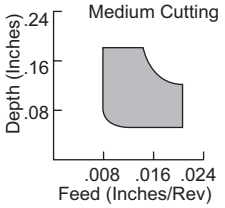
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SNMG321EGU	SNMG090304N-GU	.375	.125	.0156	.150
SNMG322EGU	SNMG090308N-GU			.0313	
SNMG431EGU	SNMG120404N-GU	.500	.1875	.0156	.2031
SNMG432EGU	SNMG120408N-GU			.0313	
SNMG433EGU	SNMG120412N-GU			.0469	
SNMG434EGU	SNMG120416N-GU			.0625	
SNMG543EGU	SNMG150612N-GU	.625	.250	.0469	.250

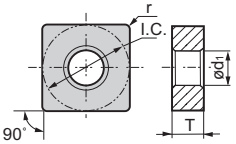
	AC810P	AC8025P	AC820P	AC830P	AC700G	AC6020M	AC6030M	AC6040M	AC610M	AC630M	AC530U	T1500A	T1200A
SNMG321EGU		●	●										
SNMG322EGU			●	★								●	
SNMG431EGU	★	●	●	★	●	○	★		★	★	★	★	▲
SNMG432EGU	●	●	●	●	●	○	●		★	●	★	●	▲
SNMG433EGU	●	●	●	●	●	○	●		★	●	★		
SNMG434EGU		●	●	●	●		●			●			
SNMG543EGU	★	●	●	●			★	★					

SNMG EUX

Rake Angle: 0°







Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC410K
Continuous Cut	●	●	●		●	●	●
Medium Cut	●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SNMG322EUX	SNMG090308N-UX	.375	.125	.0313	.150
SNMG431EUX	SNMG120404N-UX	.500	.1875	.0156	.2031
SNMG432EUX	SNMG120408N-UX			.0313	
SNMG433EUX	SNMG120412N-UX			.0469	
SNMG434EUX	SNMG120416N-UX			.0625	
SNMG643EUX	SNMG190612N-UX	.750	.250	.0469	.3126
SNMG644EUX	SNMG190616N-UX			.0625	

	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC410K
SNMG322EUX				●			
SNMG431EUX				●			
SNMG432EUX	●	●	●	●	▲		▲
SNMG433EUX		●	●	●	●	●	▲
SNMG434EUX	★	●	●	●	●		▲
SNMG643EUX	●	●	●	●	★		▲
SNMG644EUX	●	●	●	●	★		

90° SQUARE TYPE
NEGATIVE INSERT

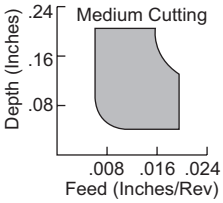
SN — 90° Square Type / Negative / With Insert Hole

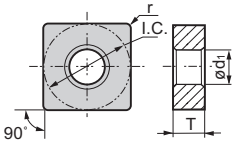
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMG ENG

Rake Angle: 4°



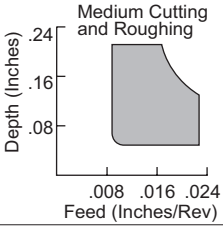


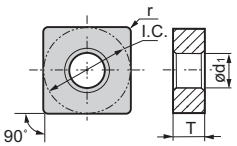
Cutting Conditions:	Coated								Cermet								
Continuous Cut	○	○		○					○								
Medium Cut	○	○	○	○					○								
Interrupted Cut	○	○	○	○					○								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G					T1200A							
SNMG322ENG	SNMG090308N-UG	.375	.125	.0313	.150	●	●	●						▲							
SNMG432ENG	SNMG120408N-UG	.500	.1875	.0313	.2031	●	●	●	●					▲							
SNMG433ENG	SNMG120412N-UG			.0469			★	★													
SNMG434ENG	SNMG120416N-UG			.0625				★													
SNMG543ENG	SNMG150612N-UG	.625	.250	.0469	.250	●	●	●													
SNMG643ENG	SNMG190612N-UG	.750		.0469	.3126	●	●	●													
SNMG644ENG	SNMG190616N-UG			.0625		●	●	★													
SNMG866ENG	SNMG250924N-UG	1.00	.375	.0938	.3622	●	●	●													

SNMG ENZ/FNZ

Rake Angle: 4°





Cutting Conditions:	Coated											Uncoated							
Continuous Cut	○	○		○	○	○	○												
Medium Cut	○	○	○	○		○	○	○				○							
Interrupted Cut	○	○	○	○				○											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G	AC405K	AC410K	AC415K	AC420K				G10E				
SNMG432ENZ	SNMG120408N-UZ	.500	.1875	.0313	.2031	●	●	●	●	●		●	●								
SNMG433ENZ	SNMG120412N-UZ			.0469			●	●	●	●		●	●								
SNMG434ENZ	SNMG120416N-UZ			.0625			●	●					●								
SNMG543ENZ	SNMG150612N-UZ	.625	.250	.0469	.250		●	●	●	●		●									
SNMG544ENZ	SNMG150616N-UZ			.0625			●	●													
SNMG642ENZ	SNMG190608N-UZ	.750	.250	.0313	.3126			●													
SNMG643ENZ	SNMG190612N-UZ			.0469			●	●		●		★	●								
SNMG644ENZ	SNMG190616N-UZ			.0625			●	●	●	●	▲	●	●								
SNMG866ENZ	SNMG250924N-UZ	1.00	.375	.0938	.3622		●	●													
SNMG433FNZ	SNMG120412N-UZ	.500	.1875	.0469	.2031												●				

90° SQUARE TYPE
NEGATIVE INSERT

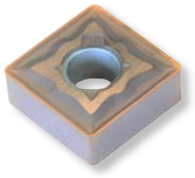
SN — 90° Square Type / Negative / With Insert Hole

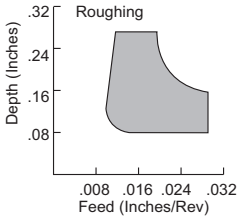
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

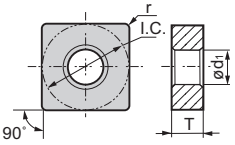
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMG EEM

Rake Angle: 0°





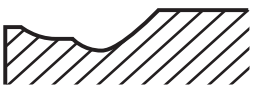


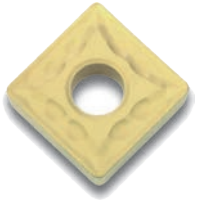
Cutting Conditions:	AC8025P	AC6020M	AC6030M	AC6040M	AC510U	AC520U
Continuous Cut	●	○	●	●	●	●
Medium Cut	●	○	●	●	●	●
Interrupted Cut	●	○	●	●		●

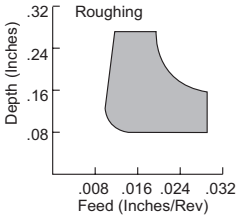
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SNMG432EEM	SNMG120408N-EM	.500	.1875	.0313	.2031
SNMG433EEM	SNMG120404N-EM			.0469	
SNMG542EEM	SNMG150608N-EM	.625	.250	.0313	.250
SNMG543EEM	SNMG150612N-EM			.0469	
SNMG544EEM	SNMG150616N-EM			.0625	
SNMG643EEM	SNMG190612N-EM	.750	.250	.0469	.3126
SNMG644EEM	SNMG190612N-EM			.0625	
SNMG646EEM	SNMG190624N-EM			.0938	
SNMG866EEM	SNMG250924N-EM	1.00	.375	.0938	.3622

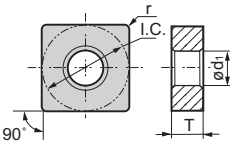
SNMG EMU

Rake Angle: 4°









Cutting Conditions:	AC810P	AC80250P	AC820P	AC830P	AC700G	YB100	AC6030M	AC630M	AC530U	AC510U	AC520U	EH520
Continuous Cut	●	●	●	●	●	▲	●	●	★		●	
Medium Cut	●	●	●	●	●	▲	●	●	★	●	●	
Interrupted Cut		●	●	●						★	●	
	●	●	●	●	●		●	●		●	●	
	●	●	●	●	●		●	●		★	●	
	●	●	●	●			●	●		●	●	
	●	●	●	●	●	▲	●	●		●	●	●
	●	●	●	●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SNMG432EMU	SNMG120408N-MU	.500	.1875	.0313	.2031
SNMG433EMU	SNMG120412N-MU			.0469	
SNMG434EMU	SNMG120416N-MU			.0625	
SNMG543EMU	SNMG160612N-MU	.625	.250	.0469	.250
SNMG544EMU	SNMG160616N-MU			.0625	
SNMG643EMU	SNMG190612N-MU	.750		.0469	.3126
SNMG644EMU	SNMG190616N-MU			.0625	
SNMG866EMU	SNMG250924N-MU	1.00	.375	.0938	.3622

90° SQUARE TYPE
NEGATIVE INSERT

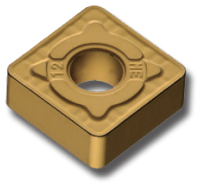
SN — 90° Square Type / Negative / With Insert Hole

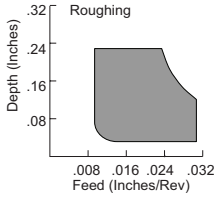
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

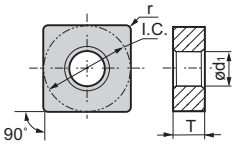
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMG EME

Rake Angle: 4°





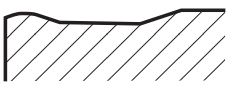


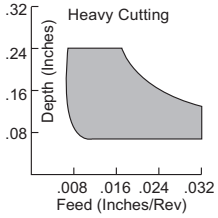
Cutting Conditions:	Coated										Uncoated					
Continuous Cut	●	●	●													
Medium Cut	●	●	●	●												
Interrupted Cut		●	●	●												

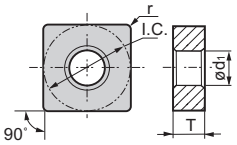
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P
SNMG432EME	SNMG120408N-ME	.500	.1875	.0313	.2031	●	●	●	●
SNMG433EME	SNMG120412N-ME			.0469		●	●	●	●
SNMG434EME	SNMG120416N-ME			.0625		●	●	●	★
SNMG543EME	SNMG150612N-ME	.625	.250	.0469	.250	●	●	●	●
SNMG544EME	SNMG150616N-ME			.0625		●	●	●	●
SNMG643EME	SNMG190612N-ME	.750		.0469	.3126	●	●	●	●
SNMG644EME	SNMG190616N-ME			.0625		●	●	●	●
SNMG866EME	SNMG250924N-ME	1.00	.375	.0938	.3622	●	●	●	●

SNMG EMX

Rake Angle: -15°







Cutting Conditions:	Coated										Uncoated					
Continuous Cut	●	●	●		●											
Medium Cut	●	●	●	●	●											
Interrupted Cut		●	●	●	●											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC0825P	AC820P	AC830P	YB100
SNMG432EMX	SNMG120408N-MX	.500	.1875	.0313	.2031			●	●	
SNMG433EMX	SNMG120412N-MX			.0469			●	●	●	
SNMG434EMX	SNMG120416N-MX			.0625			●	●		
SNMG543EMX	SNMG150612N-MX	.625	.250	.0469	.250		●	●	●	
SNMG544EMX	SNMG150616N-MX			.0625			●	●	●	
SNMG643EMX	SNMG190612N-MX	.750		.0469	.3126	●	●	●	●	
SNMG644EMX	SNMG190616N-MX			.0625		●	●	●	●	●

90° SQUARE TYPE
NEGATIVE INSERT

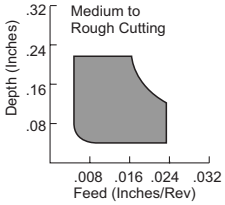
SN — 90° Square Type / Negative / With Insert Hole

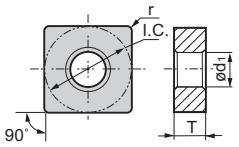
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMG EGZ

Rake Angle: 0°

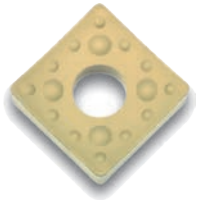


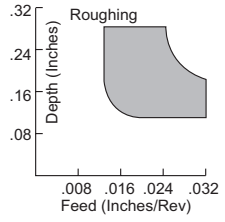


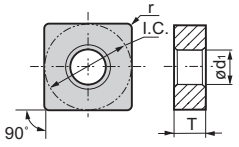
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC405K	AC410K	AC415K	AC420K
SNMG432EGZ	SNMG120408N-GZ	.500	.1875	.0313	.2031	●		●	●
SNMG433EGZ	SNMG120412N-GZ			.0469		●	▲	●	●
SNMG434EGZ	SNMG120416N-GZ			.0625				★	●
SNMG543EGZ	SNMG150612N-GZ	.625	.250	.0469	.250	●			
SNMG643EGZ	SNMG190612N-GZ	.750		.0469	.3126	●		★	
SNMG644EGZ	SNMG190616N-GZ			.0625		●			

SNMM ENP

Rake Angle: 0°







Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC820P	AC830P
SNMM643ENP	SNMM190612N-MP	.750	.250	.0469	.250	★		
SNMM644ENP	SNMM190616N-MP			.0625	.3126	★	●	
SNMM856ENP	SNMM250724N-MP	1.00	.3125	.0938	.3622	★	★	★
SNMM866ENP	SNMM250924N-MP		.375	.0938		★	★	

90° SQUARE TYPE
NEGATIVE INSERT

SN — 90° Square Type / Negative / With Insert Hole

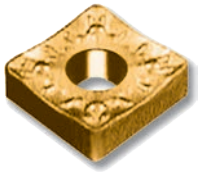
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

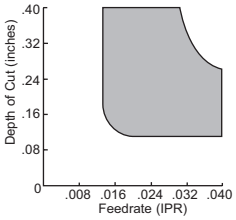
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

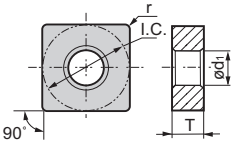
SNMM EHG

Rake Angle: 0°

Cutting Conditions:	Coated				Cermet													
	AC810P	AC8025P	AC820P	AC830P														
Continuous Cut	●	●	●															
Medium Cut	●	●	●	●														
Interrupted Cut		●	●	●														



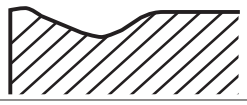




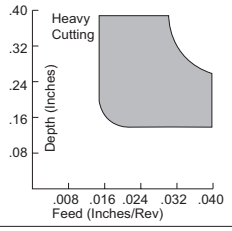
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P
SNMM432EHG	SNMM120408N-HG	.500	.1875	.0313	.2031	★		●	●
SNMM433EHG	SNMM120412N-HG			.0469		★	●	●	●
SNMM434EHG	SNMM120416N-HG			.0625		★		●	★
SNMM643EHG	SNMM190612N-HG	.750	.250	.0469	.3126	★	●	●	●
SNMM644EHG	SNMM190616N-HG			.0625		●		●	●
SNMM646EHG	SNMM190624N-HG			.0938		★	●	●	

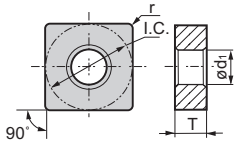
SNMM EHP

Rake Angle: 0°



Cutting Conditions:	Coated												Uncoated					
	AC810P	AC820P	AC830P															
Continuous Cut	●	●																
Medium Cut	●	●	●															
Interrupted Cut		●	●															





Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC820P	AC830P
SNMM643EHP	SNMM190612N-HP	.750	.250	.0469	.3126		★	●
SNMM644EHP	SNMM190616N-HP			.0625			★	★
SNMM856EHP	SNMM250724N-HP	1.00	.3125	.0938	.3622	★	★	★
SNMM866EHP	SNMM250924N-HP		.375	.0938		★	★	

90° SQUARE TYPE
NEGATIVE INSERT

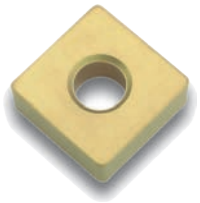
SN — 90° Square Type / Negative

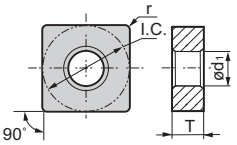
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SNMA

No Breaker

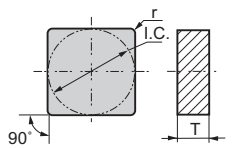




Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC405K	AC410K	AC415K	AC420K	H1
SNMA322	SNMA090308	.375	.125	.0313	.150	●	●	▲	●		
SNMA431	SNMA120404	.500	.1875	.0156	.2031	★		▲	★	●	
SNMA432	SNMA120408			.0313		●	●	▲	●	●	★
SNMA433	SNMA120412			.0469		●	●		●	●	
SNMA434	SNMA120416			.0625		●	●	▲	●	●	
SNMA435	SNMA120420			.0781		★		▲		●	
SNMA543	SNMA150612	.625	.250	.0469	.250	●	●		●		
SNMA544	SNMA150616	.625		.0625			●				
SNMA643	SNMA190612	.750		.0469	.3126		●		●		
SNMA644	SNMA190616			.0625		●	●		●		

SNMN

No Breaker



Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC420K	T1500A	T1200A	G10E	A30	ST20E
SNMN422	SNMN120308	.500	.125	.0313	-					▲		
SNMN432	SNMN120408		.1875	.0313		★	●	★	▲		★	★
SNMN433	SNMN120412			.0469		★	●					
SNMN434	SNMN120416			.0625		★	●					
SNMN532	SNMN150408	.625	.1875	.0313						★		

TRIANGULAR TYPE
NEGATIVE INSERT

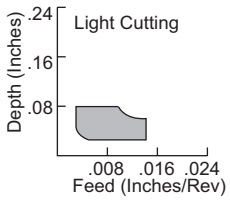
TN — Triangular Type / Negative / With Insert Hole

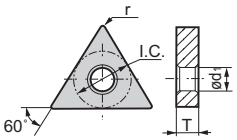
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNGG ESU

Rake Angle: 13°



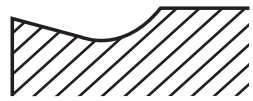


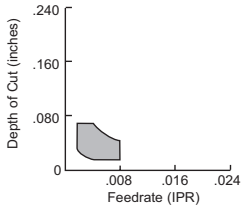
Cutting Conditions:	Coated				Cermet						Uncoated					
					T1500A											
Continuous Cut					●											
Medium Cut					●											
Interrupted Cut					●											

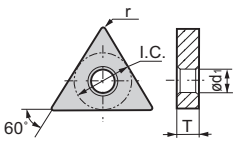
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TNGG330.5ESU	TNGG160402N-SU	.375	.1875	.0078	.150
TNGG331ESU	TNGG160404N-SU			.0156	
TNGG332ESU	TNGG160408N-SU			.0313	

TNPR/L FX

Rake Angle: 14°





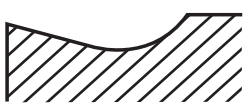


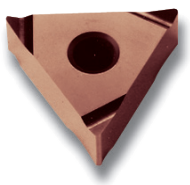
Cutting Conditions:	Coated						Cermet						Uncoated					
	AC530U	ACZ310					T1500Z	T2000Z	T3000Z	T1500A	T1200A							
Continuous Cut	●	○					●	●		●	●							
Medium Cut	◐	◌					◐	◐	◐	◐	◐							
Interrupted Cut	◌								◐	◐	◐							

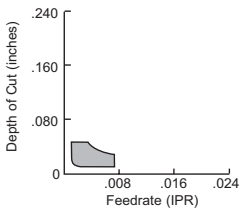
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TNPR330.5FFX	TNGG160402R-FX	.375	.1875	.0078	.150
TNPL330.5FFX	TNGG160402L-FX			.0078	
TNPR331FFX	TNGG160404R-FX			.0156	
TNPL331FFX	TNGG160404L-FX			.0156	

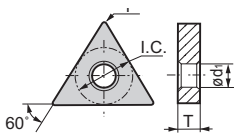
TNPR/L FY

Rake Angle: 15°









Cutting Conditions:	Coated						Cermet						Uncoated					
	AC530U	ACZ310					T1500Z	T2000Z	T3000Z	T1500A	T1200A							
Continuous Cut	●	○					●	●		●	●							
Medium Cut	◐	◌					◐	◐	◐	◐	◐							
Interrupted Cut	◌								◐	◐	◐							

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TNPR330.5FFY	TNGG160402R-FY	.375	.1875	.0078	.150
TNPL330.5FFY	TNGG160402L-FY			.0078	
TNPR331FFY	TNGG160404R-FY			.0156	
TNPL331FFY	TNGG160404L-FY			.0156	

TRIANGULAR TYPE
NEGATIVE INSERT

TN — Triangular Type / Negative / With Insert Hole

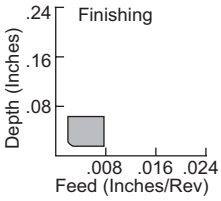
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

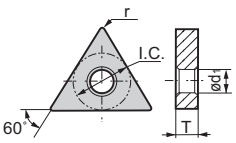
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNP$_{R/L}$ Q

Rake Angle: 0°

Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●			●							
Medium Cut					●	●			●							
Interrupted Cut					●	●			●							
					T1500A	T1200A			ST20E							





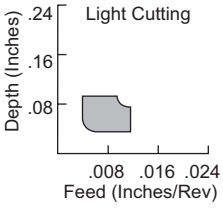
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TNPL220.5Q	TNGG110302L-FT	.250	.125	.0078	.089
TNPR221Q	TNGG110302R-FT			.0156	
TNPL221Q	TNGG110304L-FT			.0156	

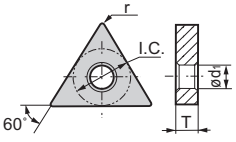
	T1500A	T1200A	ST20E
TNPL220.5Q	★		
TNPR221Q			★
TNPL221Q	●	▲	

TNP$_{R/L}$ T

Rake Angle: 0°

Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●										
Medium Cut					●	●			●							
Interrupted Cut					●	●										
					T1500A	T1200A			G10E							





Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TNPR320.5T	TNGG160302R-ST	.375	.125	.0078	.150
TNPL320.5T	TNGG160302L-ST			.0078	
TNPR321T	TNGG160304R-ST			.0156	
TNPL321T	TNGG160304L-ST			.0156	
TNPR322T	TNGG160308R-ST			.0313	
TNPL322T	TNGG160308L-ST			.0313	

	T1500A	T1200A	G10E
TNPR320.5T	★		
TNPL320.5T	★		
TNPR321T	●	▲	●
TNPL321T	●	▲	
TNPR322T	●	▲	
TNPL322T	★	▲	

TRIANGULAR TYPE
NEGATIVE INSERT

TN — Triangular Type / Negative

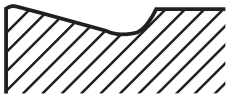
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

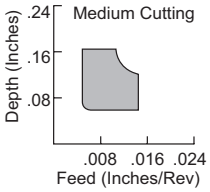
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

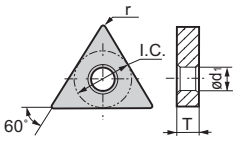
TNP$_{R/L}$

M

Rake Angle: 14°







Cutting Conditions:	Coated			Cermet					Uncoated								
				T1500Z	T2000Z	T3000Z	T1500A	T1200A	A30	G10E	H1	ST20E					
Continuous Cut				○	○		○	○			○	○					
Medium Cut				○	○	○	○	○	○	○	○	○					
Interrupted Cut						○	○	○	○			○					

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T2000Z	T3000Z	T1500A	T1200A	A30	G10E	H1	ST20E
TNPR330.5M	TNGG160402R-UM	.375	.1875	.0078	.150	★		●	★	▲		●		
TNPL330.5M	TNGG160402L-UM			.0078		★			★					
TNPR331M	TNGG160404R-UM			.0156		★	●	★	●	▲	★	★	★	
TNPL331M	TNGG160404L-UM			.0156		★		★	●	▲	★	★	★	
TNPR332M	TNGG160408R-UM			.0313		★	●	★	●	▲	★	★		★
TNPL332M	TNGG160408L-UM			.0313		★	★	★	●	▲	★	★	★	★
TNPR333M	TNGG160412R-UM			.0469										★
TNPL333M	TNGG160412L-UM			.0469					★	▲				
TNPR431M	TNGG220404R-UM	.500		.0156	.2031				●	▲		★		
TNPL431M	TNGG220404L-UM			.0156					●	▲		★		★
TNPR432M	TNGG220408R-UM			.0313					●	▲		★		★
TNPL432M	TNGG220408L-UM			.0313					●	▲		★		★

TNG

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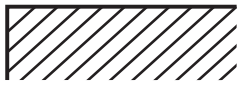
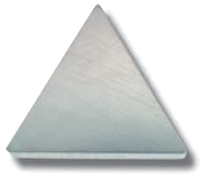
No Breaker





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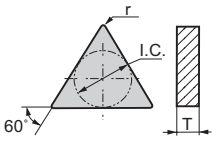


Cutting Conditions:	Coated			Cermet					Uncoated								
									G10E								
Continuous Cut																	
Medium Cut									○								
Interrupted Cut																	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	G10E
TNG322	TNGN160308	.375	.125	.0313	-	○
TNG332	TNGN160408		.1875	.0313	-	○

TRIANGULAR TYPE
NEGATIVE INSERT

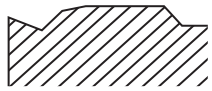
TN — Triangular Type / Negative / With Insert Hole

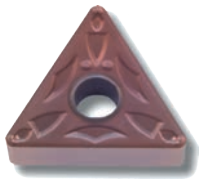
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

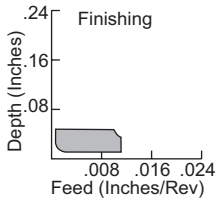
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

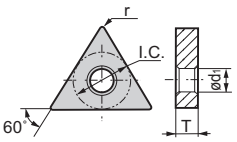
TNMG EFA

Rake Angle: 20°







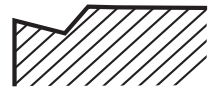


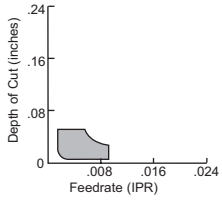
Cutting Conditions:	Coated			Cermet					Uncoated					
Continuous Cut				●	●		●	●						
Medium Cut				●	●	●	●	●						
Interrupted Cut						●	●	●						
				T1500Z	T2000Z	T3000Z	T1500A	T1200A						

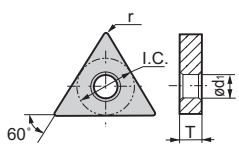
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1										
TNMG330.5EFA	TNMG160402N-FA	.375	.1875	.0078	.150					●	●	★	●	▲	
TNMG331EFA	TNMG160404N-FA			.0156						●	●	★	●	▲	
TNMG332EFA	TNMG160408N-FA			.0313						●	●	★	●	▲	

TNMG EFL

Rake Angle: 10°





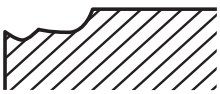


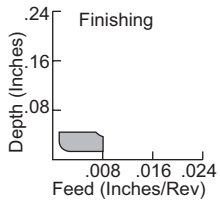
Cutting Conditions:	Coated					Cermet					Uncoated				
Continuous Cut	●	●				●	●								
Medium Cut	●	●				●	●	●							
Interrupted Cut	●	●						●							
	AC8025P	AC820P				T1500Z	T2000Z	T3000Z							

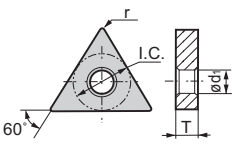
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1										
TNMG331EFL	TNMG160404N-FL	.375	.1875	.0156	.150	●	●			●	●	★			
TNMG332EFL	TNMG160408N-FL			.0313		●	●			★	●				

TNMG EFP

Rake Angle: 10°







Cutting Conditions:	Coated			Cermet					Uncoated					
Continuous Cut				●										
Medium Cut				●										
Interrupted Cut				●										
				T1200A										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1										
TNMG322EFP	TNMG160308N-FP	.375	.125	.0313	.150					▲					
TNMG332EFP	TNMG160408N-FP		.1875	.0313						▲					

TRIANGULAR TYPE
NEGATIVE INSERT

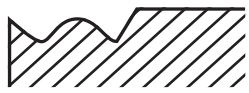
TN — Triangular Type / Negative / With Insert Hole

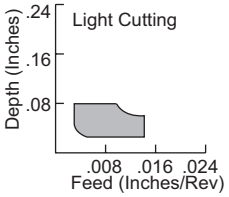
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

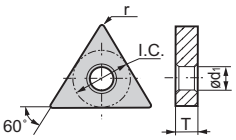
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNMG ESU

Rake Angle: 13°





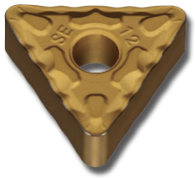


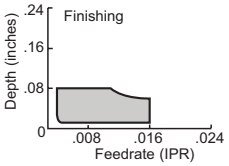
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A
Continuous Cut	○	○	○		○	○	○	○	○	○		○	○		○	○
Medium Cut	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Interrupted Cut		○	○	○	○	○	○	○	○		○			○	○	○

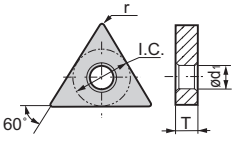
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TNMG321ESU	TNMG160304N-SU	.375	.125	.0156	.150
TNMG322ESU	TNMG160308N-SU			.0313	
TNMG331ESU	TNMG160404N-SU		.1875	.0156	
TNMG332ESU	TNMG160408N-SU			.0313	
TNMG333ESU	TNMG160412N-SU			.0469	
TNMG431ESU	TNMG220404N-SU	.500		.0156	.2031
TNMG432ESU	TNMG220408N-SU			.0313	
TNMG433ESU	TNMG220412N-SU			.0469	

TNMG ESE

Rake Angle: 5°





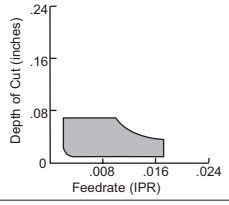


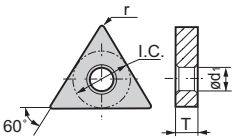
Cutting Conditions:	AC805P	AC810P	AC8025P	AC820P	AC830P	T1500A
Continuous Cut	○	○	○	○		○
Medium Cut		○	○	○	○	○
Interrupted Cut			○	○	○	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TNMG331 ESE	TNMG160404N-SE	.375	.1875	.0156	.150
TNMG332 ESE	TNMG160408N-SE			.0313	
TNMG333 ESE	TNMG160412N-SE			.0469	
TNMG431 ESE	TNMG220404N-SE	.500		.0156	.2031
TNMG432 ESE	TNMG220408N-SE			.0313	
TNMG433 ESE	TNMG220412N-SE			.0469	

TNMG ELU

Rake Angle: 10°





Cutting Conditions:	AC810P	AC8025P	AC820P	AC700G	T1500Z	T2000Z	T3000Z	T1500A	T1200A
Continuous Cut	○	○	○	○	○	○		○	○
Medium Cut	○	○	○	○	○	○	○	○	○
Interrupted Cut		○	○	○			○	○	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TNMG331ELU	TNMG160404N-LU	.375	.1875	.0156	.150
TNMG332ELU	TNMG160408N-LU			.0313	
TNMG333ELU	TNMG160412N-LU			.0469	

TRIANGULAR TYPE
NEGATIVE INSERT

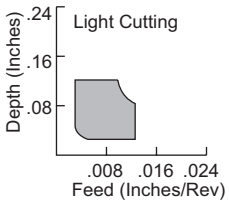
TN — Triangular Type / Negative / With Insert Hole

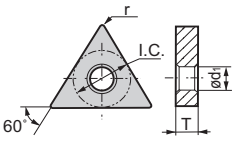
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNMG ENK

Rake Angle: 10°



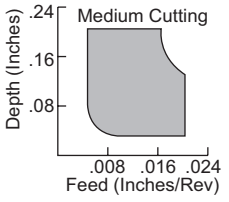


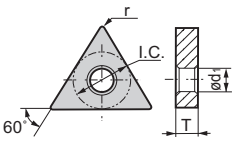
Cutting Conditions:	Coated				Cermet					Uncoated						
	AC820P				T1200A											
Continuous Cut	●				●											
Medium Cut	●				●											
Interrupted Cut	●				●											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC820P	T1200A
TNMG221ENK	TNMG110304N-SK	.250	.125	.0156	.089	●	▲
TNMG321ENK	TNMG160304N-SK			.0156	.150	●	▲
TNMG322ENK	TNMG160308N-SK	.375		.0313		●	▲
TNMG331ENK	TNMG160404N-SK		.1875	.0156		●	▲
TNMG332ENK	TNMG160408N-SK			.0313		●	▲
TNMG431ENK	TNMG220404N-SK	.500		.0156	.2031	●	▲
TNMG432ENK	TNMG220408N-SK			.0313		●	▲

TNMG FNJ

Rake Angle: 0°



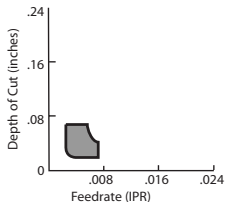


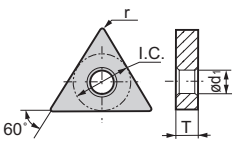
Cutting Conditions:	Coated				Cermet					Uncoated						
										G10E						
Continuous Cut																
Medium Cut										●						
Interrupted Cut																

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	G10E
TNMG431FNJ	TNMG220404N-UJ	.500	.1875	.0156	.2031	●

TNMG EEF

Rake Angle: 20°





Cutting Conditions:	Coated						Cermet				Uncoated						
	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U					EH510	EH520					
Continuous Cut	○	○	○	○	●						●						
Medium Cut	○	○	○	○	●	●					●	●					
Interrupted Cut	○	●	●	●	●	●					●	●					

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	EH510	EH520
TNMG331EEF	TNMG160404N-EF	.375	.1875	.0156	.150	○	●	●	●	●	●	●	●
TNMG332EEF	TNMG160408N-EF			.0313		○	●	●	●	●	●	●	●

TRIANGULAR TYPE
NEGATIVE INSERT

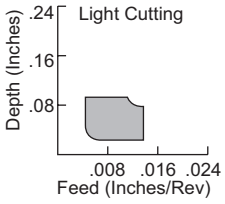
TN — Triangular Type / Negative / With Insert Hole

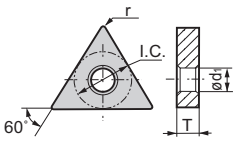
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNMG ESX

Rake Angle: 3°



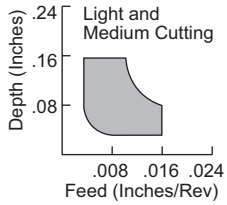


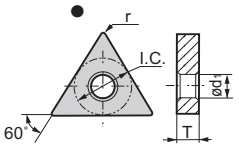
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	T1500Z	T2000Z	T3000Z	T1500A	T1200A
Continuous Cut	●	●	●		●	●	●		●	●
Medium Cut	●	●	●	●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●			●	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	T1500Z	T2000Z	T3000Z	T1500A	T1200A
TNMG321ESX	TNMG160304N-SX	.375	.125	.0156	.150		●	●	●						
TNMG322ESX	TNMG160308N-SX			.0313			●	●	●						
TNMG331ESX	TNMG160404N-SX		.1875	.0156		●		●	●	●	●	●	★	★	▲
TNMG332ESX	TNMG160408N-SX			.0313		●	●	●	●	●	★	●	★	★	
TNMG431ESX	TNMG220404N-SX	.500		.0156	.2031	●	●	●	●	●					
TNMG432ESX	TNMG220408N-SX			.0313		●	●	●	●	●					
TNMG433ESX	TNMG220412N-SX			.0469			●	●	★	●					

TNMG EUP

Rake Angle: 10°



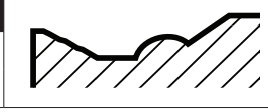


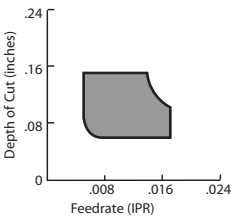
Cutting Conditions:	AC8025P	AC820P	AC830P	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	G10E
Continuous Cut	●	●		●	●	●	●	●		
Medium Cut	●	●	●	●	●	●	●	●	●	●
Interrupted Cut	●	●	●	●	●	●	●		●	

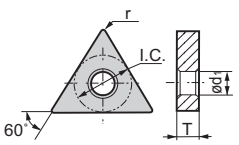
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	G10E
TNMG331EUP	TNMG160404N-UP	.375	.1875	.0156	.150	●	●	●		●	●	●	●		
TNMG332EUP	TNMG160408N-UP			.0313		●	●	●	●		●	★			
TNMG333EUP	TNMG160412N-UP			.0469			●		●		●	★			
TNMG432EUP	TNMG220408N-UP	.500		.0313	.2031	●	●	●						★	●
TNMG433EUP	TNMG220412N-UP			.0469			★	●							

TNMG EEG

Rake Angle: 0°







Cutting Conditions:	AC8025P	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	EH510	EH520
Continuous Cut	●	○	★	★		●	●	●	●
Medium Cut	●	○	●	●	●	●	●		
Interrupted Cut		○	●	●	●	●	●	●	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	EH510	EH520
TNMG331EEG	TNMG160404N-EG	.375	.1875	.0156	.150	●	○	★	★		●	●		
TNMG332EEG	TNMG160408N-EG			.0313		●	○	●	●	●	●	●	●	●
TNMG333EEG	TNMG160412N-EG			.0469			○	●	●	●	●	●	●	

TRIANGULAR TYPE
NEGATIVE INSERT

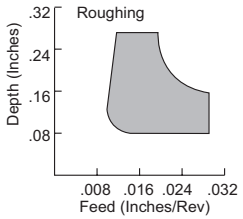
TN — Triangular Type / Negative / With Insert Hole

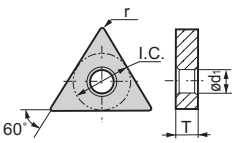
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNMG EEM

Rake Angle: 0°



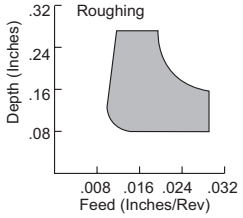


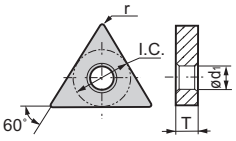
Cutting Conditions:	Coated						Cermet				Uncoated						
Continuous Cut	●	○	●	●													
Medium Cut	●		●	●	●												
Interrupted Cut	●		●	●	●												

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6020M	AC6030M	AC6040M	AC520U
TNMG332EEM	TNMG160408N-EM	.375	.1875	.0313	.150	●	○	●	●	
TNMG333EEM	TNMG160412N-EM			.0469			○	●		
TNMG666EEM	TNMG330924N-EM	.750	.375	.0938	.3126			●	●	●

TNMG EMU

Rake Angle: 4°



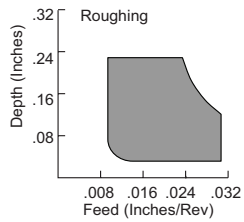


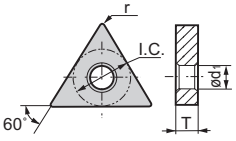
Cutting Conditions:	Coated												Uncoated			
Continuous Cut	●	●	●		●	●	●	●	●	●	●					
Medium Cut	●	●	●	●	●	●	●	●	●	●	●	●				
Interrupted Cut		●	●	●	●	●	●	●	●	●		●				

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U
TNMG332EMU	TNMG160408N-MU	.375	.1875	.0313	.150	●	●	●	●	●		●	●	●	★	●	●
TNMG333EMU	TNMG160412N-MU			.0469		●		●	●			●	●	●	★	★	★
TNMG432EMU	TNMG220408N-MU	.500		.0313	.2031	●	●	●	●	●		●		●		●	●
TNMG433EMU	TNMG220412N-MU			.0469		●	●	●	●	●		●		●		●	●
TNMG434EMU	TNMG220416N-MU			.0625		●	●	●	●	●							
TNMG543EMU	TNMG270612N-MU	.625	.250	.0469	.250	▲	●	●	●	●							
TNMG544EMU	TNMG270616N-MU			.0625		▲	●	●	●	●	▲						

TNMG EME

Rake Angle: 4°





Cutting Conditions:	Coated				Uncoated
Continuous Cut	●	●	●		
Medium Cut	●	●	●	●	
Interrupted Cut		●	●	●	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P
TNMG332EME	TNMG160408N-ME	.375	.1875	.0313	.150	●	●	●	●
TNMG333EME	TNMG160412N-ME			.0469		●		●	●
TNMG432EME	TNMG220408N-ME	.500		.0313	.2031	●	●	●	●
TNMG433EME	TNMG220412N-ME			.0469		●	●	●	●
TNMG434EME	TNMG220416N-ME			.0625		●	●	●	●

TRIANGULAR TYPE
NEGATIVE INSERT

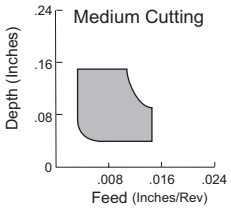
TN Triangular Type / Negative / With Insert Hole

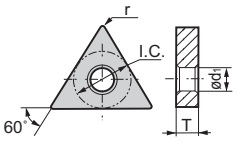
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNMG EEX

Rake Angle: 16°



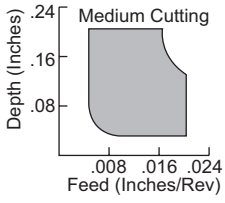


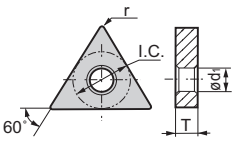
Cutting Conditions:	Coated									Uncoated						
	AC610M	AC6020M	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	EH510							
Continuous Cut	○	○	○	○	○	○	○			○						
Medium Cut	○		○	○	○	○	○	○		○						
Interrupted Cut			○	○	○	○		○								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC610M	AC6020M	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	EH510
TNMG331EEX	TNMG160404N-EX	.375	.1875	.0156	.150	●	○	●		●		●	●	
TNMG332EEX	TNMG160408N-EX			.0313		●	○	●	●	●	★	●	●	★
TNMG333EEX	TNMG160412N-EX			.0469		★	○	●		★	★	★		

TNMG EGU

Rake Angle: 7°



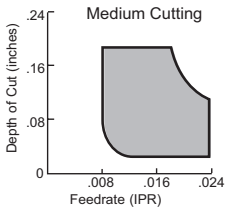


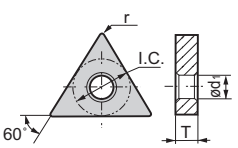
Cutting Conditions:	Coated												Cermet	
	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC610M	AC6020M	AC6030M	AC630M	AC530U		T1500A	T1200A
Continuous Cut	○	○	○		○	○	○	○	○	○	○		○	○
Medium Cut	○	○	○	○	○	○	○	○	○	○	○		○	○
Interrupted Cut		○	○	○	○	○		○	○	○	○		○	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC610M	AC6020M	AC6030M	AC630M	AC530U	T1500A	T1200A
TNMG331EGU	TNMG160404N-GU	.375	.1875	.0156	.150	●	●	●	●	●		★	○	●	●	★	★	
TNMG332EGU	TNMG160408N-GU			.0313		●	●	●	●	●	●	●	○	●	●	★	●	▲
TNMG333EGU	TNMG160412N-GU			.0469		●	●	●	●	●		●	○	●	●	★		
TNMG334EGU	TNMG160416N-GU			.0625				★	★									
TNMG431EGU	TNMG220404N-GU	.500		.0156	.2031		●	●										
TNMG432EGU	TNMG220408N-GU			.0313		●	●	●	●	●	●			●	●			
TNMG433EGU	TNMG220412N-GU			.0469		●	●	●	●	●				●	●			

TNMG EGE

Rake Angle: 3°





Cutting Conditions:	Coated						Uncoated							
	AC810P	AC8025P	AC820P	AC830P	AC700G									
Continuous Cut	○	○	○		○									
Medium Cut	○	○	○	○	○									
Interrupted Cut		○	○	○	○									

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G
TNMG331EGE	TNMG160404N-GE	.375	.1875	.0156	.150	●	●	●	●	
TNMG332EGE	TNMG160408N-GE			.0313		●	●	●	●	
TNMG333EGE	TNMG160412N-GE			.0469		●	●	●	●	●
TNMG432EGE	TNMG220408N-GE	.500		.0313	.2031	●	●	●	●	
TNMG433EGE	TNMG220412N-GE			.0469			●			

TRIANGULAR TYPE
NEGATIVE INSERT

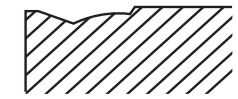
TN — Triangular Type / Negative / With Insert Hole

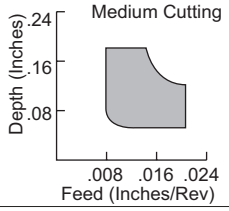
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

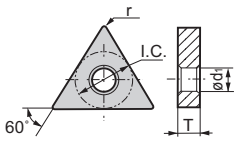
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNMG EUX

Rake Angle: 0°





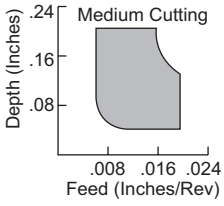


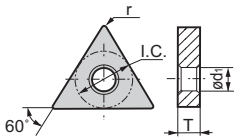
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	AC410K	T1500A	T1200A
Continuous Cut	●	●	●		●	●	●	●
Medium Cut	●	●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●		●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC410K	T1500A	T1200A
TNMG321EUX	TNMG160304N-UX	.375	.125	.0156	.150		●	●					
TNMG322EUX	TNMG160308N-UX			.0313			●	●					
TNMG331EUX	TNMG160404N-UX		.1875	.0156		●	●	●	●		▲		▲
TNMG332EUX	TNMG160408N-UX			.0313		●	●	●	●	●			▲
TNMG333EUX	TNMG160412N-UX			.0469		●	●	●	●				
TNMG432EUX	TNMG220408N-UX	.500		.0313	.2031	●	●	●	●	●	▲		
TNMG433EUX	TNMG220412N-UX			.0469		●		●	●	●			

TNMG ENG

Rake Angle: 4°





Cutting Conditions:	AC8025P	AC820P	AC830P	AC700G	T1200A
Continuous Cut	●	●		●	●
Medium Cut	●	●	●	●	●
Interrupted Cut	●	●	●	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G	T1200A
TNMG321ENG	TNMG160304N-UG	.375	.125	.0156	.150	●	●			
TNMG322ENG	TNMG160308N-UG			.0313		●	●	●		▲
TNMG331ENG	TNMG160404N-UG		.1875	.0156			★	★		
TNMG332ENG	TNMG160408N-UG			.0313		●	●	●	●	▲
TNMG333ENG	TNMG160412N-UG			.0469			★	★	●	
TNMG334ENG	TNMG160416N-UG			.0625				★		
TNMG432ENG	TNMG220408N-UG	.500		.0313	.2031	●	●	●	●	
TNMG433ENG	TNMG220412N-UG			.0469		●	●	★	●	
TNMG434ENG	TNMG220416N-UG			.0625				●		
TNMG542ENG	TNMG270608N-UG	.625	.250	.0313	.250	●	●	●		
TNMG543ENG	TNMG270612N-UG			.0469		●	●	●		
TNMG544ENG	TNMG270616N-UG			.0625		●	●	●		
TNMG666ENG	TNMG330924N-UG	.750	.375	.0938	.3126	●	●	●		

TRIANGULAR TYPE
NEGATIVE INSERT

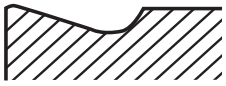
TN — Triangular Type / Negative / With Insert Hole

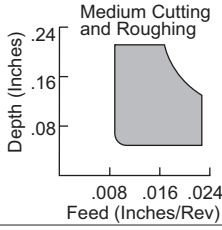
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

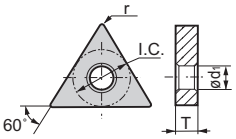
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNMG ENZ/FNZ

Rake Angle: 4°





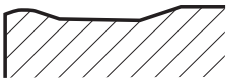


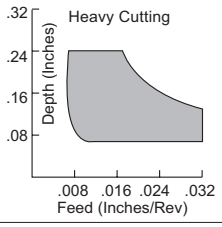
Cutting Conditions:	Coated										Uncoated							
Continuous Cut	●	●		●	●	●												
Medium Cut	●	●	●	●		●	●				●							
Interrupted Cut	●	●	●	●			●											

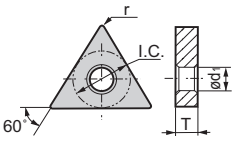
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G	AC405K	AC415K	AC420K	G10E
TNMG322 ENZ	TNMG160308N-UZ	.375	.125	.0313	.150			●					
TNMG323 ENZ	TNMG160312N-UZ			.0469				●					
TNMG331 ENZ	TNMG160404N-UZ		.1875	.0156								●	
TNMG332 ENZ	TNMG160408N-UZ			.0313		●	●	●	●	●	●	●	
TNMG333 ENZ	TNMG160412N-UZ			.0469			●	●	●	●	●	●	
TNMG334 ENZ	TNMG160416N-UZ			.0625								●	
TNMG335 ENZ	TNMG160420N-UZ			.0781								★	
TNMG432 ENZ	TNMG220408N-UZ	.500		.0313	.2031	●	●	●	●	●	●	●	
TNMG433 ENZ	TNMG220412N-UZ			.0469			●	●	●	●	●	●	
TNMG434 ENZ	TNMG220416N-UZ			.0625		●	●	●				●	
TNMG542 ENZ	TNMG270608N-UZ	.625	.250	.0313	.250	●	●	●					
TNMG543 ENZ	TNMG270612N-UZ			.0469		●	●	●	●				
TNMG544 ENZ	TNMG270616N-UZ			.0625		●	●	●					
TNMG548 ENZ	TNMG270632N-UZ			.125				●					
TNMG666 ENZ	TNMG330924N-UZ	.750	.375	.0938	.3126	●	●	●		●			
TNMG432 FNZ	TNMG220408N-UZ	.500	.1875	.0313	.2031								●

TNMG EMX

Rake Angle: -15°







Cutting Conditions:	Coated										Uncoated							
Continuous Cut	●	●																
Medium Cut	●	●	●															
Interrupted Cut	●	●	●															

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P
TNMG332 EMX	TNMG160408N-MX	.375	.1875	.0313	.150		●	●
TNMG333 EMX	TNMG160412N-MX			.0469			●	●
TNMG432 EMX	TNMG220408N-MX	.500		.0313	.2031	●	●	●
TNMG433 EMX	TNMG220412N-MX			.0469			●	●

TRIANGULAR TYPE
NEGATIVE INSERT

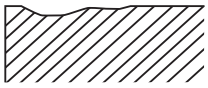
TN — Triangular Type / Negative / With Insert Hole

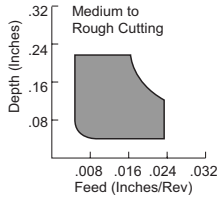
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

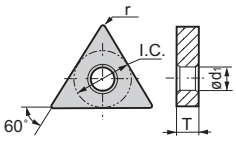
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TNMG EGZ

Rake Angle: 0°





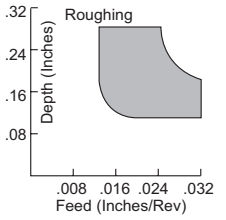


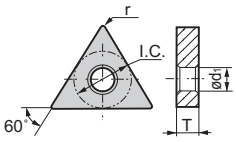
Cutting Conditions:	Coated			Cermet					Uncoated						
Continuous Cut	●	●													
Medium Cut		●	●												
Interrupted Cut			●												
	AC405K	AC415K	AC420K												

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC405K	AC415K	AC420K
TNMG331EGZ	TNMG160404N-GZ	.375	.1875	.0156	.150	●	●	
TNMG332EGZ	TNMG160408N-GZ			.0313		●	●	●
TNMG333EGZ	TNMG160412N-GZ			.0469		●	●	
TNMG432EGZ	TNMG220408N-GZ	.500		.0313	.2031	●	★	
TNMG433EGZ	TNMG220412N-GZ			.0469		★	★	

TNMM ENP

Rake Angle: 0°



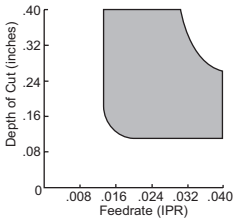


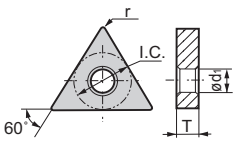
Cutting Conditions:	Coated													Uncoated				
Continuous Cut	●	●																
Medium Cut	●	●	●															
Interrupted Cut		●	●															
	AC810P	AC820P	AC830P															

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC820P	AC830P
TNMM332ENP	TNMM160408N-MP	.375	.1875	.0313	.150	★	★	●

TNMM EHG

Rake Angle: 0°





Cutting Conditions:	Coated													Cermet				
Continuous Cut	●	●	●															
Medium Cut	●	●	●	●														
Interrupted Cut		●	●	●														
	AC810P	AC8025P	AC820P	AC830P														

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P
TNMM432EHG	TNMM220408N-HG	.500	.1875	.0313	.2031	★	●	●	★
TNMM433EHG	TNMM220412N-HG			.0469		★	●	●	▲
TNMM434EHG	TNMM220416N-HG			.0625		★	●	●	

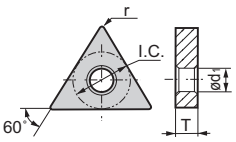
TRIANGULAR TYPE
NEGATIVE INSERT

TN Triangular Type / Negative

- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

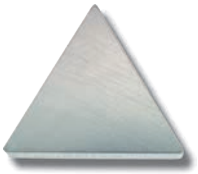
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

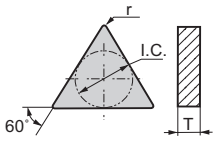
TNMA — No Breaker



Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC405K	AC410K	AC415K	AC420K	G10E	H1
TNMA322	TNMA160308	.375	.125	.0313	.150	●		▲	●			
TNMA331	TNMA160404		.1875	.0156		★	★	▲	●	●	★	
TNMA332	TNMA160408			.0313		●	●	▲	●	●		★
TNMA333	TNMA160412			.0469		●	●	▲	●	★		
TNMA334	TNMA160416			.0625		●	●		●	●		
TNMA335	TNMA160420			.0781		★				★		
TNMA431	TNMA220404	.500		.0156	.2031						▲	
TNMA432	TNMA220408			.0313		●	●		●	●		
TNMA433	TNMA220412			.0469		●	●	▲	●	●		
TNMA434	TNMA220416			.0625		●	●	▲	●			
TNMA438	TNMA220432			.125		●						
TNMA543	TNMA270612	.625	.250	.0469	.250	●	●		●			
TNMA544	TNMA270616			.0625			●				▲	

TNMN — No Breaker





Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC420K
TNMN332	TNMN160408	.375	.1875	.0313	-		●
TNMN333	TNMN160412			.0469			●
TNMN334	TNMN160416			.0625			●
TNMN432	TNMN220408	.500		.0313		●	

TRIANGULAR TYPE
NEGATIVE INSERT

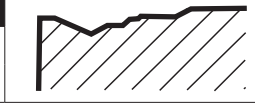
TRM — T-Rex Type / Negative / With Insert Hole

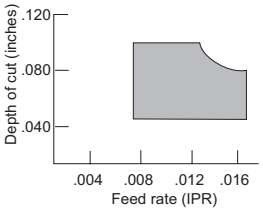
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

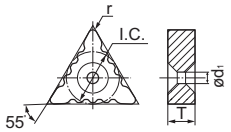
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TRM GU

Rake Angle: 7°





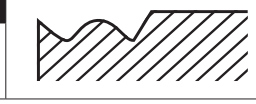


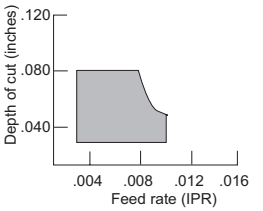
Cutting Conditions:	Coated								Cermet					Uncoated			
Continuous Cut	●	●	●		●	●	●	●									
Medium Cut	●	●	●	●	●	●	●	●									
Interrupted Cut		●	●	●	●		●	●									

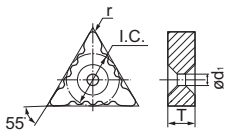
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC610M	AC6030M	AC630M
TRM551704GU	TRM551704-GU	.394	.197	.0156	.084	★	●	●	★	●		●	
TRM551708GU	TRM551708-GU			.0313		★	●	●	★	●	●	●	●
TRM551712GU	TRM551712-GU			.0469		★	●	●	★	●		●	●

TRM SU

Rake Angle: 13°





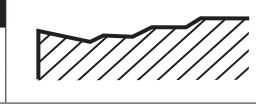


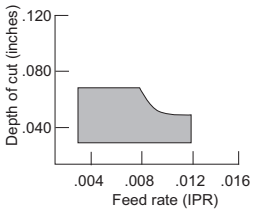
Cutting Conditions:	Coated								Cermet					Uncoated			
Continuous Cut	●	●	●	●													
Medium Cut	●	●	●	●													
Interrupted Cut	●		●	●													

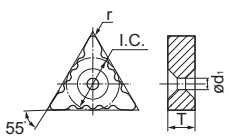
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC610M	AC6030M	AC630M
TRM551704SU	TRM551704-SU	.394	.197	.0156	.084		●	●	●
TRM551708SU	TRM551708-SU			.0313			●	●	●
TRM551712SU	TRM551712-SU			.0469		●	●	●	●

TRM LU

Rake Angle: 10°







Cutting Conditions:	Coated						Cermet			Uncoated			
Continuous Cut	●	●	●		●		●						
Medium Cut	●	●	●	●	●		●						
Interrupted Cut		●	●	●	●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	T2000Z
TRM551704LU	TRM551704-LU	.394	.197	.0156	.084	★	●	●	★	●	●
TRM551708LU	TRM551708-LU			.0313		★	●	●	★	●	●
TRM551712LU	TRM551712-LU			.0469		★	●	●	★	●	

35° DIAMOND TYPE
NEGATIVE INSERT

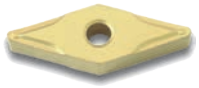
VN — 35° Diamond Type / Negative / With Insert Hole

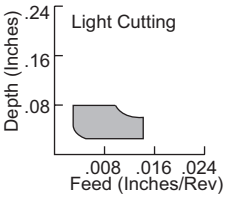
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

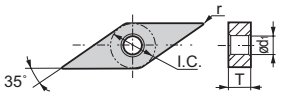
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VNGG ESU

Rake Angle: 13°







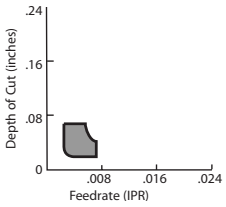
Cutting Conditions:	Coated				Cermet								Uncoated					
	AC520U				T1500Z	T2000Z	T3000Z	T1500A					H1					
Continuous Cut					●	●		●					●					
Medium Cut	●				●	●	●	●					●					
Interrupted Cut	●						●	●										

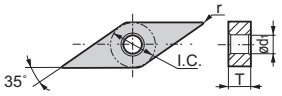
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC520U	T1500Z	T2000Z	T3000Z	T1500A	H1
VNGG330ESU	VNGG160401N-SU	.375	.1875	.0039	.150	●					
VNGG330ESUJ	VNGG160401N-SUJ										●
VNGG330.5ESU	VNGG160402N-SU			.0078		●	●	●	●		
VNGG330.5ESUJ	VNGG160402N-SUJ										●
VNGG331ESU	VNGG160404N-SU			.0156		●	●	●	★	●	
VNGG331ESUJ	VNGG160404N-SUJ										●
VNGG332ESU	VNGG160408N-SU			.0313		●	●	●	★	●	
VNGG332ESUJ	VNGG160408N-SUJ										●

J in ESUJ = J Polish

VNGG EEF

Rake Angle: 20°



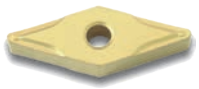


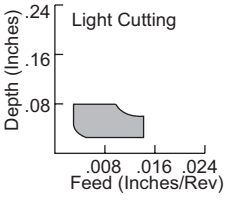
Cutting Conditions:	Coated	Uncoated
	AC520U	
Continuous Cut		
Medium Cut	●	
Interrupted Cut	●	

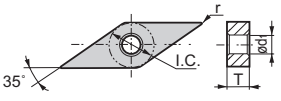
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC520U
VNGG330.5EEF	VNGG160402N-EF	.375	.1875	.0078	.150	●

VNMG ESU

Rake Angle: 13°







Cutting Conditions:	Coated												Cermet					UC	
	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A	EH510	EH520
Continuous Cut	●	●	●	●	●	●	●	●	●	★	●	●	●	●	●	●	▲	●	
Medium Cut	●	●	●	●	●	●	●	●	●	★	●	●	●	●	●	●	▲		●
Interrupted Cut		●	●	●	●	●									●	●	●		

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VNMG331ESU	VNMG160404N-SU	.375	.1875	.0156	.150
VNMG332ESU	VNMG160408N-SU			.0313	

35° DIAMOND TYPE
NEGATIVE INSERT

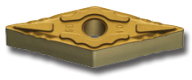
VN — 35° Diamond Type / Negative / With Insert Hole

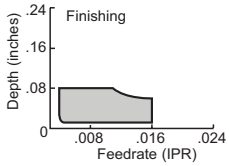
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

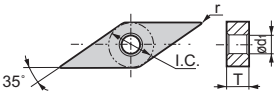
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VNMG ESE

Rake Angle: 5°





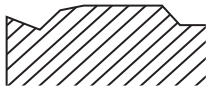


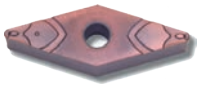
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	T1500A
	Coated				Cermet
Continuous Cut	●	●	●		●
Medium Cut	●	●	●	●	●
Interrupted Cut		●	●	●	●

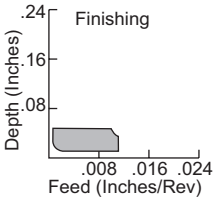
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	T1500A
VNMG331ESE	VNMG160404N-SE	.375	.1875	.0156	.150	●	●		★	●
VNMG332ESE	VNMG160408N-SE			.0313		●	●	●	★	●

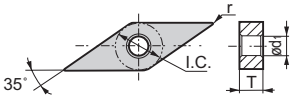
VNMG EFA

Rake Angle: 20°







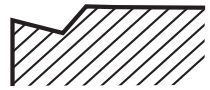


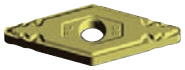
Cutting Conditions:	T1500Z	T2000Z	T3000Z	T1500A	T1200A
	Cermet				
Continuous Cut	●	●		●	●
Medium Cut	●	●	●	●	●
Interrupted Cut			●	●	●

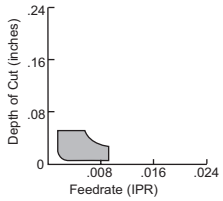
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T2000Z	T3000Z	T1500A	T1200A
VNMG331EFA	VNMG160404N-FA	.375	.1875	.0156	.150	●	●	★	●	▲
VNMG332EFA	VNMG160608N-FA			.0313		●	●	★	●	▲

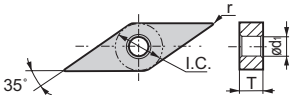
VNMG EFL

Rake Angle: 10°









Cutting Conditions:	AC810P	AC8025P	AC820P	T1500Z	T2000Z	T3000Z
	Coated			Cermet		
Continuous Cut	●	●	●	●	●	
Medium Cut	●	●	●	●	●	●
Interrupted Cut		●	●			●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	T1500Z	T2000Z	T3000Z
VNMG331EFL	VNMG160404N-FL	.375	.1875	.0156	.150	●	●	●	●	●	★
VNMG332EFL	VNMG160408N-FL			.0313		●	●	●	●	●	★

35° DIAMOND TYPE
NEGATIVE INSERT

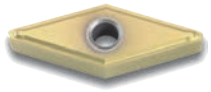
VN — 35° Diamond Type / Negative / With Insert Hole

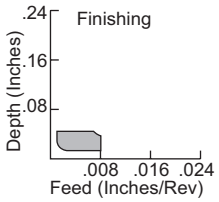
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

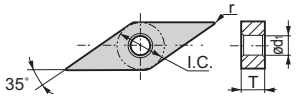
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VNMG EFP

Rake Angle: 10°





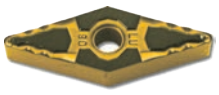


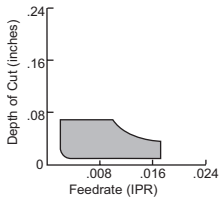
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●											
Medium Cut					●											
Interrupted Cut					●											
					T1200A											

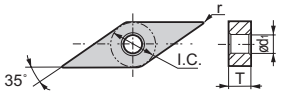
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1200A
VNMG331EFP	VNMG160404N-FP	.375	.1875	.0156	.150	▲
VNMG332EFP	VNMG160408N-FP			.0313		▲

VNMG ELU

Rake Angle: 10°





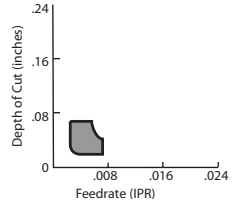


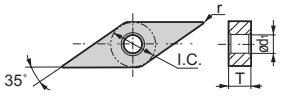
Cutting Conditions:	Coated					Cermet				Uncoated						
Continuous Cut	●	●	●	●		●	●		●							
Medium Cut	●	●	●	●		●	●	●	●							
Interrupted Cut		●	●	●				●								
	AC810P	AC8025P	AC820P	AC700G		T1500Z	T2000Z	T3000Z	T1500A							

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	T1500Z	T2000Z	T3000Z	T1500A
VNMG331ELU	VNMG160404N-LU	.375	.1875	.0156	.150	●	●	●	●	●	●	●	●
VNMG332ELU	VNMG160408N-LU			.0313		●	●	●	●	●	●	●	●
VNMG333ELU	VNMG160412N-LU			.0469		●							

VNMG EEF

Rake Angle: 20°





Cutting Conditions:	Coated							Cermet				Uncoated						
Continuous Cut	●	●	●	●	●							●						
Medium Cut		●	●	●	●	●						●	●					
Interrupted Cut		●	●	●		●												
	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U						EH510	EH520					

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	EH510	EH520
VNMG330.5EEF	VNMG160402N-EF	.375	.1875	.0078	.150	○	○						
VNMG331EEF	VNMG160404N-EF			.0156		○	●	●	●	●	●	●	●
VNMG332EEF	VNMG160408N-EF			.0313		○	●	●	●	●	●	●	●

35° DIAMOND TYPE
NEGATIVE INSERT

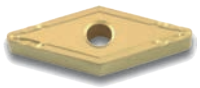
VN — 35° Diamond Type / Negative / With Insert Hole

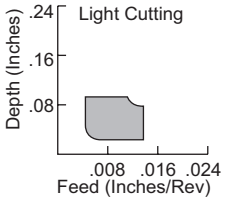
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

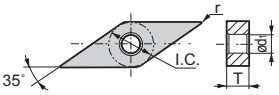
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VNMG ESX

Rake Angle: 3°





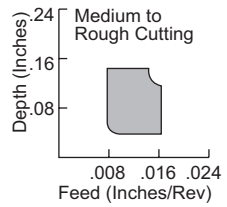


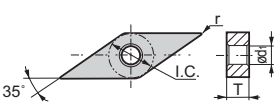
Cutting Conditions:	Coated						Cermet						Uncoated					
Continuous Cut	●	●	●		●		●	●										
Medium Cut	●	●	●	●	●		●	●										
Interrupted Cut		●	●	●	●													
	AC810P	AC8025P	AC820P	AC830P	AC700G		T1500A	T1200A										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1													
VNMG331ESX	VNMG160404N-SX	.375	.1875	.0156	.150	●	●	●	●	●		★	▲					
VNMG332ESX	VNMG160408N-SX			.0313		●	●	●	●	●								

VNMG ENG

Rake Angle: 4°



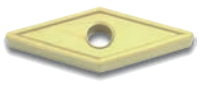


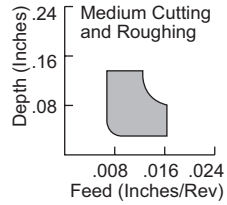
Cutting Conditions:	Coated										Cermet							
Continuous Cut	●	●		●							●							
Medium Cut	●	●	●	●							●							
Interrupted Cut	●	●	●	●							●							
	AC8025P	AC820P	AC830P	AC700G							T1200A							

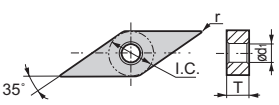
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1													
VNMG331ENG	VNMG160404N-UG	.375	.1875	.0156	.150	●	●	●	●						▲			
VNMG332ENG	VNMG160408N-UG			.0313		●	●	●	●						▲			

VNMG ENZ/FNZ

Rake Angle: 4°







Cutting Conditions:	Coated												Uncoated					
Continuous Cut	●	●		●	●													
Medium Cut	●	●	●		●	●							●					
Interrupted Cut	●	●	●			●												
	AC8025P	AC820P	AC830P	AC405K	AC415K	AC420K							G10E					

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1													
VNMG331ENZ	VNMG160404N-UZ	.375	.1875	.0156	.150		●	●	●	●	●							
VNMG332ENZ	VNMG160408N-UZ			.0313		●	●	●	●	●	●							
VNMG333ENZ	VNMG160412N-UZ			.0469		●	●	●			●							
VNMG432ENZ	VNMG220408N-UZ	.500		.0313	.2031	●	●	●										
VNMG433ENZ	VNMG220412N-UZ			.0469		●	●	●										
VNMG331FNZ	VNMG160404N-UZ	.375	.1875	.0156	.150									●				
VNMG332FNZ	VNMG160408N-UZ			.0313										●				

35° DIAMOND TYPE
NEGATIVE INSERT

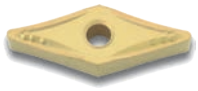
VN — 35° Diamond Type / Negative / With Insert Hole

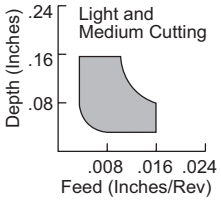
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

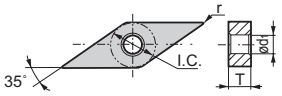
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VNMG EUP

Rake Angle: 10°





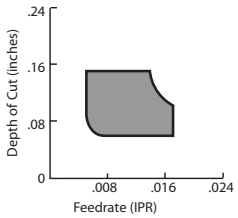


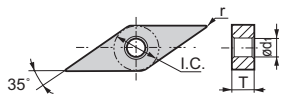
Cutting Conditions:	Coated										Uncoated					
	AC8025P	AC820P	AC830P	AC510U	AC520U						G10E					
Continuous Cut	●	●		●												
Medium Cut	●	●	●	●	●						●					
Interrupted Cut	●	●	●		●											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VNMG331EUP	VNMG160404N-UP	.375	.1875	.0156	.150
VNMG332EUP	VNMG160408N-UP			.0313	

VNMG EEG

Rake Angle: 0°



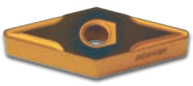


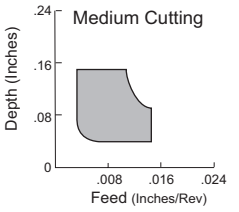
Cutting Conditions:	Coated						Cermet						Uncoated					
	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U												
Continuous Cut	○	○	○	○	●													
Medium Cut		○	○	○	●	●												
Interrupted Cut		○	○	○		●												

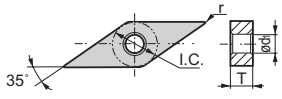
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VNMG331EEG	VNMG160404N-EG	.375	.1875	.0156	.150
VNMG332EEG	VNMG160408N-EG			.0313	
VNMG333EEG	VNMG160412N-EG			.0469	

VNMG EEX

Rake Angle: 16°







Cutting Conditions:	Coated										Uncoated					
	AC610M	AC6020M	AC6030M	AC630M	AC520U											
Continuous Cut	●	○	●	●												
Medium Cut	○	○	●	●	●											
Interrupted Cut			●	●	●											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VNMG331EEX	VNMG160404N-EX	.375	.1875	.0156	.150
VNMG332EEX	VNMG160408N-EX			.0313	

35° DIAMOND TYPE
NEGATIVE INSERT

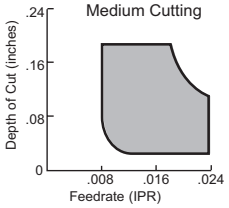
VN — 35° Diamond Type / Negative / With Insert Hole

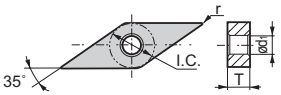
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VNMG EGE

Rake Angle: 3°



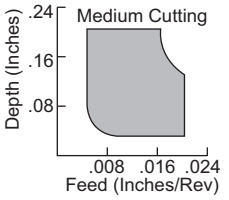


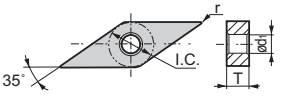
Cutting Conditions:	AC805P	AC810P	AC8025P	AC820P	AC830P
Continuous Cut	●	●	●	●	●
Medium Cut	●	●	●	●	●
Interrupted Cut		●	●	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VNMG331EGE	VNMG160404N-GE	.375	.1875	.0156	.150
VNMG332EGE	VNMG160408N-GE			.0313	
VNMG333EGE	VNMG160412N-GE			.0469	

VNMG EGU

Rake Angle: 7°



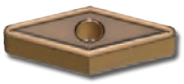


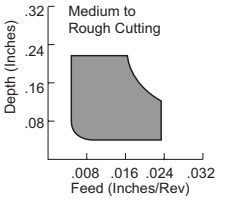
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC610M	AC6020M	AC6030M	AC630M	AC530U	T1500A	T1200A
Continuous Cut	●	●	●		●	●	●	○	●	●	★	●	▲
Medium Cut	●	●	●	●	●	●	●	○	●	●	★	●	▲
Interrupted Cut		●	●	★							★		

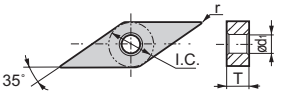
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VNMG331EGU	VNMG160404N-GU	.375	.1875	.0156	.150
VNMG332EGU	VNMG160408N-GU			.0313	
VNMG333EGU	VNMG160412N-GU			.0469	

VNMG EGZ

Rake Angle: 0°







Cutting Conditions:	AC405K	AC415K	AC420K
Continuous Cut	●	●	
Medium Cut		●	●
Interrupted Cut			●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VNMG331EGZ	VNMG160404N-GZ	.375	.1875	.0156	.150
VNMG332EGZ	VNMG160408N-GZ			.0313	
VNMG333EGZ	VNMG160412N-GZ			.0469	

35° DIAMOND TYPE
NEGATIVE INSERT

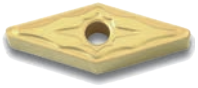
VN — 35° Diamond Type / Negative / With Insert Hole

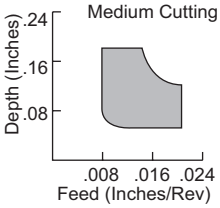
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

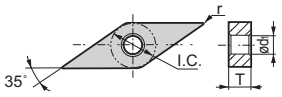
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VNMG EUX

Rake Angle: 0°





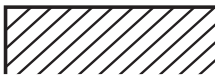


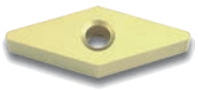
Cutting Conditions:	Coated							Cermet					
	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC410K						
Continuous Cut	●	●	●		●	●	●						
Medium Cut	●	●	●	●	●	●	●						
Interrupted Cut		●	●	●	●	●							

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC410K
VNMG331EUX	VNMG160404N-UX	.375	.1875	.0156	.150	●	●	●	●	●		▲
VNMG332EUX	VNMG160408N-UX			.0313		●	●	●	●	●	●	
VNMG333EUX	VNMG160412N-UX			.0469		●	●	●	★	●		

VNMA —

No Breaker





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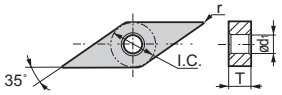


Cutting Conditions:	Coated					Uncoated					
	AC700G	AC405K	AC410K	AC415K	AC420K						
Continuous Cut	●	●	●	●							
Medium Cut	●		●	●	●						
Interrupted Cut	●				●						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC405K	AC410K	AC415K	AC420K
VNMA331	VNMA160404	.375	.1875	.0156	.150	★	●		●	●
VNMA332	VNMA160408			.0313		●	●	▲	●	●
VNMA333	VNMA160412			.0469		●	●		●	

TRIGON TYPE
NEGATIVE INSERT

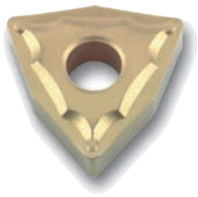
WN — Trigon Type / Negative / With Insert Hole

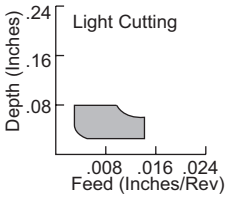
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

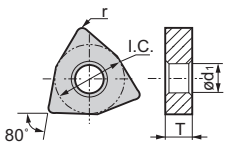
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WNGG ESU

Rake Angle: 13°





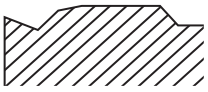


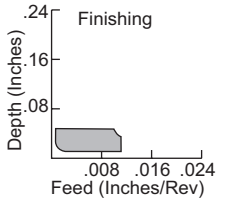
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●		●		●						
Medium Cut	●				●	●	●	●		●						
Interrupted Cut	●						●	●								
	AC520U				T1500Z	T2000Z	T3000Z	T1500A		H1						

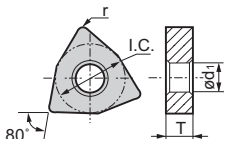
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC520U	T1500Z	T2000Z	T3000Z	T1500A	H1
WNGG431ESU	WNGG080404N-SU	.500	.1875	.0156	.2031	●	★	★	★	●	
WNGG431ESUJ	WNGG080404N-SUJ										●

WNMG EFA

Rake Angle: 20°





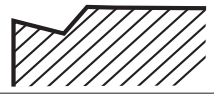


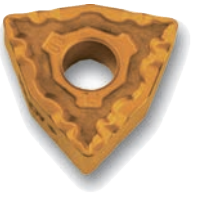
Cutting Conditions:	Coated				Cermet					Uncoated						
Continuous Cut					●	●		●	●							
Medium Cut					●	●	●	●	●							
Interrupted Cut							●	●	●							
					T1500Z	T2000Z	T3000Z	T1500A	T1200A							

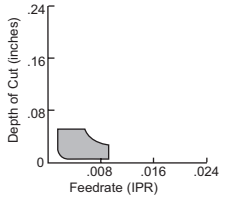
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T2000Z	T3000Z	T1500A	T1200A
WNMG430.5EFA	WNMG080402N-FA	.500	.1875	.0078	.2031	●	●	●	●	▲
WNMG431EFA	WNMG080404N-FA			.0156		●	●	★	●	▲
WNMG432EFA	WNMG080408N-FA			.0313		●	●	★	●	▲

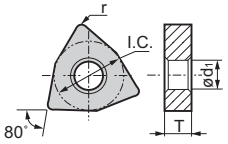
WNMG EFL

Rake Angle: 10°









Cutting Conditions:	Coated					Cermet			Uncoated							
Continuous Cut	●	●	●	●		●	●									
Medium Cut	●	●	●	◐		●	●	●								
Interrupted Cut		●	●	●				●								
	AC810P	AC8025P	AC820P	YB100		T1500Z	T2000Z	T3000Z								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	YB100	T1500Z	T2000Z	T3000Z
WNMG431EFL	WNMG080404N-FL	.500	.1875	.0156	.2031		●	●	●	●	●	★
WNMG432EFL	WNMG080408N-FL			.0313		●	●	●	●	●	●	★

TRIGON TYPE
NEGATIVE INSERT

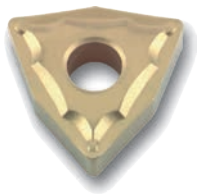
WN — Trigon Type / Negative / With Insert Hole

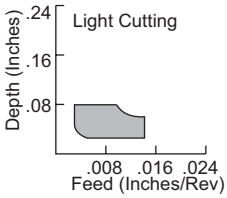
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

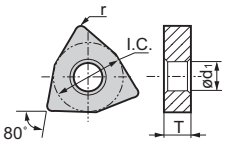
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WNMG ESU

Rake Angle: 13°





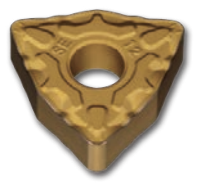


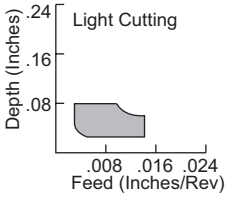
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A
	Coated												Cermet				
Continuous Cut	●	●			●	●	●	●	●	●			●	●		●	●
Medium Cut	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●	●	●	●	●	●	●	●			●	●	●

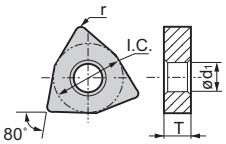
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
WNMG331ESU	WNMG060404N-SU	.375	.1875	.0156	.150
WNMG332ESU	WNMG060408N-SU			.0313	
WNMG431ESU	WNMG080404N-SU	.500		.0156	.2031
WNMG432ESU	WNMG080408N-SU			.0313	
WNMG433ESU	WNMG080412N-SU			.0469	

WNMG ESE

Rake Angle: 13°





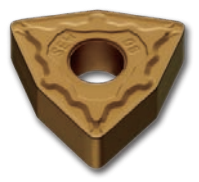


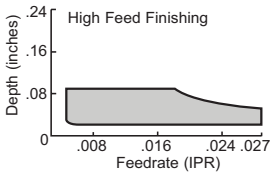
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	T1500A
	Coated				Cermet
Continuous Cut	●	●	●		●
Medium Cut	●	●	●	●	●
Interrupted Cut		●	●	●	●

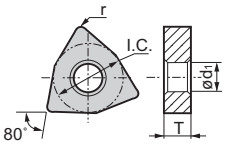
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
WNMG431ESE	WNMG080404N-SE	.500	.1875	.0156	.2031
WNMG432ESE	WNMG080408N-SE			.0313	
WNMG433ESE	WNMG080412N-SE			.0469	

WNMG ESEW
Wiper Insert

Rake Angle: 13°







Cutting Conditions:	AC805P	AC810P	AC8025P	AC820P	AC830P	T1500A
	Coated					Cermet
Continuous Cut	●	●	●	●		●
Medium Cut		●	●	●	●	●
Interrupted Cut			●	●	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
WNMG331ESEW	WNMG060404N-SEW	.375	.1875	.0156	.150
WNMG332ESEW	WNMG060408N-SEW			.0313	
WNMG431ESEW	WNMG080404N-SEW	.500		.0156	.2031
WNMG432ESEW	WNMG080408N-SEW			.0313	
WNMG433ESEW	WNMG080412N-SEW			.0469	

TRIGON TYPE
NEGATIVE INSERT

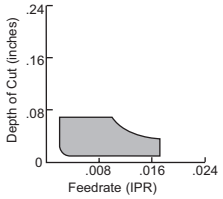
WN — Trigon Type / Negative / With Insert Hole

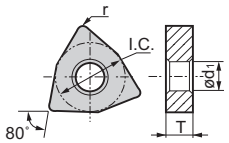
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WNMG ELU

Rake Angle: 10°



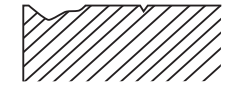


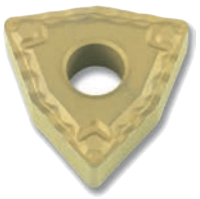
Cutting Conditions:	Coated					Cermet					Uncoated						
Continuous Cut	●	●	●		●	●	●		●	●							
Medium Cut	●	●	●	●	●	●	●	●	●	●							
Interrupted Cut		●	●	●	●			●	●	●							

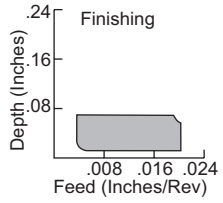
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	T1500Z	T2000Z	T3000Z	T1500A	T1200A
WNMG331ELU	WNMG060404N-LU	.375	.1875	.0156	.150		●								
WNMG332ELU	WNMG060408N-LU			.0313			●								
WNMG431ELU	WNMG080404N-LU	.500		.0156	.2031	●	●	●		●	●	●	●	★	▲
WNMG432ELU	WNMG080408N-LU			.0313		●	●	●	★	●	●	●	●	★	▲
WNMG433ELU	WNMG080412N-LU			.0469		●		●		●	★	●	●	★	▲

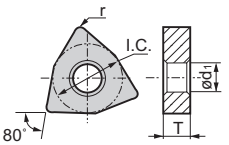
WNMG ELUW
Wiper Insert

Rake Angle: 10°







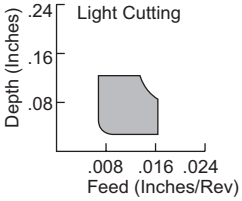


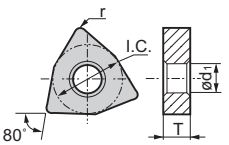
Cutting Conditions:	Coated							Cermet				Uncoated					
Continuous Cut	●	●	●	●	●	●	●	●	●		●						
Medium Cut	●	●	●	●	●	●	●	●	●	●	●						
Interrupted Cut		●	●	●	●	●	●			●	●						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	YB100	AC6030M	AC630M	T1500Z	T2000Z	T3000Z	T1500A
WNMG331ELUW	WNMG060404N-LUW	.375	.1875	.0156	.150	●	●	●	●		●	●	●	●	●	●
WNMG332ELUW	WNMG060408N-LUW			.0313		●	●	●	●		●	●	●	●	●	●
WNMG431ELUW	WNMG080404N-LUW	.500		.0156	.2031	●	●	●	●	●			●	●	●	●
WNMG432ELUW	WNMG080408N-LUW			.0313		●	●	●	●	●			●	●	●	●
WNMG433ELUW	WNMG080412N-LUW			.0469		●	●	●	●				●	●	●	●

WNMG ENK

Rake Angle: 10°





Cutting Conditions:	Coated	Cermet	Uncoated
Continuous Cut	●		
Medium Cut	●		
Interrupted Cut	●		

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC820P
WNMG431ENK	WNMG080404N-SK	.500	.1875	.0156	.2031	●
WNMG432ENK	WNMG080408N-SK			.0313		●

TRIGON TYPE
NEGATIVE INSERT

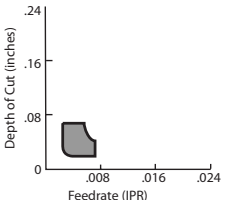
WN — Trigon Type / Negative / With Insert Hole

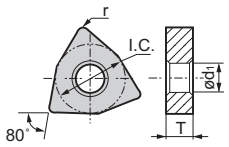
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WNMG EEF

Rake Angle: 20°



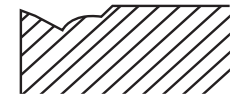


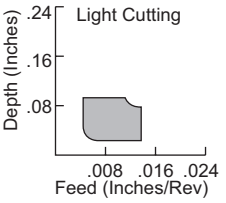
Cutting Conditions:	Coated						Cermet						Uncoated					
	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U							EH510	EH520				
Continuous Cut	○	○	○	○	●								●					
Medium Cut		○	○	○	●	●							●	●				
Interrupted Cut		○	○	○		●												

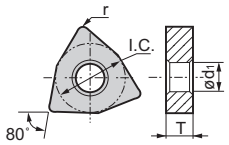
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	EH510	EH520
WNMG331EEF	WNMG060404N-EF	.375	.1875	.0156	.150	○	●	●			●		
WNMG332EEF	WNMG060408N-EF			.0313		○	●	●			●		
WNMG431EEF	WNMG080404N-EF	.500		.0156	.2031	○	●	●	●	●	●	●	●
WNMG432EEF	WNMG080408N-EF			.0313		○	●		●	●	●	●	●

WNMG ESX

Rake Angle: 3°





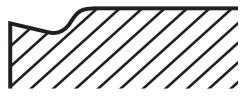


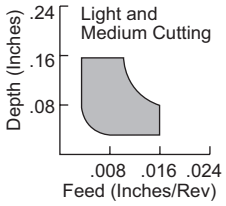
Cutting Conditions:	Coated						Cermet					Uncoated						
	AC810P	AC8025P	AC820P	AC830P	AC700G		T1500Z	T2000Z	T3000Z	T1500A	T1200A							
Continuous Cut	●	●	●		●		●	●		●	●							
Medium Cut	●	●	●	●	●		●	●	●	●	●							
Interrupted Cut		●	●	●	●				●	●	●							

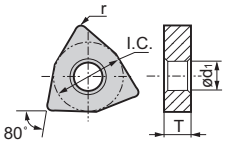
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	T1500Z	T2000Z	T3000Z	T1500A	T1200A
WNMG431ESX	WNMG080404N-SX	.500	.1875	.0156	.2031	●	●	●	●	●	●	●	★	★	▲
WNMG432ESX	WNMG080408N-SX			.0313		●	●	●	●	●	●	●	★	★	▲
WNMG433ESX	WNMG080412N-SX			.0469		●	●	●	●	●					

WNMG EUP

Rake Angle: 10°







Cutting Conditions:	Coated									Uncoated				
	AC8025P	AC820P	AC830P	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U					
Continuous Cut	●	●		○	○	○	●	●	●					
Medium Cut	●	●	●	○	○	○	●	●	●	●				
Interrupted Cut	●	●	●	○		○			●					

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC6030M	AC6040M	AC630M	AC530U	AC510U	AC520U	G10E
WNMG432EUP	WNMG080408N-UP	.500	.1875	.0313	.2031	●	●	●	●	●	●	★	●	●	●
WNMG433EUP	WNMG080412N-UP			.0469			●	●	●		●	★	★	●	

TRIGON TYPE
NEGATIVE INSERT

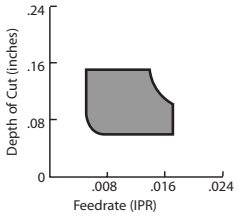
WN — Trigon Type / Negative / With Insert Hole

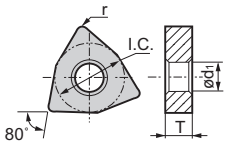
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WNMG EEG

Rake Angle: 0°



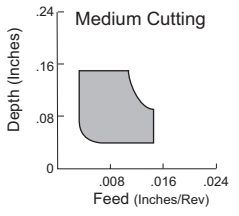


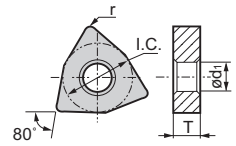
Cutting Conditions:	Coated								Cermet				Uncoated				
Continuous Cut	●	○	●	●	●	●							●				
Medium Cut	●		○	○	○	●	●						●	●			
Interrupted Cut	●		○	○	○		●										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	EH510	EH520
WNMG332EEG	WNMG060408N-EG	.375	.1875	.0313	.150	●	○	●	●			●		
WNMG333EEG	WNMG060412N-EG			.0469			○	●	●			●		
WNMG431EEG	WNMG080404N-EG	.500		.0156	.2031		○							
WNMG432EEG	WNMG080408N-EG			.0313		●	○	●	●	●	●	●	●	●
WNMG433EEG	WNMG080412N-EG			.0469		●	○	●	●	●	●	●	●	●

WNMG EEX

Rake Angle: 16°



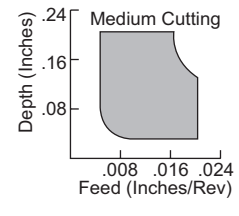


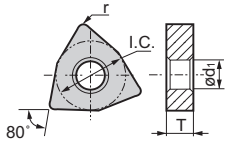
Cutting Conditions:	Coated								Uncoated								
Continuous Cut	●	○	●	●	●	●	●				●						
Medium Cut	●	○	●	●	●	●	●	●			●	●					
Interrupted Cut	○		○	○	○	○		●									

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	AC610M	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	EH510	EH520
WNMG331EEX	WNMG060404N-EX	.375	.1875	.0156	.150							●	●		
WNMG332EEX	WNMG060408N-EX			.0313								●	●		
WNMG431EEX	WNMG080404N-EX	.500		.0156	.2031	★	●	○	●	●	●	●	●	●	●
WNMG432EEX	WNMG080408N-EX			.0313		★	●	○	●	●	●	●	●	●	●
WNMG433EEX	WNMG080412N-EX			.0469		★	●	○	●		●				

WNMG EGU

Rake Angle: 7°





Cutting Conditions:	Coated												Cermet				
Continuous Cut	●	●	●		●	●	●	●	●	●	●		●	●			
Medium Cut	●	●	●	●	●	●	●	●	●	●	●		●	●			
Interrupted Cut		●	●	●	●	●	●		●	●	●		●	●			

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC530U	AC610M	AC6020M	AC6030M	AC630M	T1500A	T1200A
WNMG331EGU	WNMG060404N-GU	.375	.1875	.0156	.150									○				
WNMG332EGU	WNMG060408N-GU			.0313			●	●						○	●			
WNMG333EGU	WNMG060412N-GU			.0469				●						○				
WNMG431EGU	WNMG080404N-GU	.500		.0156	.2031	●	●	●	●	●		★	●	○	●	●	★	▲
WNMG432EGU	WNMG080408N-GU			.0313		●	●	●	●	●	●	★	●	○	●	●	★	▲
WNMG433EGU	WNMG080412N-GU			.0469		●	●	●	●	●		★	●	○	●	●		

TRIGON TYPE
NEGATIVE INSERT

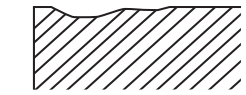
WN — Trigon Type / Negative / With Insert Hole

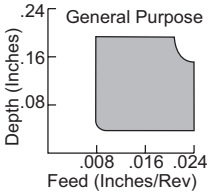
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

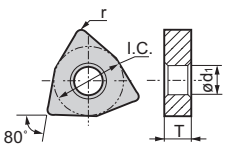
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WNMG EGUW
Wiper Insert

Rake Angle: 0°





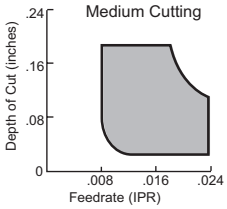


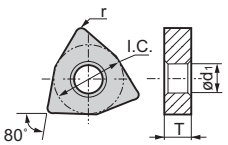
Cutting Conditions:	Coated									Cermet			Uncoated			
Continuous Cut	●	●	●		●	●	●	●	●							
Medium Cut	●	●	●	●	●	●	●		●							
Interrupted Cut		●	●	●	●	●	●									

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC6030M	AC630M	AC405K	AC415K
WNMG332EGUW	WNMG060408N-GUW	.375	.1875	.0313	.150	●	●	●	●					
WNMG432EGUW	WNMG080408N-GUW	.500		.0313	.2031	●	●	●		●	●	●	●	●
WNMG433EGUW	WNMG080412N-GUW			.0469		●	●	●		●	●	●	●	●

WNMG EGE

Rake Angle: 3°



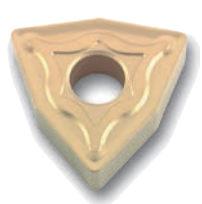


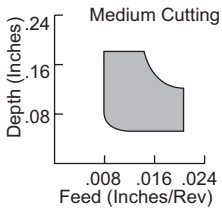
Cutting Conditions:	Coated						Uncoated						
Continuous Cut	●	●	●	●		●							
Medium Cut		●	●	●	●	●							
Interrupted Cut			●	●	●	●							

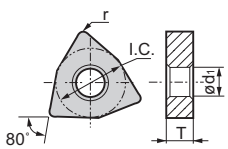
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC805P	AC810P	AC8025P	AC820P	AC830P	AC700G
WNMG332EGE	WNMG060408N-GE	.375	.1875	.0313	.150		●	●	●	●	
WNMG333EGE	WNMG060412N-GE			.0469			●		●	●	●
WNMG432EGE	WNMG080408N-GE	.500		.0313	.2031	●	●	●	●	●	●
WNMG433EGE	WNMG080412N-GE			.0469		●	●	●	●	●	●
WNMG434EGE	WNMG080416N-GE			.0625				●	●	●	

WNMG EUX

Rake Angle: 0°







Cutting Conditions:	Coated							Cermet						
Continuous Cut	●	●	●		●	●	●							
Medium Cut	●	●	●	●	●	●	●							
Interrupted Cut	●	●	●	●	●	●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC410K
WNMG431EUX	WNMG080404N-UX	.500	.1875	.0156	.2031	●	●	●	●	●	●	▲
WNMG432EUX	WNMG080408N-UX			.0313		●	●	●	●	●	●	
WNMG433EUX	WNMG080412N-UX			.0469		●	●	●	●	●	●	▲

TRIGON TYPE
NEGATIVE INSERT

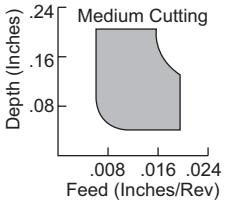
WN — Trigon Type / Negative / With Insert Hole

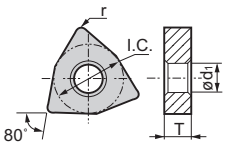
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WNMG ENG

Rake Angle: 4°



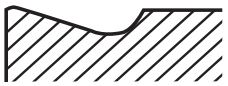


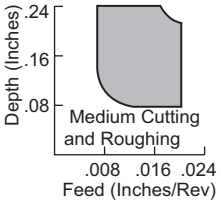
Cutting Conditions:	AC8025P	AC820P	AC830P	AC700G
Continuous Cut	●	●		●
Medium Cut	●	●	●	●
Interrupted Cut	●	●	●	●

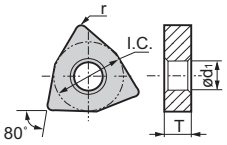
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G
WNMG431ENG	WNMG080404N-UG	.500	.1875	.0156	.2031	●	●	●	●
WNMG432ENG	WNMG080408N-UG			.0313		●	●	●	●
WNMG433ENG	WNMG080412N-UG			.0469		●	●	●	
WNMG543ENG	WNMG160612N-UG	.625	.250	.0469	.250	●	●	●	●

WNMG ENZ

Rake Angle: 4°





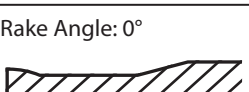


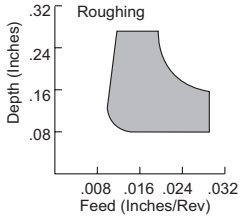
Cutting Conditions:	AC8025P	AC820P	AC830P	AC700G	AC405K	AC410K	AC415K	AC420K	G10E
Continuous Cut	●	●		●	●	●	●		
Medium Cut	●	●	●	●		●	●	●	●
Interrupted Cut	●	●	●	●				●	

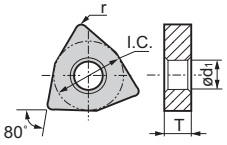
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G	AC405K	AC410K	AC415K	AC420K	G10E
WNMG431ENZ	WNMG080404N-UZ	.500	.1875	.0156	.2031	●	●	●	●	●		●	●	
WNMG432ENZ	WNMG080408N-UZ			.0313		●	●	●	●	●	▲	●	●	▲
WNMG433ENZ	WNMG080412N-UZ			.0469		●	●	●	●	●		●	●	

WNMG EEM

Rake Angle: 0°







Cutting Conditions:	AC8025P	AC6030M	AC6040M	AC510U	AC520U
Continuous Cut	●	●	●	●	●
Medium Cut	●	●	●	●	●
Interrupted Cut	●	●	●	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6030M	AC6040M	AC510U	AC520U
WNMG432EEM	WNMG080408N-EM	.500	.1875	.0313	.2031	●	●	●	●	●
WNMG433EEM	WNMG080412N-EM			.0469			●	●	●	●

TRIGON TYPE
NEGATIVE INSERT

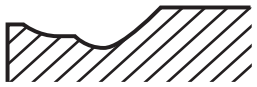
WN — Trigon Type / Negative / With Insert Hole

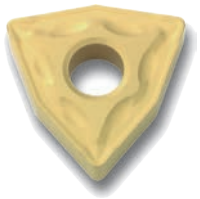
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

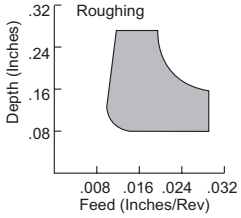
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

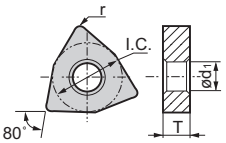
WNMG EMU

Rake Angle: 4°







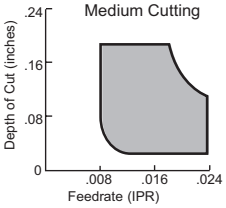


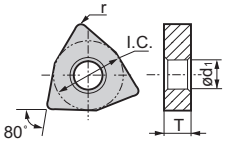
Cutting Conditions:	Coated													Uncoated			
	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC530U	AC610M	AC6030M	AC6040M	AC630M	AC510U	AC520U				
Continuous Cut	●	●	●		●	●	●	●	●	●	●	●					
Medium Cut	●	●	●	●	●	●	●	●	●	●	●	●	●				
Interrupted Cut		●	●	●	●	●	●		●	●	●		●				

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	YB100	AC530U	AC610M	AC6030M	AC6040M	AC630M	AC510U	AC520U				
WNMG332EMU	WNMG060408N-MU	.375	.1875	.0313	.150	●	●	●	●	●				●		●	●	●				
WNMG333EMU	WNMG060412N-MU			.0469				●	●	●				●		●						
WNMG432EMU	WNMG080408N-MU	.500		.0313	.2031	●	●	●	●	●	●	★	●	●	●	●	●	●				
WNMG433EMU	WNMG080412N-MU			.0469		●	●	●	●	●	▲	★	●	●	●	●	●	●				
WNMG543EMU	WNMG160612N-MU	.625	.250	.0469	.250	●	●	●	●	●												

WNMG EME

Rake Angle: 3°



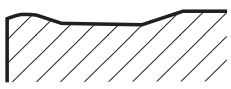


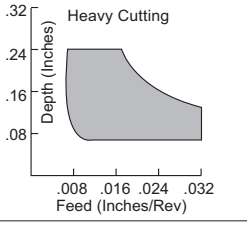
Cutting Conditions:	Coated				Uncoated												
	AC810P	AC8025P	AC820P	AC830P													
Continuous Cut	●	●	●														
Medium Cut	●	●	●	●													
Interrupted Cut		●	●	●													

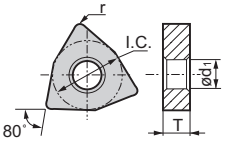
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P													
WNMG332EME	WNMG060408N-ME	.375	.1875	.0313	.150	●	●	●	●													
WNMG333EME	WNMG060412N-ME			.0469		●		●	●													
WNMG432EME	WNMG080408N-ME	.500		.0313	.2031	●	●	●	●													
WNMG433EME	WNMG080412N-ME			.0469		●	●	●	●													
WNMG434EME	WNMG080416N-ME			.0625		●	●	●	●													

WNMG EMX

Rake Angle: -15°







Cutting Conditions:	Coated													Uncoated			
	AC8025P	AC820P	AC830P														
Continuous Cut	●	●															
Medium Cut	●	●	●														
Interrupted Cut	●	●	●														

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P														
WNMG432EMX	WNMG080408N-MX	.500	.1875	.0313	.2031	●	●	●														
WNMG433EMX	WNMG080412N-MX			.0469		●	●	●														

TRIGON TYPE
NEGATIVE INSERT

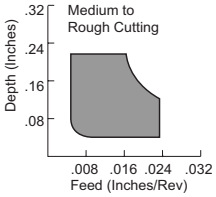
WN — Trigon Type / Negative / With Insert Hole

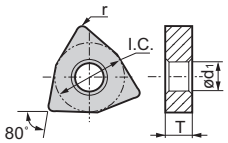
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WNMG
EGZ

Rake Angle: 0°



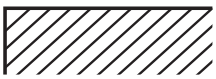


Cutting Conditions:	Coated												Uncoated			
Continuous Cut	●	●	●													
Medium Cut		●	●	●												
Interrupted Cut				●												

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC405K	AC410K	AC415K	AC420K
WNMG332EGZ	WNMG060408N-GZ	.375	.1875	.0313	.150	●		●	●
WNMG333EGZ	WNMG060412N-GZ			.0469		●		●	●
WNMG431EGZ	WNMG080404N-GZ	.500		.0156	.2031	●		●	●
WNMG432EGZ	WNMG080408N-GZ			.0313		●		●	●
WNMG433EGZ	WNMG080412N-GZ			.0469		●	▲	●	●

WNMA

No Breaker



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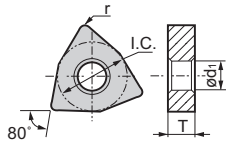


Cutting Conditions:	Coated												Uncoated			
Continuous Cut	●	●	●	●												
Medium Cut	●		●	●	●											
Interrupted Cut	●				●											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC405K	AC410K	AC415K	AC420K
WNMA432	WNMA080408	.500	.1875	.0313	.2031	●	●	▲	●	●
WNMA433	WNMA080412			.0469		●	●	▲	●	●
WNMA434	WNMA080416			.0625		●	●		●	●

80° DIAMOND TYPE
POSITIVE INSERT

CC
80° Diamond Type
7° Relief
With Insert Hole

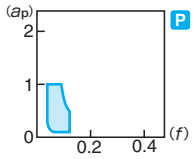
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

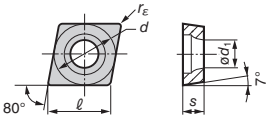
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CCET FY

Rake Angle: 15°

Cutting Conditions:	Coated	Cermet	Uncoated
Continuous Cut	●		
Medium Cut	◐		
Interrupted Cut	◌		



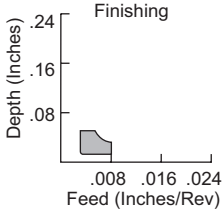


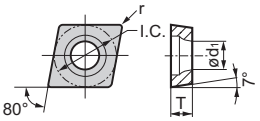
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U
CCET03X1003LFY	CCET03X1003LFY	.1378	.055	.0012	.071	★
CCET03X101LFY	CCET03X101LFY			.0039		★
CCET03X102LFY	CCET03X102LFY			.0078		★
CCET03X104LFY	CCET03X104LFY			.0156		★
CCET04X1003LFY	CCET04X1003LFY	.1693	.071	.0012	.087	★
CCET04X101LFY	CCET04X101LFY			.0039		★
CCET04X102LFY	CCET04X102LFY			.0078		★
CCET04X104LFY	CCET04X104LFY			.0156		★

CCGT FX

Rake Angle: 15°

Cutting Conditions:	Coated		Cermet				Uncoated
Continuous Cut	●	○	●	●	●	●	
Medium Cut	◐	◌	◐	◐	◐	◐	
Interrupted Cut	◌	◌			◌	◌	





Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310	T1500Z	T2000Z	T1500A	T1200A
CCGT21.5.001RFX	CCGT0602003R-FX	.250	.094	.0012	.110	★	▲			★	▲
CCGT21.5.001LFX	CCGT0602003L-FX			.0012		★	▲			★	▲
CCGT21.50RFX	CCGT060201R-FX			.0039		★	▲			★	
CCGT21.50LFX	CCGT060201L-FX			.0039		●	▲			★	▲
CCGT21.50.5RFX	CCGT060202R-FX			.0078		★				★	▲
CCGT21.50.5LFX	CCGT060202L-FX			.0078		●		●	●	★	▲
CCGT21.51RFX	CCGT060204R-FX			.0156		★	▲				
CCGT21.51LFX	CCGT060204L-FX			.0156		●	▲		●		
CCGT32.5.001RFX	CCGT09T3003R-FX	.375	.156	.0012	.1732	★	▲			★	▲
CCGT32.5.001LFX	CCGT09T3003L-FX			.0012		★				★	
CCGT32.50RFX	CCGT09T301R-FX			.0039		★	▲			★	▲
CCGT32.50LFX	CCGT09T301L-FX			.0039		★	▲			★	▲
CCGT32.50.5RFX	CCGT09T302R-FX			.0078		★	▲			●	▲
CCGT32.50.5LFX	CCGT09T302L-FX			.0078		★	▲			★	▲
CCGT32.51RFX	CCGT09T304R-FX			.0156		●	▲				
CCGT32.51LFX	CCGT09T304L-FX			.0156		★					

80° DIAMOND TYPE
POSITIVE INSERT

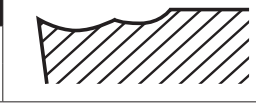
CC — 80° Diamond Type / 7° Relief / With Insert Hole

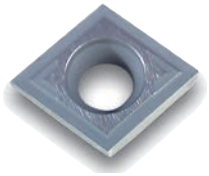
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

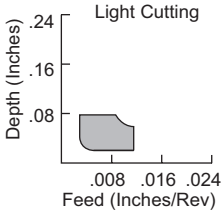
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

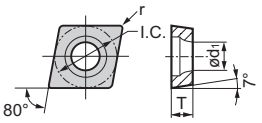
CCGT EFM

Rake Angle: 6°









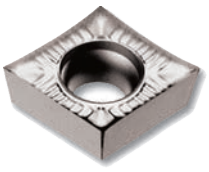
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut	●	○			●	●	●	●								
Medium Cut	●	○			●	●	●	●								
Interrupted Cut	●	○					●	●								

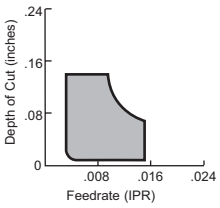
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310			T1500Z	T2000Z	T1500A	T1200A								
CCGT21.5.001EFM	CCGT0602003N-SC	.250	.094	.0012	.110	●						★	▲								
CCGT21.50EFM	CCGT060201N-SC			.0039		★	▲				●		▲								
CCGT21.50MEFM	CCGT060201MN-SC			.0039						●		●									
CCGT21.50.5EFM	CCGT060202N-SC			.0078		●	▲				●		▲								
CCGT21.50.5MEFM	CCGT060202MN-SC			.0078						●		●									
CCGT2.51.50EFM	CCGT080201N-SC	.3125		.0039	.134							★	●								
CCGT2.51.50.5EFM	CCGT080202N-SC			.0078								●	●								
CCGT32.5.001EFM	CCGT09T3003N-SC	.375	.156	.0012	.1732	●	▲					★	▲								
CCGT32.50EFM	CCGT09T301N-SC			.0039		●	▲				●		▲								
CCGT32.50MEFM	CCGT09T301MN-SC			.0039						●		●									
CCGT32.50.5EFM	CCGT09T302N-SC			.0078		●	▲				●		▲								
CCGT32.50.5MEFM	CCGT09T302MN-SC			.0078						●		●									

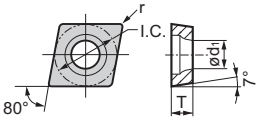
M = Negative nose radius tolerance (-0.0001" to -0.0004")

CCGT NAG

Rake Angle: 20°







Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut									●							
Medium Cut									●							
Interrupted Cut																

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	H1															
CCGT21.51NAG	CCGT060204N-AG	.250	.094	.0156	.110	●															
CCGT32.51NAG	CCGT09T304N-AG	.375	.156	.0156	.1732	●															
CCGT32.52NAG	CCGT09T308N-AG			.0313		●															

80° DIAMOND TYPE
POSITIVE INSERT

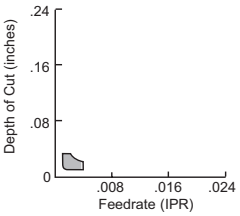
CC — 80° Diamond Type · 7° Relief · With Insert Hole

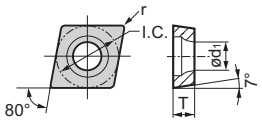
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CCGT EFC

Rake Angle: 15°





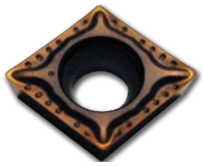
Cutting Conditions:	Coated				Cermet				Uncoated							
	AC530U				T1500A											
Continuous Cut	●				●											
Medium Cut	●				●											
Interrupted Cut	●				●											

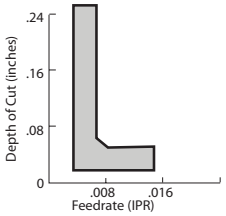
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	T1500A
CCGT21.50EFC	CCGT060201N-FC	.250	.094	.0039	.110	●	●
CCGT21.50MEFC	CCGT060201MN-FC			.0039			●
CCGT21.50.5EFC	CCGT060202N-FC			.0078		●	●
CCGT21.50.5MEFC	CCGT060202MN-FC			.0078			●
CCGT21.51EFC	CCGT060204N-FC			.0156		●	●
CCGT21.51MEFC	CCGT060204MN-FC			.0156			●
CCGT32.5.001EFC	CCGT09T3003N-FC	.375	.156	.0012	.1732	●	
CCGT32.50EFC	CCGT09T301N-FC			.0039		●	●
CCGT32.50MEFC	CCGT09T301MN-FC			.0039			●
CCGT32.50.5EFC	CCGT09T302N-FC			.0078		●	●
CCGT32.50.5MEFC	CCGT09T302MN-FC			.0078			●
CCGT32.51EFC	CCGT09T304N-FC			.0156		●	●
CCGT32.51MEFC	CCGT09T304MN-FC			.0156			●

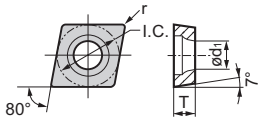
M = Negative nose radius tolerance (-0.0001" to -0.0004")

CCGT ESI

Rake Angle: 15°







Cutting Conditions:	Coated								Cermet				Uncoated			
	AC530U	AC610M	AC6030M	AC630M	AC510U	AC520U			T1500Z	T1500A						
Continuous Cut	●	●	●	●	●	●			●	●						
Medium Cut	●	●	●	●	●	●			●	●						
Interrupted Cut	●		●	●		●				●						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	AC610M	AC6030M	AC630M	AC510U	AC520U	T1500Z	T1500A
CCGT32.50MESI	CCGT09T301MN-SI	.375	.156	.0039	.1732	●	●	●	●	●	●	●	●
CCGT32.50.5MESI	CCGT09T302MN-SI			.0078		●	●	●	●	●	●	●	●
CCGT32.51MESI	CCGT09T304MN-SI			.0156		●	●	●	●	●	●	●	●

M = Negative nose radius tolerance (-0.0001" to -0.0004")

80° DIAMOND TYPE
POSITIVE INSERT

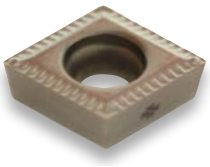
CC — 80° Diamond Type / 7° Relief / With Insert Hole

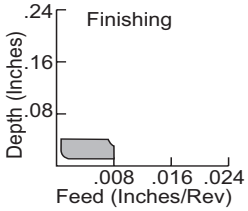
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

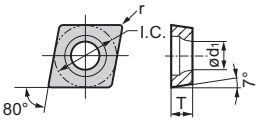
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CCMT EFB

Rake Angle: 20°





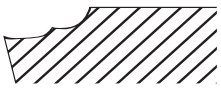


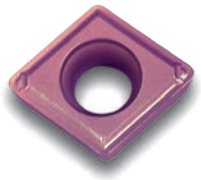
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●										
Medium Cut					●	●										
Interrupted Cut						●										

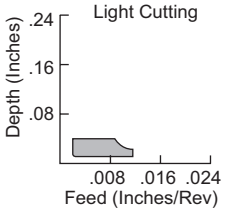
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T1500A
CCMT21.50.5EFB	CCMT060202N-FB	.250	.094	.0078	.110	●	●
CCMT21.51EFB	CCMT060204N-FB			.0156		●	●
CCMT32.51EFB	CCMT09T304N-FB	.375	.156	.0156	.1732	●	●
CCMT32.52EFB	CCMT09T308N-FB			.0313		●	●

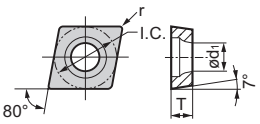
CCMT EFP

Rake Angle: 10°







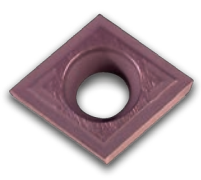


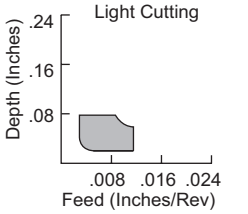
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●	●									
Medium Cut					●	●	●									
Interrupted Cut						●	●									

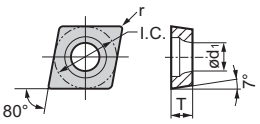
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T2000Z	T1500A	T1200A
CCMT21.51EFP	CCMT060204N-FP	.250	.094	.0156	.110	●		▲
CCMT32.51EFP	CCMT09T304N-FP	.375	.156	.0156	.1732	●	●	▲
CCMT32.52EFP	CCMT09T308N-FP			.0313		●		▲

CCMT EFM

Rake Angle: 6°







Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut	●	●														
Medium Cut	●	●														
Interrupted Cut	●	●														

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P
CCMT21.51EFM	CCMT060204N-SC	.250	.094	.0156	.110	●	●
CCMT322EFM	CCMT090308N-SC	.375	.125	.0313	.1732		★

80° DIAMOND TYPE
POSITIVE INSERT

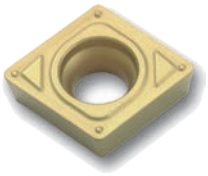
CC
80° Diamond Type
7° Relief
With Insert Hole

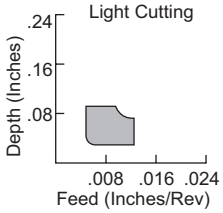
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

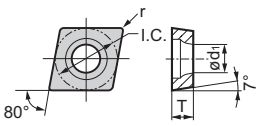
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CCMT ENK

Rake Angle: 8°





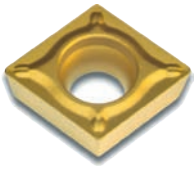


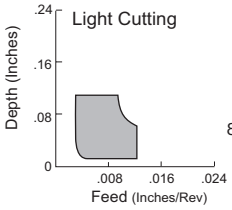
Cutting Conditions:	Coated										Cermet				Uncoated				
Continuous Cut	●	●		●															
Medium Cut	●	●	●	●															
Interrupted Cut	●	●	●	●															

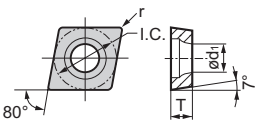
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G
CCMT21.51ENK	CCMT060204N-SK	.250	.094	.0156	.110	●	●	●	●
CCMT21.52ENK	CCMT060208N-SK			.0313		●	●	●	●
CCMT32.51ENK	CCMT09T304N-SK	.375	.156	.0156	.1732	●	●	●	●
CCMT32.52ENK	CCMT09T308N-SK			.0313		●	●	●	●
CCMT431ENK	CCMT120404N-SK	.500	.1875	.0156	.2165	●	●	●	
CCMT432ENK	CCMT120408N-SK			.0313		●	●	●	

CCMT ESU

Rake Angle: 8°







Cutting Conditions:	Coated																Cermet				
Continuous Cut	●	●	●		●	●	●	●	●	●	●	●	●	●		●	●	●		●	●
Medium Cut	●	●	●	●	●	●	●		●	●	●		●	●	●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●	●			●	●	●				●				●	●	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC530U	AC610M	AC6020M	AC6030M	AC6040M	AC630M	AC405K	AC410K	AC415K	AC420K	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A
CCMT21.50.5ESU	CCMT060202N-SU	.250	.094	.0078	.110		●	●	●	●	●	●	○	●		●					●	●	●	●	●	●	●
CCMT21.51ESU	CCMT060204N-SU			.0156		●	●	●	●	●	●	●	○	●	●	●	●		●		●	●	●	●	●	●	●	▲
CCMT21.52ESU	CCMT060208N-SU			.0313		●	●	●	●	●	●	●	○	●	●	●	●		●		●	●	●	●			●	▲
CCMT32.50.5ESU	CCMT09T302N-SU	.375	.156	.0078	.1732		●	●	●			●	○	●		●					●	●	●	●	●		
CCMT32.51ESU	CCMT09T304N-SU			.0156		●	●	●	●	●	●	●	○	●	●	●	●		●		●	●	●	●	●	●	●	▲
CCMT32.52ESU	CCMT09T308N-SU			.0313		●	●	●	●	●	●	●	○	●	●	●	●	▲	●		●	●	●	●	●	●	●	▲
CCMT431ESU	CCMT120404N-SU	.500	.1875	.0156	.2165		●	●	●								●		●	●								
CCMT432ESU	CCMT120408N-SU			.0313			●	●	●								●		●	●								

80° DIAMOND TYPE
POSITIVE INSERT

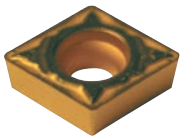
CC — 80° Diamond Type / 7° Relief / With Insert Hole

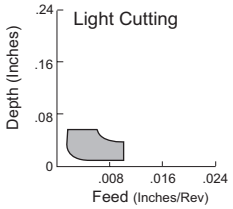
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

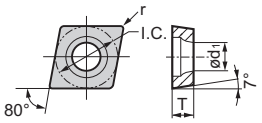
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CCMT ELU

Rake Angle: 12°





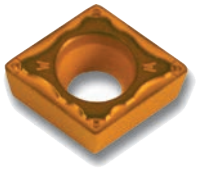


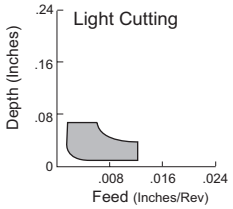
Cutting Conditions:	Coated										Cermet				Uncoated			
	AC810P	AC8025P	AC820P	AC700G	AC6030M	AC630M					T1500Z	T2000Z	T3000Z					
Continuous Cut	●	●	●	●	○	○					●	●						
Medium Cut	●	●	●	●	○	○					●	●	●					
Interrupted Cut		●	●	●	○	○							●					

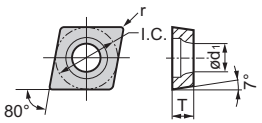
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	AC6030M	AC630M	T1500Z	T2000Z	T3000Z
CCMT21.50.5ELU	CCMT060202N-LU	.250	.094	.0078	.110	●	●	●	●	●	●	●	●	●
CCMT21.51ELU	CCMT060204N-LU			.0156		●	●	●	●	●	●	●	●	●
CCMT32.51ELU	CCMT09T304N-LU	.375	.156	.0156	.1732	●	●	●	●	●	●	●	●	●
CCMT32.52ELU	CCMT09T308N-LU			.0313		●	●	●	●	●	●	●	●	●

CCMT ELUW
Wiper Insert

Rake Angle: 12°





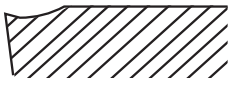


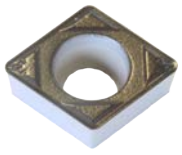
Cutting Conditions:	Coated										Cermet				Uncoated			
	AC810P	AC8025P	AC820P	AC700G	AC405K	AC415K					T1500Z	T2000Z	T3000Z	T1500A				
Continuous Cut	●	●	●	●	○	○					●	●		●				
Medium Cut	●	●	●	●		○					●	●	●	●				
Interrupted Cut		●	●	●									●	●				

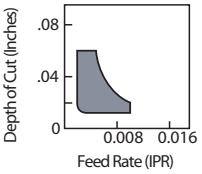
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	AC405K	AC415K	T1500Z	T2000Z	T3000Z	T1500A
CCMT32.51ELUW	CCMT09T304N-LUW	.375	.156	.0156	.1732	●	●	●	●	●	●	●	●	●	●
CCMT32.52ELUW	CCMT09T308N-LUW			.0313		●	●	●	●	●	●	●	●	●	●

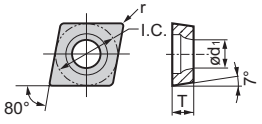
CCMT ELB

Rake Angle: 15°









Cutting Conditions:	Coated										Cermet				Uncoated			
	AC8025P	AC6020M																
Continuous Cut	●	○																
Medium Cut	●																	
Interrupted Cut	●																	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6020M
CCMT21.50.5ELB	CCMT060202N-LB	.250	.094	.0078	.110	●	○
CCMT21.51ELB	CCMT060204N-LB			.0156		●	○
CCMT21.52ELB	CCMT060208N-LB			.0313		●	○
CCMT32.50.5ELB	CCMT09T302N-LB	.375	.156	.0078	.1732	●	○
CCMT32.51ELB	CCMT09T304N-LB			.0156		●	○
CCMT32.52ELB	CCMT09T308N-LB			.0313		●	○

80° DIAMOND TYPE
POSITIVE INSERT

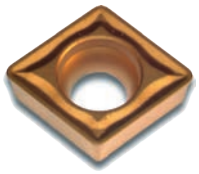
CC
80° Diamond Type
7° Relief
With Insert Hole

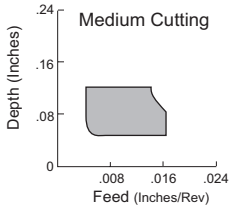
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

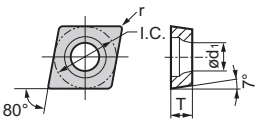
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CCMT
EMU

Rake Angle: 0°





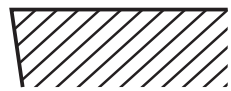


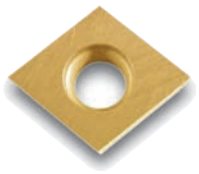
Cutting Conditions:	Coated											Cermet			Uncoated		
Continuous Cut	●	●	●		●	○	○	●	●	●							
Medium Cut	●	●	●	●	●		○		●	●	●						
Interrupted Cut		●	●	●	●		○				●						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC6020M	AC6030M	AC405K	AC410K	AC415K	AC420K
CCMT32.51EMU	CCMT09T304N-MU	.375	.156	.0156	.1732	●	●	●		●	○		●		●	●
CCMT32.52EMU	CCMT09T308N-MU			.0313		●	●	●	●	●	○	★	●	▲	●	●

CCMA
—

Rake Angle: 0°





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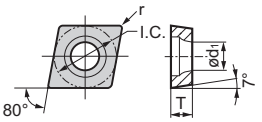


Cutting Conditions:	Coated											Cermet			Uncoated		
Continuous Cut	●	●	●														
Medium Cut	●		●	●													
Interrupted Cut	●			●													

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC405K	AC415K	AC420K
CCMA21.51	CCMA060204	.250	.094	.0156	.110	●	●		●
CCMA32.51	CCMA09T304	.375	.156	.0156	.1732	●	●	●	★
CCMA32.52	CCMA09T308			.0313		●	●	●	●

80° DIAMOND TYPE
POSITIVE INSERT

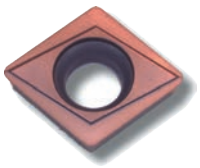
CP
80° Diamond Type
11° Relief
With Insert Hole

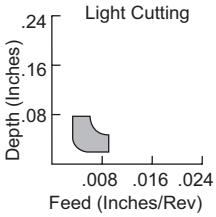
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

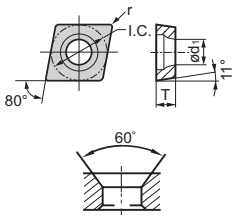
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CPGT

Rake Angle: 0°



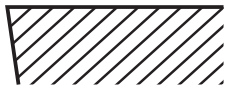


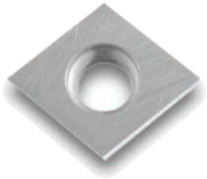


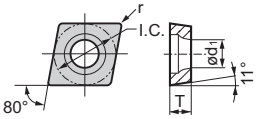
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A	G10E	EH510
CPGT2.51.50.5	CPGT080202N-SD	.3125	.094	.0078	.134	●	●	●	●		●	▲		●
CPGT2.51.51	CPGT080204N-SD			.0156				●	●	●	●	▲	●	
CPGT2.51.52	CPGT080208N-SD			.0313				●	●		●	▲		
CPGT320.5	CPGT090302N-SD	.375	.125	.0078	.1732	●		●	●		●	▲		
CPGT321	CPGT090304N-SD			.0156				●	●	●	●	▲	●	
CPGT322	CPGT090308N-SD			.0313				●	●		●	▲		
CPGT430.5	CPGT120402N-SD	.500	.1875	.0078	.2165						●	▲		
CPGT431	CPGT120404N-SD			.0156				●	●		●	▲		
CPGT432	CPGT120408N-SD			.0313							★	▲		

CPEW

Rake Angle: 0°







Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	H1
CPEW1.81.51	CPEW050204	.219	.094	.0156	.102	●
CPEW21.51	CPEW060204	.250		.0156	.110	●
CPEW32.51	CPEW09T304	.375	.156	.0156	.1732	●
CPEW32.52	CPEW09T308			.0313		●
CPEW432	CPEW120408	.500	.1875	.0313	.2165	●

80° DIAMOND TYPE
POSITIVE INSERT

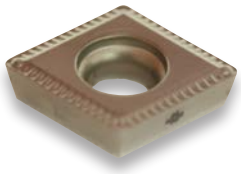
CP
80° Diamond Type
11° Relief
With Insert Hole

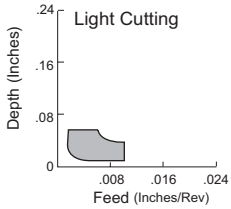
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

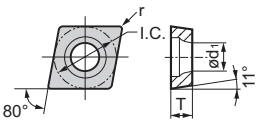
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CPMT EFB

Rake Angle: 20°





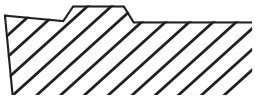


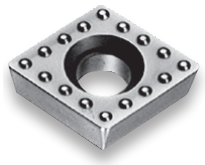
Cutting Conditions:	Coated										Cermet				Uncoated			
											T1500A							
Continuous Cut											●							
Medium Cut											●							
Interrupted Cut											●							

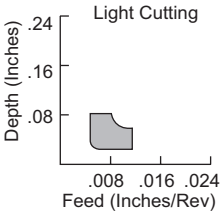
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CPMT2.51.51EFB	CPMT080204N-FB	.3125	.094	.0156	.1732

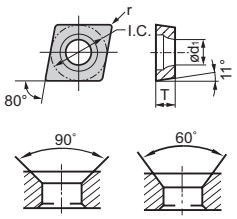
CPMT ENS (ENX)

Rake Angle: 10°







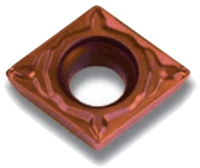


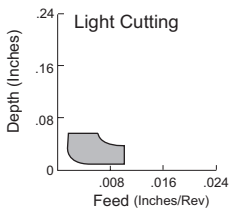
Cutting Conditions:	Coated										Cermet				Uncoated			
	AC6030M	AC630M																
Continuous Cut	●	●																
Medium Cut	●	●																
Interrupted Cut	●	●																

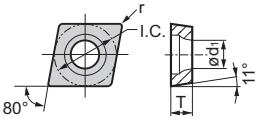
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CPMT21.51ENS	CPMT060204N-US	.250	.094	.0156	.110
CPMT2.51.52ENS	CPMT080208N-US	.3125		.0313	.134
CPMT322ENS	CPMT090308N-US	.375	.125	.0313	.1732
CPMT432ENS	CPMH120408N-US	.500	.1875	.0313	.2165

CPMT ELU

Rake Angle: 12°







Cutting Conditions:	Coated										Cermet				Uncoated			
	AC810P	AC8025P	AC820P	AC700G	AC6030M	AC630M					T1500Z	T2000Z	T3000Z					
Continuous Cut	●	●	●	●	●	●					●	●						
Medium Cut	●	●	●	●	●	●					●	●	●					
Interrupted Cut		●	●	●	●	●							●					

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
CPMT321ELU	CPMT090304N-LU	.375	.125	.0156	.1732
CPMT322ELU	CPMT090308N-LU			.0313	

80° DIAMOND TYPE
POSITIVE INSERT

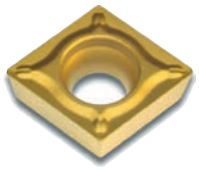
CP
80° Diamond Type
11° Relief
With Insert Hole

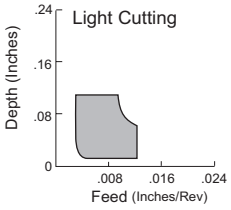
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

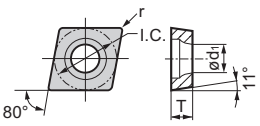
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

CPMT ESU

Rake Angle: 8°





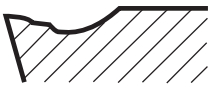


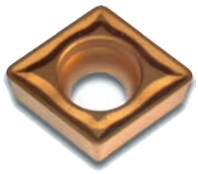
Cutting Conditions:	Coated												Cermet				
Continuous Cut	●	●	●		●	●	●	●	●	●	●		●	●		●	●
Medium Cut	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●			●	●	●		●			●	●	●

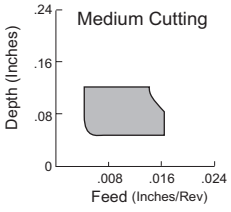
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC610M	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A
CPMT21.51ESU	CPMT060204N-SU	.250	.094	.0156	.110	●	●	●		●						●	●	●	●	●	●	▲
CPMT21.52ESU	CPMT060208N-SU			.0313		●	●	●		●						●	●	●	●		★	▲
CPMT2.51.51ESU	CPMT080204N-SU	.3125		.0156	.134	★	●	●	★		●		●	●	●			★	●			
CPMT2.51.52ESU	CPMT080208N-SU			.0313		★	●	●	★		●		●		●			●	●		★	▲
CPMT321ESU	CPMT090304N-SU	.375	.125	.0156	.1732		●	●			●	○	●		●			★			★	▲
CPMT322ESU	CPMT090308N-SU			.0313			●	●	●		●	○	●		●			★	●	●	★	▲
CPMT32.51ESU	CPMT09T304N-SU		.156	.0156		●	●	●		●				●		●	●	●	●	●		▲
CPMT32.52ESU	CPMT09T308N-SU			.0313		●	●	●		●						●	●	●	●	●		▲

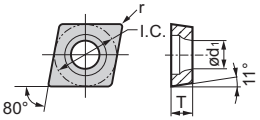
CPMT EMU

Rake Angle: 0°









Cutting Conditions:	Coated												Cermet			Uncoated		
Continuous Cut	●	●	●	●	●		●											
Medium Cut	●	●	●	●	●	●	●											
Interrupted Cut		●	●	●		●	●											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	AC415K	AC420K	AC6020M
CPMT2.51.51EMU	CPMT080204N-MU	.3125	.094	.0156	.134		●	●		●	●	
CPMT2.51.52EMU	CPMT080208N-MU			0313			●	●			●	
CPMT321EMU	CPMT090304N-MU	.375	.125	.0156	.1732	★		●	●	●	●	○
CPMT322EMU	CPMT090308N-MU			.0313		★		●		●	●	○

80° DIAMOND TYPE
POSITIVE INSERT

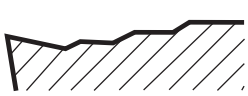
CP
80° Diamond Type
11° Relief
With Insert Hole

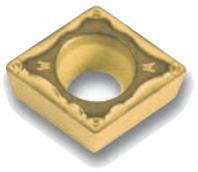
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

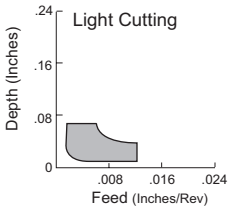
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

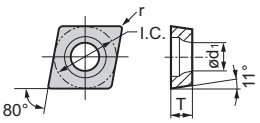
CPMT
ELUW
Wiper Insert

Rake Angle: 12°







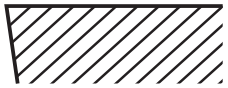


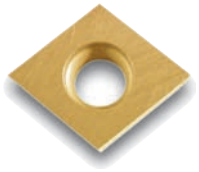
Cutting Conditions:	Coated										Cermet			Uncoated		
	AC810P	AC820P	AC700G								T1500Z	T2000Z	T3000Z			
Continuous Cut	●	●	●								●	●				
Medium Cut	◐	◐	◐								◐	◐	◐			
Interrupted Cut		◌	◌										◌			

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC820P	AC700G	T1500Z	T2000Z	T3000Z
CPMT321ELUW	CPMT090304N-LUW	.375	.125	.0156	.1732	★	★		★		
CPMT322ELUW	CPMT090308N-LUW			.0313		★	★	●	★	●	●

CPMA
—

Rake Angle: 0°





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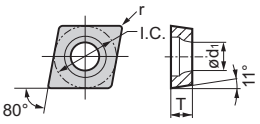


Cutting Conditions:	Coated										Cermet			Uncoated		
	AC700G	AC410K	AC415K	AC420K												
Continuous Cut	●	●	●													
Medium Cut	◐	◐	◐	◐												
Interrupted Cut	◌			◌												

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC410K	AC415K	AC420K
CPMA2.51.51	CPMA080204	.3125	.094	.0156	.134				●
CPMA2.51.52	CPMA080208			0313					●
CPMA321	CPMA090304	.375	.125	.0156	.1732	★	▲	●	●
CPMA322	CPMA090308			.0313			▲	●	●

55° DIAMOND TYPE
POSITIVE INSERT

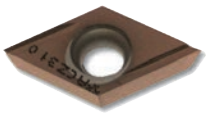
DC — 55° Diamond Type | 7° Relief | With Insert Hole

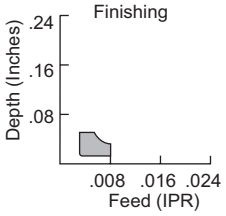
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

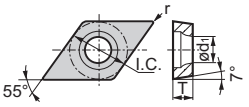
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DCGT FX

Rake Angle: 15°





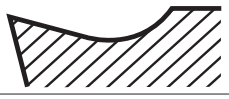


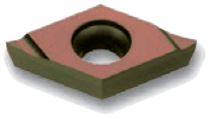
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut	●	○			●	●										
Medium Cut	◐	◌			◐	◐										
Interrupted Cut	✹	✹			✹	✹										

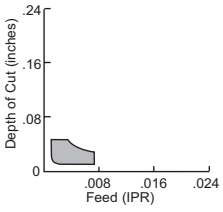
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310			T1500A	T1200A										
DCGT21.5.001RFX	DCGT0702003R-FX	.250	.094	.0012	.110	●				★	▲										
DCGT21.5.001LFX	DCGT0702003L-FX			.0012		●				★	▲										
DCGT21.50 RFX	DCGT070201R-FX			.0039		★	▲			★	▲										
DCGT21.50LFX	DCGT070201L-FX			.0039		●				★											
DCGT21.50.5RFX	DCGT070202R-FX			.0078		●				●	▲										
DCGT21.50.5LFX	DCGT070202L-FX			.0078		●	▲			★	▲										
DCGT32.5.001RFX	DCGT11T3003R-FX	.375	.156	.0012	.1732	★				★	▲										
DCGT32.5.001LFX	DCGT11T3003L-FX			.0012		★				★	▲										
DCGT32.50RFX	DCGT11T301R-FX			.0039		★	▲			★	▲										
DCGT32.50LFX	DCGT11T301L-FX			.0039		★				★	▲										
DCGT32.50.5RFX	DCGT11T302R-FX			.0078		★	▲			★	▲										
DCGT32.50.5LFX	DCGT11T302L-FX			.0078		★				★	▲										

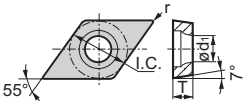
DCGT FY

Rake Angle: 15°









Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut	●	○														
Medium Cut	◐	◌														
Interrupted Cut	✹	✹														

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310														
DCGT21.5.001RFY	DCGT0702003R-FY	.250	.094	.0012	.110		▲														
DCGT21.50.5LFY	DCGT070202L-FY			.0078			▲														
DCGT21.51RFY	DCGT070204R-FY			.0156		★															
DCGT21.51LFY	DCGT070204L-FY			.0156		★															
DCGT32.50.5RFY	DCGT11T302R-FY	.375	.156	.0078	.1732		▲														
DCGT32.50LFY	DCGT11T301L-FY			.0039			▲														
DCGT32.51LFY	DCGT11T304L-FY			.0156		★	▲														

55° DIAMOND TYPE
POSITIVE INSERT

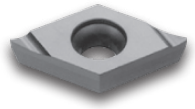
DC — 55° Diamond Type · 7° Relief · With Insert Hole

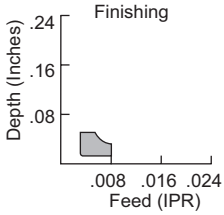
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

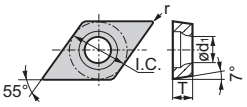
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DCGT W

Rake Angle: 10°







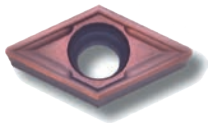
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●										
Medium Cut					◐	◐										
Interrupted Cut					◌	◌										
					T1500A	T1200A										

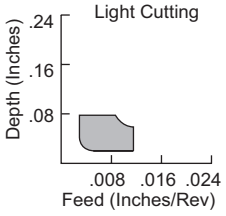
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DCGT21.50.5R	DCGT070202R-W	.250	.094	.0078	.110
DCGT21.50.5L	DCGT070202L-W			.0078	
DCGT21.51R	DCGT070204R-W			.0156	
DCGT21.51L	DCGT070204L-W			.0156	
DCGT32.51R	DCGT11T304R-W	.375	.156	.0156	.1732
DCGT32.51L	DCGT11T304L-W			.0156	
DCGT32.52R	DCGT11T308R-W			.0313	
DCGT32.52L	DCGT11T308L-W			.0313	

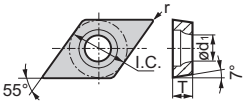
Sumitomo Catalog #	T1500A	T1200A
DCGT21.50.5R	★	
DCGT21.50.5L	★	
DCGT21.51R	★	▲
DCGT21.51L	★	
DCGT32.51R	●	▲
DCGT32.51L	★	▲
DCGT32.52R	★	▲
DCGT32.52L	★	

DCGT EFM

Rake Angle: 6°







Cutting Conditions:	Coated			Cermet					Uncoated							
Continuous Cut	●	○		●	●		●	●								
Medium Cut	◐	◌		◐	◐	◐	◐	◐								
Interrupted Cut	◌	◌				◌	◌	◌								
	AC530U	ACZ310		T1500Z	T2000Z	T3000Z	T1500A	T1200A								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DCGT21.5.001EFM	DCGT0702003N-SC	.250	.094	.0012	.110
DCGT21.50EFM	DCGT070201N-SC			.0039	
DCGT21.50MEFM	DCGT070201MN-SC			.0039	
DCGT21.50.5EFM	DCGT070202N-SC			.0078	
DCGT21.50.5MEFM	DCGT070202MN-SC			.0078	
DCGT21.51EFM	DCGT070204N-SC			.0156	
DCGT21.51MEFM	DCGT070204MN-SC			.0156	
DCGT21.52EFM	DCGT070208N-SC			.0313	
DCGT21.52MEFM	DCGT070208MN-SC			.0313	
DCGT2.51.50EFM	DCGT090201N-SC	.3125		.0039	.134
DCGT2.51.50.5EFM	DCGT090202N-SC			.0078	
DCGT32.5.001EFM	DCGT11T3003N-SC	.375	.156	.0012	.1732
DCGT32.50EFM	DCGT11T301N-SC			.0039	
DCGT32.50MEFM	DCGT11T301MN-SC			.0039	
DCGT32.50.5EFM	DCGT11T302N-SC			.0078	
DCGT32.50.5MEFM	DCGT11T302MN-SC			.0078	
DCGT32.51EFM	DCGT11T304N-SC			.0156	
DCGT32.51MEFM	DCGT11T304MN-SC			.0156	
DCGT32.52EFM	DCGT11T308N-SC			.0313	
DCGT32.52MEFM	DCGT11T308MN-SC			.0313	

Sumitomo Catalog #	AC530U	ACZ310	T1500Z	T2000Z	T3000Z	T1500A	T1200A
DCGT21.5.001EFM	★	▲				★	▲
DCGT21.50EFM	●	▲		●	●		▲
DCGT21.50MEFM			●			●	
DCGT21.50.5EFM	★	▲		●			▲
DCGT21.50.5MEFM	★	▲		●			▲
DCGT21.51EFM			●			●	▲
DCGT21.51MEFM			●			●	
DCGT21.52EFM				●			●
DCGT21.52MEFM						●	
DCGT2.51.50EFM						★	▲
DCGT2.51.50.5EFM						★	
DCGT32.5.001EFM	★	▲	●	●		●	▲
DCGT32.50EFM	●	▲		●			▲
DCGT32.50MEFM			●			●	
DCGT32.50.5EFM	●	▲		●			▲
DCGT32.50.5MEFM			●			●	
DCGT32.51EFM	●	▲		●			▲
DCGT32.51MEFM			●			●	
DCGT32.52EFM		▲		●			▲
DCGT32.52MEFM			●	●		●	●

M = Negative nose radius tolerance (-0.0001" to -0.0004")

55° DIAMOND TYPE
POSITIVE INSERT

DC — 55° Diamond Type | 7° Relief | With Insert Hole

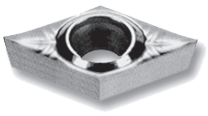
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

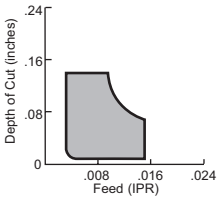
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

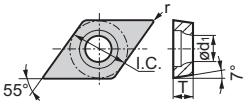
DCGT NAG

Rake Angle: 20°

Cutting Conditions:	Coated	Cermet	Uncoated
Continuous Cut			●
Medium Cut			●
Interrupted Cut			





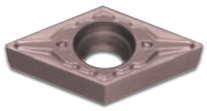


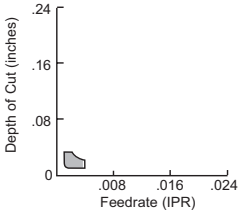
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	H1
DCGT21.50.5NAG	DCGT070202N-AG	.250	.094	.0078	.110	●
DCGT21.51NAG	DCGT070204N-AG			.0156		●
DCGT32.50.5NAG	DCGT11T302N-AG	.375	.156	.0078	.1732	●
DCGT32.51NAG	DCGT11T304N-AG			.0156		●
DCGT32.52NAG	DCGT11T308N-AG			.0313		●

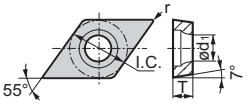
DCGT EFC

Rake Angle: 15°

Cutting Conditions:	Coated		Cermet	Uncoated
Continuous Cut	●		●	
Medium Cut	●	●	●	
Interrupted Cut	●	●	●	







Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	AC520U	T1500A
DCGT21.5.001EFC	DCGT0702003N-FC	.250	.094	.0012	.110	●		
DCGT21.50EFC	DCGT070201N-FC			.0039		●		●
DCGT21.50MEFC	DCGT070201MN-FC			.0039				●
DCGT21.50.5EFC	DCGT070202N-FC			.0078		●		●
DCGT21.50.5MEFC	DCGT070202MN-FC			.0078				●
DCGT21.51EFC	DCGT070204N-FC			.0156	.134	●		
DCGT21.51MEFC	DCGT070204MN-FC			.0156				●
DCGT32.5.001EFC	DCGT11T3003N-FC	.375	.156	.0012	.1732	●		
DCGT32.50EFC	DCGT11T301N-FC			.0039		●	●	●
DCGT32.50MEFC	DCGT11T301MN-FC			.0039				●
DCGT32.50.5EFC	DCGT11T302N-FC			.0078		●	●	●
DCGT32.50.5MEFC	DCGT11T302MN-FC			.0078				●
DCGT32.51EFC	DCGT11T304N-FC			.0156		●	●	
DCGT32.51MEFC	DCGT11T304MN-FC			.0156				●

M = Negative nose radius tolerance (-0.0001" to -0.0004")

55° DIAMOND TYPE
POSITIVE INSERT

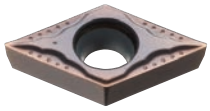
DC — 55° Diamond Type / 7° Relief / With Insert Hole

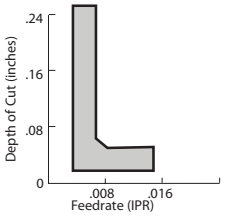
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

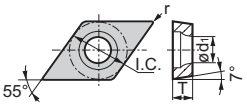
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DCGT ESI

Rake Angle: 15°







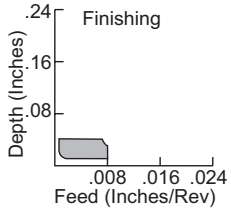
Cutting Conditions:	Coated							Cermet				Uncoated						
Continuous Cut	●	●	●	●	●			●	●									
Medium Cut	●	●	●	●	●	●		●	●									
Interrupted Cut	●		●	●		●			●									
	AC530U	AC610M	AC6030M	AC630M	AC510U	AC520U		T1500Z	T1500A									

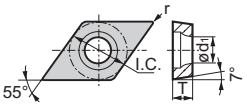
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DCGT21.50MESI	DCGT070201MN-SI	.250	.094	.0039	.110
DCGT21.50.5MESI	DCGT070202MN-SI			.0078	
DCGT21.51MESI	DCGT070204MN-SI			.0156	
DCGT32.50MESI	DCGT11T301MN-SI	.375	.156	.0039	.1732
DCGT32.50.5MESI	DCGT11T302MN-SI			.0078	
DCGT32.51MESI	DCGT11T304MN-SI			.0156	
DCGT32.52MESI	DCGT11T308MN-SI			.0313	

M = Negative nose radius tolerance (-0.0001" to -0.0004")

DCMT EFB

Rake Angle: 20°





Cutting Conditions:	Coated				Cermet			Uncoated									
Continuous Cut					●	●											
Medium Cut					●	●											
Interrupted Cut					●												
					T1500A	T1500Z											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
DCMT21.50.5EFB	DCMT070202N-FB	.250	.094	.0078	.110
DCMT21.51EFB	DCMT070204N-FB			.0156	
DCMT21.52EFB	DCMT070208N-FB			.0313	
DCMT32.50.5EFB	DCMT11T302N-FB	.375	.156	.0078	.1732
DCMT32.51EFB	DCMT11T304N-FB			.0156	
DCMT32.52EFB	DCMT11T308N-FB			.0313	

55° DIAMOND TYPE
POSITIVE INSERT

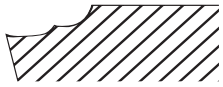
DC — 55° Diamond Type · 7° Relief · With Insert Hole

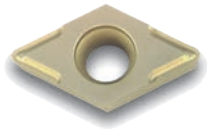
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

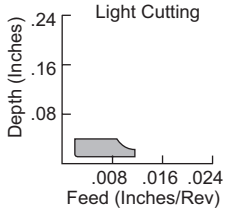
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

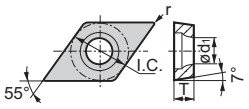
DCMT EFP

Rake Angle: 10°







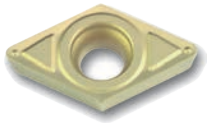


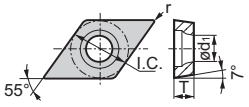
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●	●									
Medium Cut					●	●	●									
Interrupted Cut						●	●									

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T1500A	T1200A
DCMT21.50.5EFP	DCMT070202N-FP	.250	.094	.0078	.110		●	▲
DCMT21.51EFP	DCMT070204N-FP			.0156			●	▲
DCMT32.51EFP	DCMT11T304N-FP	.375	.156	.0156	.1732			▲
DCMT32.52EFP	DCMT11T308N-FP			.0313			●	▲

DCMT ENK

Rake Angle: 8°



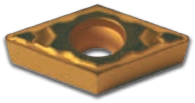


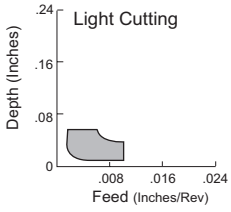
Cutting Conditions:	Coated			Cermet		Uncoated				
Continuous Cut	●	●								
Medium Cut	●	●	●							
Interrupted Cut	●	●	●							

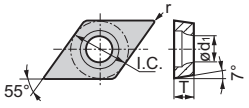
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P
DCMT21.51ENK	DCMT070204N-SK	.250	.094	.0156	.110	●	●	●
DCMT32.51ENK	DCMT11T304N-SK	.375	.156	.0156	.1732	●	●	●
DCMT32.52ENK	DCMT11T308N-SK			.0313		●	●	●

DCMT ELU

Rake Angle: 15°







Cutting Conditions:	Coated									Cermet			Uncoated		
Continuous Cut	●	●	●	●	●	○	○	○	○	●	●				
Medium Cut	●	●	●	●	●	○	○	○	○	●	●	●			
Interrupted Cut		●	●	●	○	○	○	○	○			●			

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	AC530U	AC6030M	AC6040M	AC630M	ACZ310	T1500Z	T2000Z	T3000Z
DCMT21.50.5ELU	DCMT070202N-LU	.250	.094	.0078	.110	●		●		★			●	▲	★	●	▲
DCMT21.51ELU	DCMT070204N-LU			.0156		●	●	●	●	●	●	●	●		●	●	●
DCMT32.50.5ELU	DCMT11T302N-LU	.375	.156	.0078	.1732			●							●	●	●
DCMT32.51ELU	DCMT11T304N-LU			.0156		●		●	●	●	●		●	▲	●	●	●
DCMT32.52ELU	DCMT11T308N-LU			.0313		●	●	●	●	●	●		●	▲	●	●	●

55° DIAMOND TYPE
POSITIVE INSERT

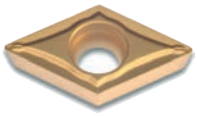
DC — 55° Diamond Type / 7° Relief / With Insert Hole

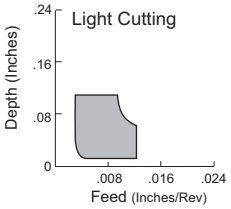
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

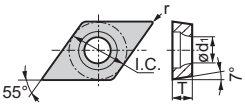
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DCMT ESU

Rake Angle: 8°





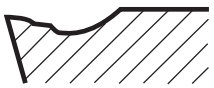


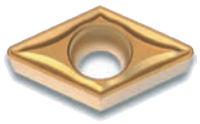
Cutting Conditions:	Coated															Cermet				
Continuous Cut	●	●	●		●	●	●	●	●	●	●	●	●	●		●	●		●	●
Medium Cut	●	●	●	●	●	●	●		●	●	●		●	●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●	●			●	●	●				●			●	●	●

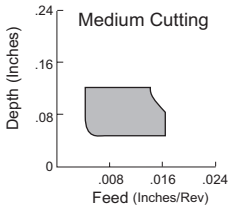
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC530U	AC610M	AC6020M	AC6030M	AC6040M	AC630M	AC405K	AC410K	AC415K	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A
DCMT21.50.5ESU	DCMT070202N-SU	.250	.094	.0078	.110		●	●	●			●	○	●		●				●	●	●	●		★	▲
DCMT21.51ESU	DCMT070204N-SU			.0156		●	●	●	●	●	●	●	○	●	●	●	●	▲	●	●	●	●	●	●	●	▲
DCMT21.52ESU	DCMT070208N-SU			.0313		●	●	●	●	●	●	●	○	●		●	●		●	●	●	●	●	●	★	▲
DCMT32.50.5ESU	DCMT11T302N-SU	.375	.156	.0078	.1732		●	●	●			●	○	●		●				●	●	●	●		●	▲
DCMT32.51ESU	DCMT11T304N-SU			.0156		●	●	●	●	●	●	●	○	●	●	●	●	▲	●	●	●	●	●	●	●	▲
DCMT32.52ESU	DCMT11T308N-SU			.0313		●	●	●	●	●	●	●	○	●	●	●	●	▲	●	●	●	●	●	●	★	▲

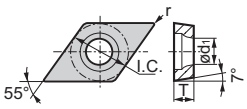
DCMT EMU

Rake Angle: 0°







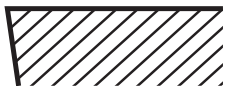


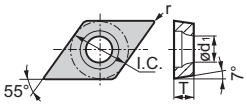
Cutting Conditions:	Coated										Cermet			Uncoated		
Continuous Cut	●	●	●		●	●	●	●		●						
Medium Cut	●	●	●	●	●		●	●	●							
Interrupted Cut		●	●	●	●				●							

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC405K	AC410K	AC415K	AC420K	AC6020M
DCMT32.51EMU	DCMT11T304N-MU	.375	.156	.0156	.1732	●	●	●		●	●	▲	●	●	○
DCMT32.52EMU	DCMT11T308N-MU			.0313		●	●	●	●	●	●		●	●	○

DCMA —

No Breaker





Cutting Conditions:	Coated										Cermet			Uncoated		
Continuous Cut	●	●	●													
Medium Cut	●		●	●												
Interrupted Cut	●			●												

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC405K	AC415K	AC420K
DCMA21.51	DCMA070204	.250	.094	.0156	.110		●	●	●
DCMA21.52	DCMA070208			.0313			●	●	●
DCMA32.51	DCMA11T304	.375	.156	.0156	.1732		●	●	●
DCMA32.52	DCMA11T308			.0313		●	●	●	●

55° DIAMOND TYPE
POSITIVE INSERT

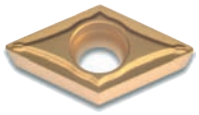
DP
55° Diamond Type
11° Relief
With Insert Hole

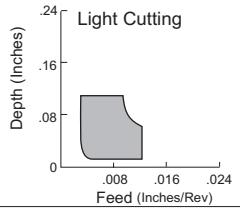
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

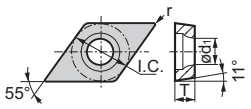
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

DPMT
ESU

Rake Angle: 8°







Cutting Conditions:	AC8025P	AC820P	AC510U	AC520U	T1200A
	Coated				Cermet
Continuous Cut	○	○	○		○
Medium Cut	○	○	○	○	○
Interrupted Cut	○	○		○	○

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC510U	AC520U	T1200A
DPMT 21.51ESU	DPMT 070204N-SU	.250	.094	.0156	.110	●	●	●	●	▲
DPMT 32.51ESU	DPMT 11T304N-SU	.375	.156	.0156	.1732	●	●	●	●	▲
DPMT 32.52ESU	DPMT 11T308N-SU			.0313		●	●	●	●	▲

ROUND TYPE
POSITIVE INSERT

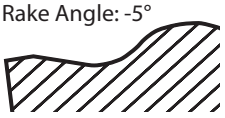
RC — Round Type; 7° Relief; With Insert Hole

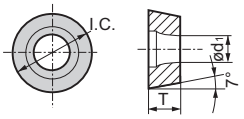
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

RCMT
RX

Rake Angle: -5°



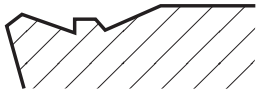


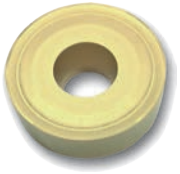
Cutting Conditions:	Coated			Cermet						Uncoated					
Continuous Cut	●	●													
Medium Cut	●	●	●												
Interrupted Cut		●	●												

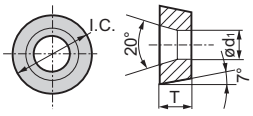
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC820P	AC830P
RCMT100300	RCMT1003M0N-RX	.394	.125	-	.1417	●	●	●
RCMT120400	RCMT1204M0N-RX	.472	.1875	-	.1654	●	●	●
RCMT160600	RCMT1606M0N-RX	.630	.250	-	.2047	●	●	●
RCMT200600	RCMT2006M0N-RX	.787	.250	-	.2559	●	●	●
RCMT250700	RCMT2507M0N-RX	.984	.313	-	.2835	●	●	●

RCMX
RP

Rake Angle: -15°







Cutting Conditions:	Coated									Uncoated					
Continuous Cut	●	●		●	●	●		●							
Medium Cut	●	●	●	●	●	●	●	●							
Interrupted Cut		●	●	●			●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC820P	AC830P	AC700G	AC410K	AC415K	AC420K	AC510U
RCMX100300	RCMX1003M0N-RP	.394	.125	-	.1417	●	●	●	●	▲	★	●	
RCMX120400	RCMX1204M0N-RP	.472	.1875	-	.1654	●	●	●	●	▲	★	●	
RCMX160600	RCMX1606M0N-RP	.630	.250	-	.2047	●	●	●	●	▲	★	●	
RCMX200600	RCMX2006M0N-RP	.787	.250	-	.2559	●	●	●					●
RCMX250700	RCMX2507M0N-RP	.984	.313	-	.2835	●	●	●					

90° SQUARE TYPE
POSITIVE INSERT

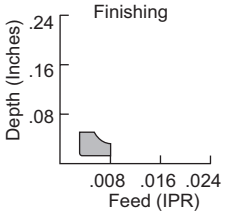
SC — 90° Square Type; 7° Relief; With Insert Hole

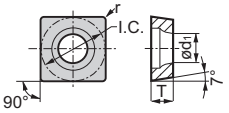
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SCGT FX

Rake Angle: 15°



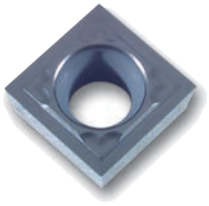


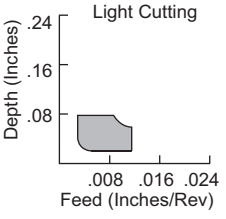
Cutting Conditions:	Coated				Cermet					Uncoated							
Continuous Cut	●	○															
Medium Cut	◐	◌															
Interrupted Cut	✿	✿															

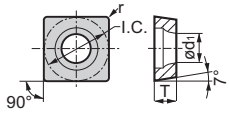
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310
SCGT32.50.5RFX	SCGT09T302R-FX	.375	.156	.0078	.1732	★	▲
SCGT32.50.5LFX	SCGT09T302L-FX			.0078		★	
SCGT32.51RFX	SCGT09T304R-FX			.0156		★	
SCGT32.51LFX	SCGT09T304L-FX			.0156		★	▲

SCGT EFM

Rake Angle: 6°







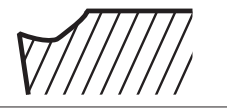
Cutting Conditions:	Coated				Cermet					Uncoated							
Continuous Cut	●	○			●	●											
Medium Cut	◐	◌			◐	◐											
Interrupted Cut	✿	✿			✿	✿											

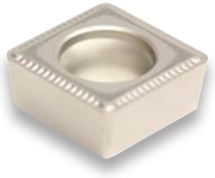
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310	T1500A	T1200A
SCGT2.51.50EFM	SCGT070201N-SC	.3125	.094	.0039	.134	★	▲		▲
SCGT2.51.50MEFM	SCGT070201MN-SC			.0039				★	
SCGT2.51.50.5EFM	SCGT070202N-SC			.0078			▲		▲
SCGT2.51.50.5MEFM	SCGT070202MN-SC			.0078				●	
SCGT32.50EFM	SCGT09T301N-SC	.375	.156	.0039	.1732	★	▲		
SCGT32.50.5EFM	SCGT09T302N-SC			.0078		●	▲		▲
SCGT32.50.5MEFM	SCGT09T302MN-SC			.0078				●	

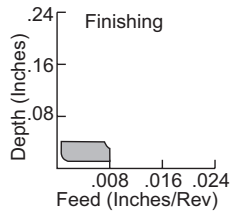
M = Negative nose radius tolerance (-0.0001" to -0.0004")

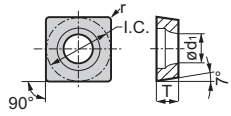
SCMT EFB

Rake Angle: 20°









Cutting Conditions:	Coated				Cermet					Uncoated							
Continuous Cut					●	●											
Medium Cut					◐	◐											
Interrupted Cut						✿											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T1500A
SCMT32.51EFB	SCMT09T304N-FB	.375	.156	.0156	.1732	●	●
SCMT32.52EFB	SCMT09T308N-FB			.0313		●	★

90° SQUARE TYPE
POSITIVE INSERT

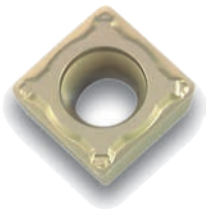
SC
90° Square Type
7° Relief
With Insert Hole

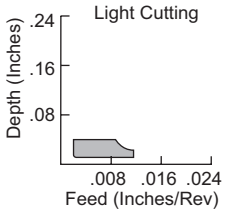
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

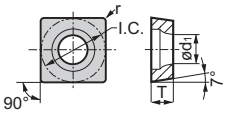
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SCMT EFP

Rake Angle: 10°





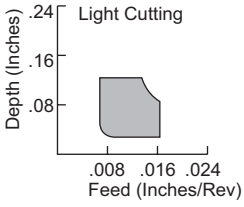


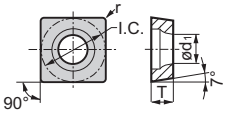
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●										
Medium Cut					●	●										
Interrupted Cut					●	●										
					T1500A	T1200A										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1					T1500A	T1200A							
SCMT32.51EFP	SCMT09T304N-FP	.375	.156	.0156	.1732					★	▲							
SCMT32.52EFP	SCMT09T308N-FP			.0313						●	▲							

SCMT ENK

Rake Angle: 8°



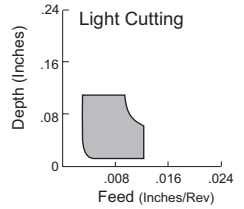


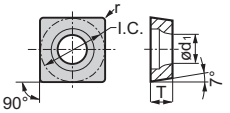
Cutting Conditions:	Coated								Cermet				Uncoated					
Continuous Cut	●	●		●														
Medium Cut	●	●	●	●														
Interrupted Cut	●	●	●	●														
	AC8025P	AC820P	AC830P	AC700G														

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1					AC8025P	AC820P	AC830P	AC700G							
SCMT32.51ENK	SCMT09T304N-SK	.375	.156	.0156	.1732						●	●								
SCMT32.52ENK	SCMT09T308N-SK			.0313						●	●	●	●							
SCMT431ENK	SCMT120404N-SK	.500	.1875	.0156	.2165					●	●	●								
SCMT432ENK	SCMT120408N-SK			.0313						●	●	●								
SCMT433ENK	SCMT120412N-SK			.0469								●								

SCMT ESU

Rake Angle: 8°





Cutting Conditions:	Coated										Cermet		Uncoated					
Continuous Cut	●	●	●		●	○	○	○	○	○	●	●						
Medium Cut	●	●	●	●	●	○		○	○	○	●	●						
Interrupted Cut		●	●	●	●			○	○	○								
	AC810P	AC8025P	AC820P	AC830P	AC700G	AC610M	AC6020M	AC6030M	AC6040M	AC630M	T1500Z	T2000Z						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1																
SCMT32.51ESU	SCMT09T304N-SU	.375	.156	.0156	.1732																
SCMT32.52ESU	SCMT09T308N-SU			.0313																	
SCMT431ESU	SCMT120404N-SU	.500	.1875	.0156	.2165																
SCMT432ESU	SCMT120408N-SU			.0313																	

90° SQUARE TYPE
POSITIVE INSERT

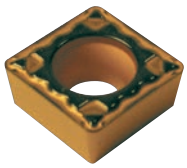
SC
- 90° Square Type
- 7° Relief
- With Insert Hole

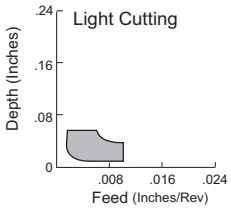
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

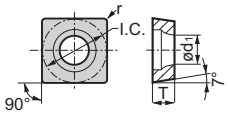
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SCMT ELU

Rake Angle: 12°





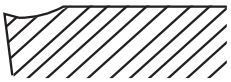


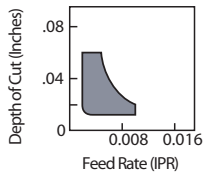
Cutting Conditions:	Coated										Cermet				Uncoated			
	AC810P	AC8025P	AC820P	AC700G	AC630M						T1500Z	T2000Z	T3000Z					
Continuous Cut	●	●	●	●	●						●	●						
Medium Cut	●	●	●	●	●						●	●	●					
Interrupted Cut		●	●	●	●								●					

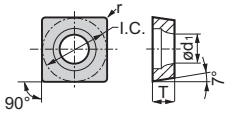
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SCMT32.51ELU	SCMT09T304N-LU	.375	.156	.0156	.1732
SCMT32.52ELU	SCMT09T308N-LU			.0313	

SCMT ELB

Rake Angle: 15°







Cutting Conditions:	Coated										Cermet				Uncoated			
	AC8025P	AC6020M																
Continuous Cut	●	○																
Medium Cut	●																	
Interrupted Cut	●																	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SCMT32.51ELB	SCMT09T304N-LB	.375	.156	.0156	.1732
SCMT32.52ELB	SCMT09T308N-LB			.0313	

90° SQUARE TYPE
POSITIVE INSERT

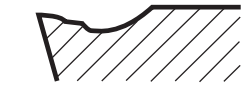
SC
- 90° Square Type
- 7° Relief
- With Insert Hole

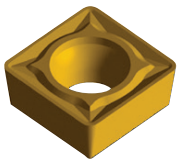
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

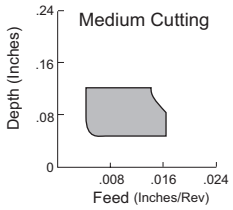
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

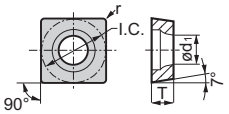
SCMT
EMU

Rake Angle: 0°







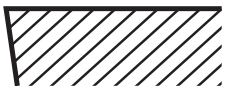


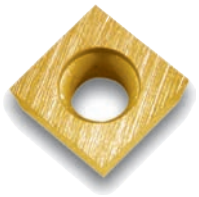
Cutting Conditions:	Coated								Cermet			Uncoated		
	AC810P	AC8025P	AC820P	AC700G	AC405K	AC415K	AC420K	AC6020M						
Continuous Cut	●	●	●	●	●	●		○						
Medium Cut	●	●	●	●		●	●							
Interrupted Cut		●	●	●			●							

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	AC405K	AC415K	AC420K	AC6020M
SCMT32.52EMU	SCMT09T308N-MU	.375	.156	.0313	.1732	★	●	●		★	★	●	○
SCMT432EMU	SCMT120408N-MU	.500	.1875	.0313	.2165	★		★	★	★	●	●	

SCMA
—

No Breaker





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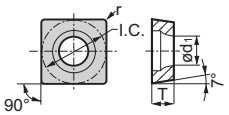


Cutting Conditions:	Coated		Cermet			Uncoated		
	AC700G	AC420K						
Continuous Cut	●							
Medium Cut	●	●						
Interrupted Cut	●	●						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC420K
SCMA32.52	SCMA09T308	.375	.156	.0313	.1732	●	●
SCMA432	SCMA120408	.500	.1875	.0313	.2165	★	●
SCMA433	SCMA120412			.0469		★	●

90° SQUARE TYPE
POSITIVE INSERT

SP

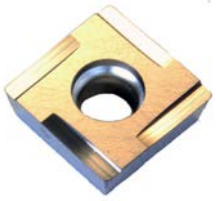
90° Square Type
11° Relief

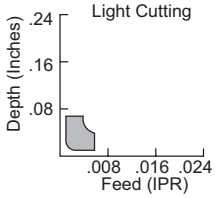
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

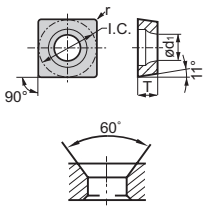
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SPGG
SD

Rake Angle: 10°





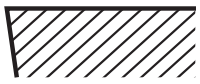


Cutting Conditions:	Coated						Cermet					Uncoated					
Continuous Cut							●	●		●	●						
Medium Cut							●	●	●	●	●						
Interrupted Cut									●	●	●						
							T1500Z	T2000Z	T3000Z	T1500A	T1200A						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SPGG320.5L	SPGT090302L-SD	.375	.125	.0078	.130
SPGG321L	SPGT090304L-SD			.0156	
SPGG322L	SPGT090308L-SD			.0313	

SPG
–

No Breaker



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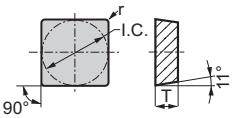


Cutting Conditions:	Coated				Cermet				Uncoated								
Continuous Cut	●	●	●	●	●	●	●	●									
Medium Cut	●	●	●	●	●	●	●	●		●							
Interrupted Cut	●	●		●			●	●									
	AC8025P	AC820P	AC510U	EH20Z	T1500Z	T2000Z	T1500A	T1200A		G10E							

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SPG321	SPGN090304	.375	.125	.0156	-
SPG322	SPGN090308			.0313	
SPG421	SPGN120304			.0156	
SPG422	SPGN120308			.0313	
SPG423	SPGN120312	.500		.0469	
SPG424	SPGN120316			.0625	
SPG432	SPGN120408			.0313	
SPG433	SPGN120412		.1875	.0469	
SPG632	SPGN190408			.0313	
SPG633	SPGN190412	.750		.0469	
SPG634	SPGN190416			.0625	

90° SQUARE TYPE
POSITIVE INSERT

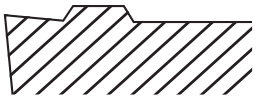
SP
90° Square Type
11° Relief
With Insert Hole

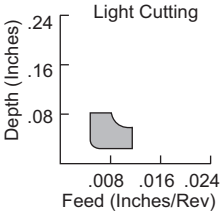
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

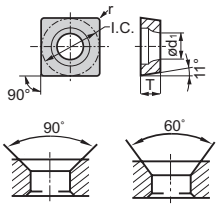
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SPMT
ENS (ENX)

Rake Angle: 10°





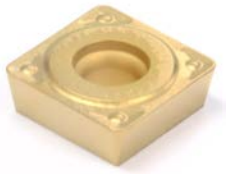


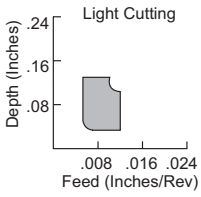
Cutting Conditions:	Coated			Cermet					Uncoated							
Continuous Cut	●	●	●													
Medium Cut	●	●	●						●							
Interrupted Cut	●	●	●						●							
	AC6030M	AC6040M	AC630M						A30							

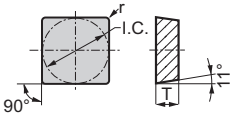
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC6030M	AC6040M	AC630M	A30
SPMT21.51ENS	SPMT060204N-US	.250	.094	.0156	.1102	●	●	●	
SPMT2.522ENS	SPMT070308N-US	.3125	.125	.0313	.134	●	●	●	
SPMT322ENS	SPMT090308N-US	.375		.0313	.130	●	●	●	
SPMT32.52ENX	SPMT09T308N-US	.375	.156	.0313	.1732	●	●	●	●
SPMT432ENS	SPMT120408N-US	.500	.1875	.0313	.2165	●	●	●	●

SPMT
ENF

Rake Angle: 0°







Cutting Conditions:	Coated							Cermet						Uncoated					
Continuous Cut	●																		
Medium Cut	●	●																	
Interrupted Cut	●	●																	
	AC820P	AC830P																	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC820P	AC830P
SPMT321ENF	SPMR090304N-NF	.375	.125	.0156	-	●	●
SPMT322ENF	SPMR090308N-NF			.0313		●	●

90° SQUARE TYPE
POSITIVE INSERT

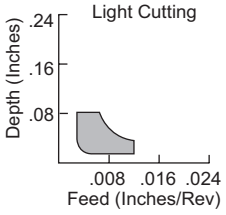
SP — 90° Square Type; 11° Relief

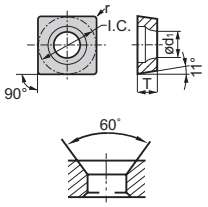
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SPMT EFK

Rake Angle: 0°



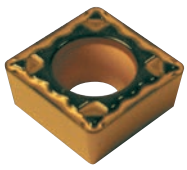


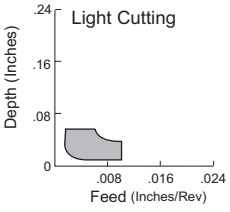
Cutting Conditions:	Coated				Cermet			Uncoated							
					T1500Z	T2000Z	T1200A								
Continuous Cut					●	●	▲								
Medium Cut					●	●	▲								
Interrupted Cut															

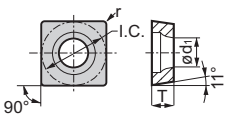
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SPMT321EFK	SPMT090304N-FK	.375	.125	.0156	.130
SPMT322EFK	SPMT090308N-FK			.0313	

SPMT ELU

Rake Angle: 12°







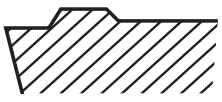
Cutting Conditions:	Coated						Cermet			Uncoated					
	AC810P	AC820P	AC700G	AC6030M	AC6040M	AC630M									
Continuous Cut															
Medium Cut															
Interrupted Cut															

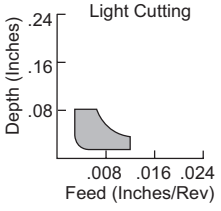
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SPMT321ELU	SPMT090304N-LU	.375	.125	.0156	.130
SPMT322ELU	SPMT090308N-LU			.0313	

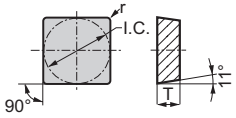
★	★	●	●	●	●										

SPMR EFK

Rake Angle: 0°







Cutting Conditions:	Coated						Cermet				Uncoated					
							T1500Z	T2000Z	T1500A	T1200A						
Continuous Cut							●	●	●	▲						
Medium Cut							●	●	●	▲						
Interrupted Cut									★							

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
SPMR321EFK	SPMR090304N-FK	.375	.125	.0156	-
SPMR322EFK	SPMR090308N-FK			.0313	
SPMR421EFK	SPMR120304N-FK	.500		.0156	
SPMR422EFK	SPMR120308N-FK			.0313	
SPMR423EFK	SPMR120312N-FK			.0469	

90° SQUARE TYPE
POSITIVE INSERT

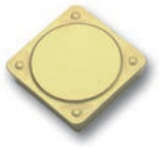
SP
- 90° Square Type
- 11° Relief
- Without Insert Hole

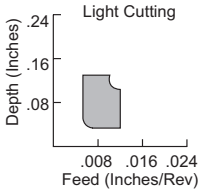
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

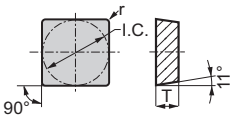
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

SPMR
ENF

Rake Angle: 0°





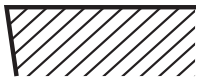


Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC820P	AC830P
SPMR321ENF	SPMR090304N-SF	.375	.125	.0156	-	●	●
SPMR322ENF	SPMR090308N-SF			.0313		●	●
SPMR421ENF	SPMR120304N-SF	.500		.0156		●	●
SPMR422ENF	SPMR120308N-SF			.0313		●	●
SPMR423ENF	SPMR120312N-SF			.0469		●	●

Cutting Conditions: Coated | Cermet | Uncoated
- Continuous Cut
- Medium Cut
- Interrupted Cut

SPMN
-

No Breaker



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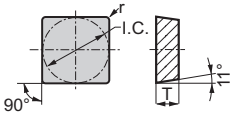


Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC700G	AC410K	AC415K	AC420K	T1500A	T1200A	G10E	A30	ST20E
SPMN321	SPMN090304	.375	.125	.0156	-				▲	●	●					
SPMN322	SPMN090308			.0313		●	●	●	▲	★	●	★	▲		★	
SPMN421	SPMN120304	.500		.0156		●	●	★	▲	●	●					★
SPMN422	SPMN120308			.0313		●	●		▲	●	●	★	▲			
SPMN423	SPMN120312			.0469							●	★	▲	★		
SPMN532	SPMN150408	.625	.1875	.0313										★	★	
SPMN533	SPMN150412			.0469										★	★	
SPMN631	SPMN190404	.750		.0156											★	
SPMN632	SPMN190408			.0313											★	
SPMN633	SPMN190412			0469											★	
SPMN634	SPMN190416			.0625		●	●									

Cutting Conditions: Coated | Cermet | Uncoated
- Continuous Cut
- Medium Cut
- Interrupted Cut

TRIANGULAR TYPE
POSITIVE INSERT

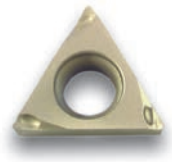
TB — Triangular Type / 5° Relief / With Insert Hole

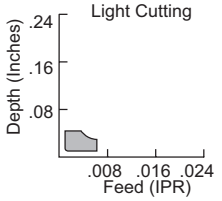
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

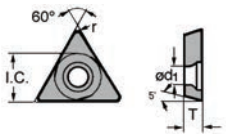
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TBGT FW

Rake Angle: 20°





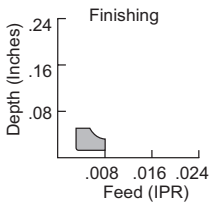


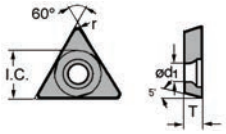
Cutting Conditions:	Coated				Cermet				Uncoated							
					T1500Z	T2000Z	T1500A	T1200A								
Continuous Cut					●	●	●	●								
Medium Cut					●	●	●	●								
Interrupted Cut							●	●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T2000Z	T1500A	T1200A
TBGT520.5RFW	TBGT060102R-FW	.156	.0625	.0078	.090			★	▲
TBGT520.5LFW	TBGT060102L-FW			.0078		●	●	●	▲
TBGT521RFW	TBGT060104R-FW			.0156				★	▲
TBGT521LFW	TBGT060104L-FW			.0156		●	●	●	▲

TBGT FX

Rake Angle: 15°



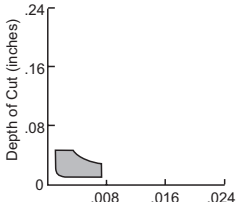


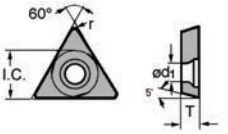
Cutting Conditions:	Coated										Cermet		Uncoated					
	AC8025P	AC820P	AC530U	AC510U	ACZ310													
Continuous Cut	●	●	●	●	○													
Medium Cut	●	●	●	●	○													
Interrupted Cut	●	●	●		○													

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC530U	AC510U	ACZ310
TBGT520.5RFX	TBGT060102R-FX	.156	.0625	.0078	.090				●	
TBGT520.5LFX	TBGT060102L-FX			.0078		●	●	★	●	▲
TBGT521RFX	TBGT060104R-FX			.0156				★	●	
TBGT521LFX	TBGT060104L-FX			.0156		●	●	★	●	▲

TBGT FY

Rake Angle: 15°





Cutting Conditions:	Coated				Cermet		Uncoated							
	AC530U	ACZ310			T1500A	T1200A								
Continuous Cut	●	○			●	●								
Medium Cut	●	○			●	●								
Interrupted Cut	●	○			●	●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310	T1500A	T1200A
TBGT520RFY	TBGT060101R-FY	.156	.0625	.0039	.090	★	▲		
TBGT520LFY	TBGT060101L-FY			.0039		●	▲		
TBGT520.5RFY	TBGT060102R-FY			.0078			▲	★	
TBGT520.5LFY	TBGT060102L-FY			.0078			▲		
TBGT521RFY	TBGT060104R-FY			.0156				★	▲
TBGT521LFY	TBGT060104L-FY			.0156		★	▲	●	▲

TRIANGULAR TYPE
POSITIVE INSERT

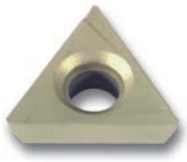
TB Triangular Type, 5° Relief, With Insert Hole

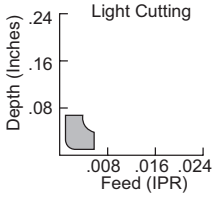
TC Triangular Type, 7° Relief, With Insert Hole

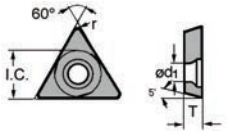
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TBGT W

Rake Angle: 10°







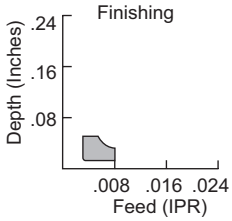
Cutting Conditions:	Coated						Cermet						Uncoated					
Continuous Cut	●	●	●	○			●	●		●	●							
Medium Cut	●	●	◐	○			●	●	●	●	●		◐					
Interrupted Cut	◌	◌	◌	○					◌	◌	◌							
	AC8025P	AC820P	AC530U	ACZ310			T1500Z	T2000Z	T3000Z	T1500A	T1200A		G10E					

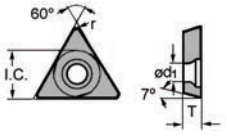
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TBGT520.5R	TBGT060102R-W	.156	.0625	.0078	.090
TBGT520.5L	TBGT060102L-W			.0078	
TBGT521R	TBGT060104R-W			.0156	
TBGT521L	TBGT060104L-W			.0156	

TBGT520.5R							★	●		●	▲							
TBGT520.5L	●	●	★	▲			●	●	●	●	▲		●					
TBGT521R			●				★			●	▲							
TBGT521L	●	●	★	▲			●	●		●	▲							

TCGT FX

Rake Angle: 15°





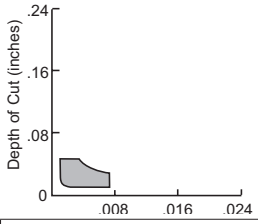
Cutting Conditions:	Coated						Cermet						Uncoated					
Continuous Cut	●	○																
Medium Cut	◐	○																
Interrupted Cut	◌	○																
	AC530U	ACZ310																

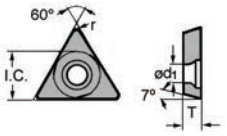
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TCGT1.81.50RFX	TCGT090201R-FX	.219	.094	.0039	.098
TCGT1.81.50.5RFX	TCGT090202R-FX			.0078	
TCGT1.81.50.5LFX	TCGT090202L-FX			.0078	
TCGT21.50RFX	TCGT110201R-FX	.250		.0039	.110
TCGT21.50LFX	TCGT110201L-FX			.0039	
TCGT21.50.5RFX	TCGT110202R-FX			.0078	

TCGT1.81.50RFX	★																	
TCGT1.81.50.5RFX	★	▲																
TCGT1.81.50.5LFX	★																	
TCGT21.50RFX	★																	
TCGT21.50LFX	★	▲																
TCGT21.50.5RFX	★	▲																

TCGT FY

Rake Angle: 15°





Cutting Conditions:	Coated						Cermet	Uncoated
Continuous Cut	●	○						
Medium Cut	◐	○						
Interrupted Cut	◌	○						
	AC530U	ACZ310						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TCGT090201L-FY	TCGT090201L-FY	.219	.094	.0039	.098
TCGT1.81.50.5LFY	TCGT090202L-FY			.0078	
TCGT21.50RFY	TCGT110201R-FY			.0039	
TCGT21.50LFY	TCGT110201L-FY	.250		.0039	.110
TCGT21.50.5RFY	TCGT110202R-FY			.0078	
TCGT21.50.5LFY	TCGT110202L-FY			.0078	

TCGT090201L-FY	★							
TCGT1.81.50.5LFY		▲						
TCGT21.50RFY		▲						
TCGT21.50LFY		▲						
TCGT21.50.5RFY		▲						
TCGT21.50.5LFY	★	▲						

TRIANGULAR TYPE
POSITIVE INSERT

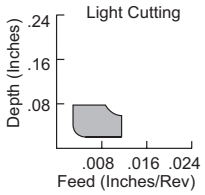
TC — Triangular Type / 7° Relief / With Insert Hole

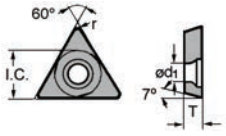
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TCGT EFM

Rake Angle: 6°





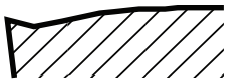
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut	●	○			●	●	●	●								
Medium Cut	◐	◌			◌	◌	◌	◌								
Interrupted Cut	◌	◌					◌	◌								
	AC530U	ACZ310			T1500Z	T2000Z	T1500A	T1200A								

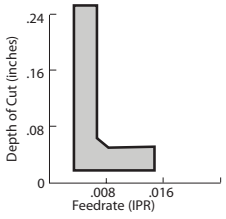
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310	T1500Z	T2000Z	T1500A	T1200A
TCGT630EFM	TCGT080201N-SC	.1875	.094	.0039	.090	★					
TCGT630MEFM	TCGT080201MN-SC			.0039						★	
TCGT630.5EFM	TCGT080202N-SC			.0078		●					●
TCGT630.5MEFM	TCGT080202MN-SC			.0078						★	
TCGT1.81.50EFM	TCGT090201N-SC	.219		.0039	.098		▲			★	▲
TCGT1.81.50.5EFM	TCGT090202N-SC			.0078		●	▲			●	▲
TCGT21.50EFM	TCGT110201N-SC	.250		.0039	.110	●	▲				▲
TCGT21.50MEFM	TCGT110201MN-SC			.0039						★	
TCGT21.50.5EFM	TCGT110202N-SC			.0078		●	▲		●		▲
TCGT21.50.5MEFM	TCGT110202MN-SC			.0078				●		●	

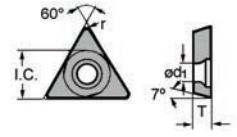
M = Negative nose radius tolerance (-0.0001″ to -0.0004″)

TCGT MESI

Rake Angle: 15°





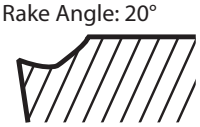


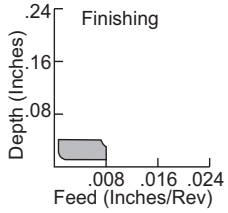
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●											
Medium Cut					◐											
Interrupted Cut					◌											
					T1500A											

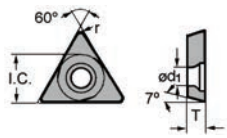
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500A
TCGT21.51MESI	TCGT110204MN-SI	.250	.094	.0156	.110	●

TCMT EFB

Rake Angle: 20°







Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●										
Medium Cut					◐	◐										
Interrupted Cut						◌										
					T1500Z	T1500A										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T1500A
TCMT21.51EFB	TCMT110204N-FB	.250	.094	.0156	.110	●	●
TCMT21.52EFB	TCMT110208N-FB			.0313		●	●

TRIANGULAR TYPE
POSITIVE INSERT

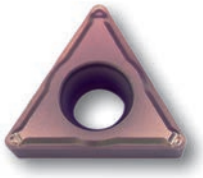
TC — Triangular Type / 7° Relief / With Insert Hole

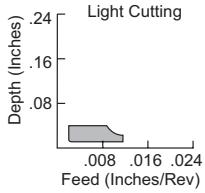
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

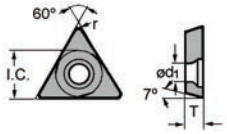
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TCMT EFP

Rake Angle: 10°





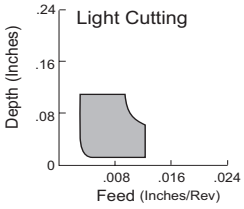


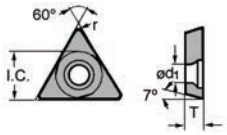
Cutting Conditions:	Coated				Cermet				Uncoated							
					T2000Z	T1500A	T1200A									
Continuous Cut					●	●	▲									
Medium Cut					●	★	▲									
Interrupted Cut					●	★	▲									
					●	●	▲									

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TCMT21.51EFP	TCMT110204N-FP	.250	.094	.0156	.110
TCMT21.52EFP	TCMT110208N-FP			.0313	
TCMT32.51EFP	TCMT16T304N-FP	.375	.156	.0156	.1693
TCMT32.52EFP	TCMT16T308N-FP			.0313	

TCMT ESU

Rake Angle: 8°



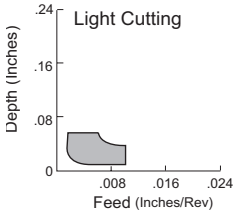


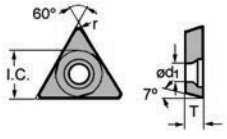
Cutting Conditions:	Coated														Cermet	
	AC810P	AC8025P	AC820P	AC830P	AC700G	AC610M	AC6020M	AC6030M	AC6040M	AC630M	AC405K	AC410K	AC415K	AC510U	AC520U	T1500Z	T2000Z
Continuous Cut	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●
Medium Cut	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●			●	●	●					●		

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TCMT21.51ESU	TCMT110204N-SU	.250	.094	.0156	.110
TCMT21.52ESU	TCMT110208N-SU			.0313	
TCMT32.51ESU	TCMT16T304N-SU	.375	.156	.0156	.1693
TCMT32.52ESU	TCMT16T308N-SU			.0313	

TCMT ELU

Rake Angle: 15°





Cutting Conditions:	Coated										Cermet			Uncoated							
	AC810P	AC820P	AC700G	AC6030M	AC630M						T1500Z	T2000Z	T3000Z								
Continuous Cut	●	●	●	●	●						●	●	●								
Medium Cut	●	●	●	●	●						★	●	●								
Interrupted Cut	●	●	●	●	●						●	●	●								

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TCMT21.51ELU	TCMT110204N-LU	.250	.094	.0156	.110
TCMT21.52ELU	TCMT110208N-LU			.0313	

TRIANGULAR TYPE
POSITIVE INSERT

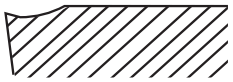
TC — Triangular Type / 7° Relief / With Insert Hole

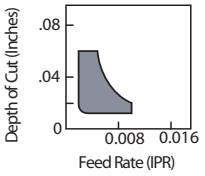
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

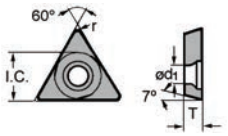
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TCMT ELB

Rake Angle: 15°





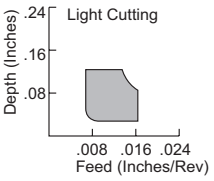


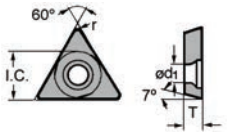
Cutting Conditions:	Coated						Cermet						Uncoated			
Continuous Cut	●	○														
Medium Cut	●															
Interrupted Cut	●															
	AC8025P	AC6020M														

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6020M
TCMT21.51ELB	TCMT110204N-LB	.250	.094	.0156	.110	●	○
TCMT21.52ELB	TCMT110208N-LB			.0313		●	○

TCMT ENK

Rake Angle: 8°





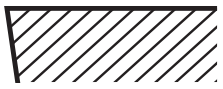
Cutting Conditions:	Coated							Cermet						Uncoated				
Continuous Cut	●	●	●		●													
Medium Cut	●	●	●	●	●													
Interrupted Cut		●	●	●	●													
	AC810P	AC8025P	AC820P	AC830P	AC700G													

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G
TCMT21.51ENK	TCMT110204N-SK	.250	.094	.0156	.110	●	●	●	●	●
TCMT21.52ENK	TCMT110208N-SK			.0313		●	●	●	●	●
TCMT32.51ENK	TCMT16T304N-SK	.375	.156	.0156	.1693	●	●	●	●	●
TCMT32.52ENK	TCMT16T308N-SK			.0313		●	●	●	●	●
TCMT32.53ENK	TCMT16T312N-SK			.0469		●	●	●	●	

TCMA

-

No Breaker



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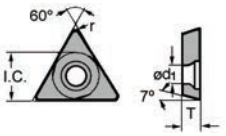


Cutting Conditions:	Coated							Cermet						Uncoated				
Continuous Cut	●	●	●															
Medium Cut	●		●	●														
Interrupted Cut	●			●														
	AC700G	AC405K	AC415K	AC420K														

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC700G	AC405K	AC415K	AC420K
TCMA21.51	TCMW 110204	.250	.094	.0156	.110	●	●	●	●
TCMA21.52	TCMW 110208			.0313		●	●	●	●
TCMA32.51	TCMW 16T304	.375	.156	.0156	.1693	●	●	●	★
TCMA32.52	TCMW 16T308			.0313		●	●	●	●
TCMA32.53	TCMW 16T312			.0469					●

TRIANGULAR TYPE
POSITIVE INSERT

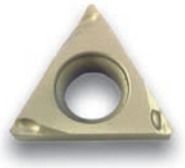
TP — Triangular Type, 11° Relief, With Insert Hole

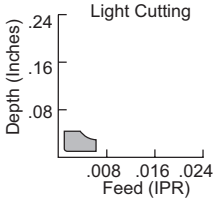
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

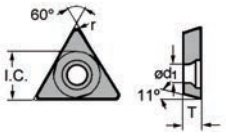
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TPGT FW

Rake Angle: 20°





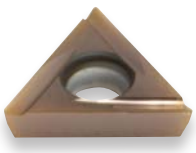


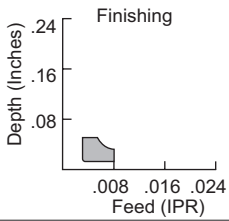
Cutting Conditions:	Coated							Cermet				Uncoated					
Continuous Cut								●	●	●	●						
Medium Cut								●	●	●	●						
Interrupted Cut										●	●						

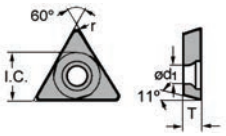
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T2000Z	T1500A	T1200A
TPGT630.5RFW	TPGT080202R-FW	.1875	.094	.0078	.090	★		★	▲
TPGT630.5LFW	TPGT080202L-FW			.0078		●	●	●	▲
TPGT631RFW	TPGT080204R-FW			.0156		●	●	★	
TPGT631LFW	TPGT080204L-FW			.0156		●	●	●	▲
TPGT21.50.5RFW	TPGT110202R-FW	.250		.0078	.110	★	●	★	▲
TPGT21.50.5LFW	TPGT110202L-FW			.0078		★	●	●	▲
TPGT21.51RFW	TPGT110204R-FW			.0156		●	●	★	▲
TPGT21.51LFW	TPGT110204L-FW			.0156		●	●	●	▲

TPGT FX

Rake Angle: 15°







Cutting Conditions:	Coated											Cermet		Uncoated			
Continuous Cut	●	●	○									●	●				
Medium Cut	●	●	○									●	●				
Interrupted Cut	●		○									●	●				

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	AC510U	ACZ310	T1500A	T1200A
TPGT630.5RFX	TPGT080202R-FX	.1875	.094	.0078	.090	★	●	▲		
TPGT630.5LFX	TPGT080202L-FX			.0078		★	●			
TPGT631RFX	TPGT080204R-FX			.0156		★	●			
TPGT631LFX	TPGT080204L-FX			.0156		●	●			
TPGT1.81.51LFX	TPGT090204L-FX	.219		.0156	.102				●	▲
TPGT21.50.5RFX	TPGT110202R-FX	.250		.0078	.110		●			
TPGT21.50.5LFX	TPGT110202L-FX			.0078			●			
TPGT21.51RFX	TPGT110204R-FX			.0156			●			
TPGT21.51LFX	TPGT110204L-FX			.0156			●			
TPGT21.52LFX	TPGT110208L-FX			.0313			●			
TPGT220.5RFX	TPGT110302R-FX		.125	.0078	.130	★		▲		
TPGT220.5LFX	TPGT110302L-FX			.0078		★		▲		
TPGT221RFX	TPGT110304R-FX			.0156		★		▲		
TPGT221LFX	TPGT110304L-FX			.0156		●		▲		

TRIANGULAR TYPE
POSITIVE INSERT

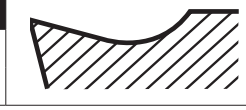
TP — Triangular Type / 11° Relief / With Insert Hole

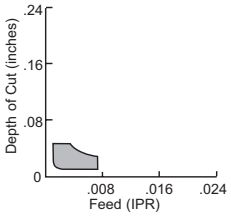
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

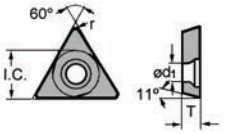
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TPGT FY

Rake Angle: 15°





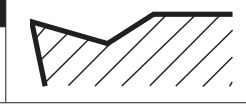


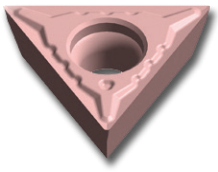
Cutting Conditions:	Coated				Cermet					Uncoated						
	AC530U	ACZ310			T1500Z	T2000Z	T3000Z	T1500A	T1200A							
Continuous Cut	●	○			●	●		●	●							
Medium Cut	◐	◌			◐	◐	◐	◐	◐							
Interrupted Cut	✹	✹					✹	✹	✹							

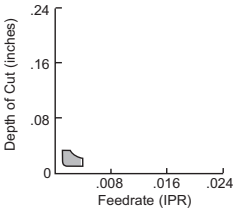
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310	T1500Z	T2000Z	T3000Z	T1500A	T1200A
TPGT630RFY	TPGT080201R-FY	.1875	.094	.0039	.090	●						
TPGT630LFY	TPGT080201L-FY			.0039		★	▲					
TPGT630.5RFY	TPGT080202R-FY			.0078		★	▲				★	▲
TPGT630.5LFY	TPGT080202L-FY			.0078		★	▲				★	▲
TPGT631RFY	TPGT080204R-FY			.0156			▲				●	▲
TPGT631LFY	TPGT080204L-FY			.0156		★	▲				★	▲
TPGT21.50.5RFY	TPGT110202R-FY	.250		.0078	.110						★	▲
TPGT21.50.5LFY	TPGT110202L-FY			.0078							★	▲
TPGT21.51RFY	TPGT110204R-FY			.0156							★	▲
TPGT21.51LFY	TPGT110204L-FY			.0156							★	▲
TPGT21.52LFY	TPGT110208L-FY			.0313							●	▲
TPGT220RFY	TPGT110301R-FY		.125	.0039	.130	★	▲	●	●			
TPGT220LFY	TPGT110301L-FY			.0039		★	▲					
TPGT220.5RFY	TPGT110302R-FY			.0078			▲				★	
TPGT220.5LFY	TPGT110302L-FY			.0078			▲	★	●	●	★	▲
TPGT221RFY	TPGT110304R-FY			.0156				★			★	▲
TPGT221LFY	TPGT110304L-FY			.0156		★	▲	●	●		●	▲
TPGT222RFY	TPGT110308R-FY			.0313		★	▲				★	▲
TPGT222LFY	TPGT110308L-FY			.0313		●	▲					

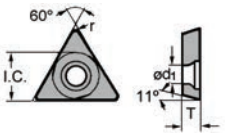
TPGT EFC

Rake Angle: 15°









Cutting Conditions:	Coated				Cermet					Uncoated						
	AC530U				T1500A											
Continuous Cut	●				●											
Medium Cut	◐				◐											
Interrupted Cut	✹				✹											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	T1500A
TPGT220.5EFC	TPGT110302N-FC	.250	.125	.0078	.130	●	
TPGT220.5MEFC	TPGT110302MN-FC			.0078			●
TPGT221EFC	TPGT110304N-FC			.0156		●	
TPGT221MEFC	TPGT110304MN-FC			.0156			●

M = Negative nose radius tolerance (-0.0001" to -0.0004")

TRIANGULAR TYPE
POSITIVE INSERT

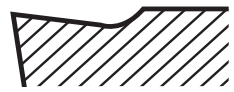
TP — Triangular Type, 11° Relief, With Insert Hole

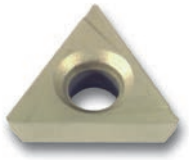
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

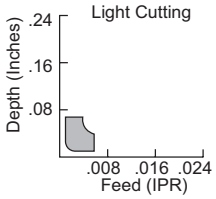
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

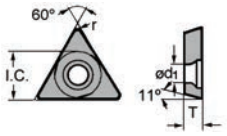
TPGT W

Rake Angle: 10°







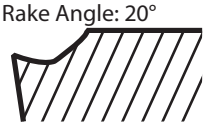


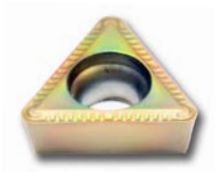
Cutting Conditions:	AC530U	AC510U	ACZ310	T1500Z	T2000Z	T3000Z	T1500A	T1200A	G10E
Continuous Cut	●	●	○	●	●		●	●	
Medium Cut	◐	●	◌	◐	◐	◐	◐	◐	◐
Interrupted Cut	✹		◌			◐	◐	◐	

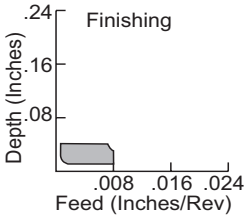
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	AC510U	ACZ310	T1500Z	T2000Z	T3000Z	T1500A	T1200A	G10E
TPGT630.5R	TPGT080202R-W	.1875	.094	.0078	.090	★		▲	●	●		●	▲	▲
TPGT630.5L	TPGT080202L-W			.0078		★	●	▲	●	●	●	●	▲	●
TPGT631R	TPGT080204R-W			.0156		●		▲	★	●		●	▲	
TPGT631L	TPGT080204L-W			.0156		★		▲	●	●	●	●	▲	

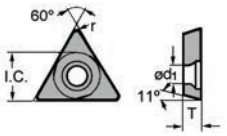
TPMT EFB

Rake Angle: 20°









Cutting Conditions:	T1500Z
Continuous Cut	●
Medium Cut	◐
Interrupted Cut	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z
TPMT222EFB	TPMT110308N-FB	.250	.125	.0313	.110	●

TRIANGULAR TYPE
POSITIVE INSERT

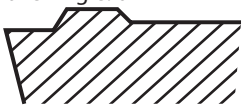
TP — Triangular Type / 11° Relief / With Insert Hole

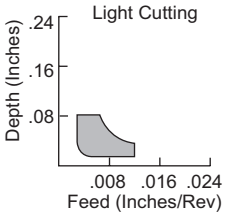
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

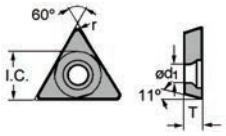
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TPMT EFK

Rake Angle: 0°







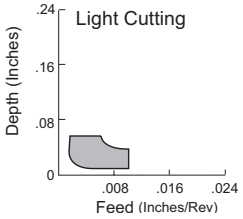
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●	●	●								
Medium Cut					●	●	●	●								
Interrupted Cut							●	●								
					T1500Z	T2000Z	T1500A	T1200A								

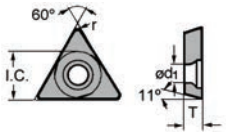
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TPMT221EFK	TPMT110304N-FK	.250	.125	.0156	.110
TPMT222EFK	TPMT110308N-FK			.0313	
TPMT331EFK	TPMT160404N-FK	.375	.1875	.0156	.1693
TPMT332EFK	TPMT160408N-FK			.0313	

TPMT221EFK	TPMT110304N-FK	.250	.125	.0156	.110
TPMT222EFK	TPMT110308N-FK			.0313	
TPMT331EFK	TPMT160404N-FK	.375	.1875	.0156	.1693
TPMT332EFK	TPMT160408N-FK			.0313	

TPMT ELU

Rake Angle: 12°





Cutting Conditions:	Coated									Cermet			Uncoated				
Continuous Cut	●	●	●	●	●	○	●	●	●	●	●						
Medium Cut	●	●	●	●	●	○	●	●	●	●	●	●					
Interrupted Cut		●	●	●	●	○	●	●	●			●					
	AC810P	AC8025P	AC820P	AC700G	AC530U	ACZ310	AC6030M	AC6040M	AC630M	T1500Z	T2000Z	T3000Z					

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TPMT1.81.50.5ELU	TPMT090202N-LU	.219	.094	.0078	.102
TPMT1.81.51ELU	TPMT090204N-LU			.0156	
TPMT221ELU	TPMT110304N-LU	.250	.125	.0156	.130
TPMT222ELU	TPMT110308N-LU			.0313	

TPMT1.81.50.5ELU	TPMT090202N-LU	.219	.094	.0078	.102
TPMT1.81.51ELU	TPMT090204N-LU			.0156	
TPMT221ELU	TPMT110304N-LU	.250	.125	.0156	.130
TPMT222ELU	TPMT110308N-LU			.0313	

TRIANGULAR TYPE
POSITIVE INSERT

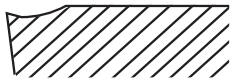
TP — Triangular Type · 11° Relief · With Insert Hole

- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

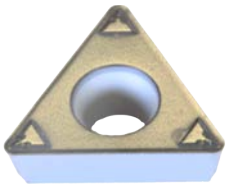
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

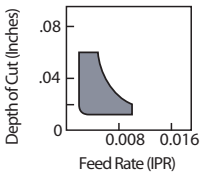
TPMT ELB

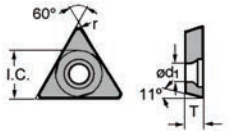
Rake Angle: 15°



Cutting Conditions:	Coated								Cermet				Uncoated			
Continuous Cut	●	○														
Medium Cut	●															
Interrupted Cut	●															





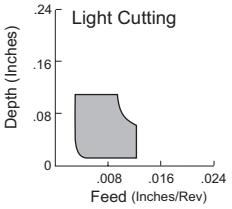


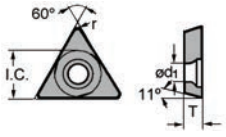
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC6020M
TPMT630.5ELB	TPMT080202N-LB	.1875	.094	.0078	.090	●	○
TPMT631ELB	TPMT080204N-LB			.0156		●	○
TPMT1.81.50.5ELB	TPMT090202N-LB	.219	.094	.0078	.102	●	○
TPMT1.81.51ELB	TPMT090204N-LB			.0156		●	○
TPMT220.5ELB	TPMT110302N-LB	.250	.125	.0078	.130	●	○
TPMT221ELB	TPMT110304N-LB			.0156		●	○
TPMT222ELB	TPMT110308N-LB			.0313		●	○
TPMT321ELB	TPMT160304N-LB	.375	.1875	.0156	.1693		○
TPMT322ELB	TPMT160308N-LB			.0313			○
TPMT331ELB	TPMT160404N-LB			.0156		●	○
TPMT332ELB	TPMT160408N-LB			.0313		●	○

TPMT ESU

Rake Angle: 8°

Cutting Conditions:	Coated													Cermet					
Continuous Cut	●	●	●		●	●	●		●	●	●	●		●	●		●	●	
Medium Cut	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	
Interrupted Cut		●	●	●	●	●			●	●	●		●			●	●	●	





Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC700G	AC530U	AC610M	AC6020M	AC6030M	AC6040M	AC630M	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A
TPMT630.5ESU	TPMT080202N-SU	.1875	.094	.0078	.090						●		○										
TPMT631ESU	TPMT080204N-SU			.0156									○										
TPMT1.81.50.5ESU	TPMT090202N-SU	.219		.0078	.102		●	●										●					
TPMT1.81.51ESU	TPMT090204N-SU			.0156			●	●										●					▲
TPMT21.50.5ESU	TPMT110202N-SU	.250		.0078	.107	●	●	●		●							●	●					▲
TPMT21.51ESU	TPMT110204N-SU			.0156		●	●	●		●							●	●					▲
TPMT21.52ESU	TPMT110208N-SU			.0313		●	●	●		●							●	●					▲
TPMT220.5ESU	TPMT110302N-SU		.125	.0078	.130		●	●	★			●	○	●	●	●			●	●		●	▲
TPMT221ESU	TPMT110304N-SU			.0156		●	●	●	★			●	○	●	●	●			●	●	●	●	▲
TPMT222ESU	TPMT110308N-SU			.0313		●	●	●	★			●	○	●		●			●	●	●	★	▲
TPMT32.51ESU	TPMT16T304N-SU	.375	.156	.0156	.1693	●	●	●		●							●	●					▲
TPMT32.52ESU	TPMT16T308N-SU			.0313		●	●	●		●							●	●					▲
TPMT331ESU	TPMT160404N-SU		.1875	.0156			●	●	●			●	○	●	●	●			●	●	●	★	▲
TPMT332ESU	TPMT160408N-SU			.0313			●	●	●			●	○	●	●	●			●	●	●	★	▲

TRIANGULAR TYPE
POSITIVE INSERT

TP — Triangular Type · 11° Relief · With Insert Hole

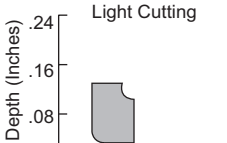
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

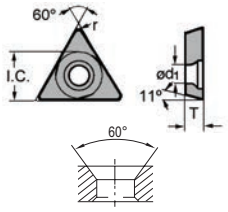
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TPMT ENF

Rake Angle: 0°

Cutting Conditions:	Coated								Cermet				Uncoated				
Continuous Cut	●	●		●	●												
Medium Cut	●	●	●	●	●												
Interrupted Cut	●	●	●	●													

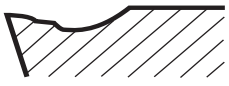




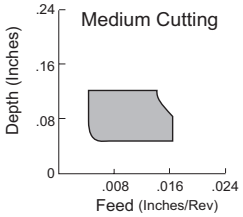
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G	AC510U
TPMT221ENF	TPMT110304N-SF	.250	.125	.0156	.130	●	●	●	●	●
TPMT222ENF	TPMT110308N-SF			.0313		●	●	●	●	●
TPMT331ENF	TPMT160404N-SF	.375	.1875	.0156	.1693	●	●	●	●	●
TPMT332ENF	TPMT160408N-SF			.0313		●	●	●	●	●

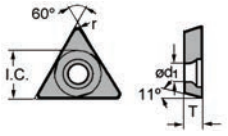
TPMT EMU

Rake Angle: 0°



Cutting Conditions:	Coated								Cermet				Uncoated				
Continuous Cut	●	●	●	●	●	●		●									
Medium Cut	●	●	●	●		●	●										
Interrupted Cut		●	●	●			●										





Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	AC405K	AC415K	AC420K	AC6020M
TPMT221EMU	TPMT110304N-MU	.250	.125	.0156	.130	●		●	●			●	○
TPMT222EMU	TPMT110308N-MU			.0313		●	●	●	●			●	○
TPMT331EMU	TPMT160404N-MU	.375	.1875	.0156	.1693	●	●	●	●			●	○
TPMT332EMU	TPMT160408N-MU			.0313		●	●	●	●	●	●	●	○

TRIANGULAR TYPE
POSITIVE INSERT

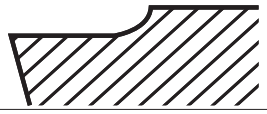
TP — Triangular Type / 11° Relief / With Insert Hole

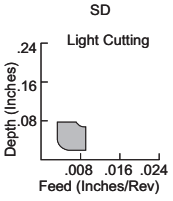
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

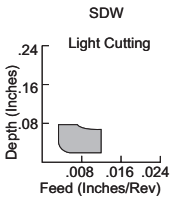
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

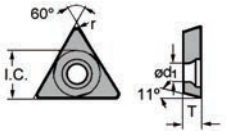
TPGG — SD

Rake Angle: 0°









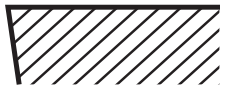
Cutting Conditions:	Coated								Cermet					Uncoated			
Continuous Cut	●	●	○						●	●		●	●				
Medium Cut	●	●	○						●	●	●	●	●		●		
Interrupted Cut	●		○								●	●	●				

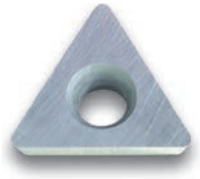
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	AC510U	ACZ310						T1500Z	T2000Z	T3000Z	T1500A	T1200A		G10E		
TPGG220.5R	TPGT110302R-SD	.250	.125	.0078	.130	★								★	●		●	▲				
TPGG220.5L	TPGT110302L-SD			.0078										●	●	●	●	▲				
TPGG221R	TPGT110304R-SD			.0156		★	●							★	●	★	●	▲				
TPGG221RW	TPGX110304R-SDW			.0156												●						
TPGG221L	TPGT110304L-SD			.0156		★	●	▲						●	●	★	●	▲		●		
TPGG221LW	TPGX110304L-SDW			.0156											●	●						
TPGG222R	TPGT110308R-SD			.0313		★		▲									★	▲				
TPGG222RW	TPGX110308R-SDW			.0313											●	●						
TPGG222L	TPGT110308L-SD			.0313										★	●	★	●	▲				
TPGG222LW	TPGX110308L-SDW			.0313											●							
TPGG321R	TPGT160304R-SD	.375		.0156	.1693												●	▲				
TPGG321L	TPGT160304L-SD			.0156											●			▲				
TPGG322R	TPGT160308R-SD			.0313														▲				
TPGG322L	TPGT160308L-SD			.0313														▲				
TPGG330R	TPGT160401R-SD		.1875	.0039																●		
TPGG330L	TPGT160401L-SD			.0039														▲		●		
TPGG330.5R	TPGT160402R-SD			.0078													★	●				
TPGG330.5L	TPGT160402L-SD			.0078										●	●		●	▲				
TPGG331R	TPGT160404R-SD			.0156			●							★	●	★	●	▲		●		
TPGG331L	TPGT160404L-SD			.0156			●							★	●	★	●	▲		●		
TPGG332R	TPGT160408R-SD			.0313													★	▲		★		
TPGG332L	TPGT160408L-SD			.0313										●	●		●	▲				

W = Wiper insert

TPEW — EW

No Breaker





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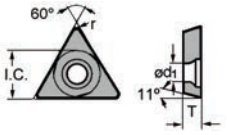


Cutting Conditions:	Coated				Cermet				Uncoated								
Continuous Cut									●								
Medium Cut									●								
Interrupted Cut																	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	H1								
TPEW1.81.51	TPEW090204	.219	.094	.0156	.102	●								
TPEW21.51	TPEW110204	.250			.110	●								
TPEW21.52	TPEW110208			.0313		●								

TRIANGULAR TYPE
POSITIVE INSERT

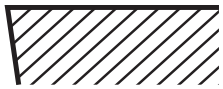
TP
- Triangular Type
- 11° Relief
- With Insert Hole

- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TPGA

No Breaker



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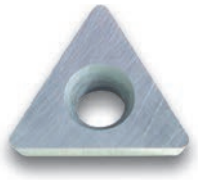

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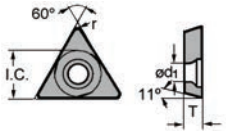


Cutting Conditions:	Coated								Cermet				Uncoated			
Continuous Cut									●	●						
Medium Cut									○	○			○			
Interrupted Cut									○	○						
									T1500A	T1200A			G10E			

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TPGA220.5	TPGW110302	.250	.125	.0078	.130
TPGA221	TPGW110304			.0156	
TPGA222	TPGW110308			.0313	
TPGA331	TPGW160404	.375	.1875	.0156	.1693

									▲							
									●	▲			★			
									●	▲			●			
													▲			

TRIANGULAR TYPE
POSITIVE INSERT

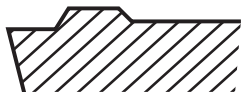
TP — Triangular Type / 11° Relief / Without Insert Hole

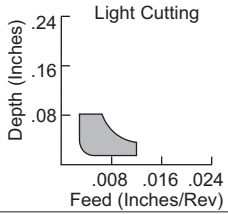
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

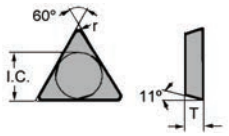
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TPMR EFK

Rake Angle: 0°





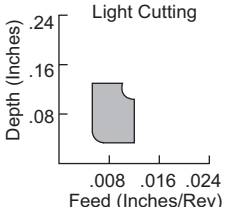


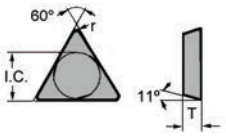
Cutting Conditions:	Coated										Cermet				Uncoated			
Continuous Cut											●	●	●	●				
Medium Cut											●	●	●	●				
Interrupted Cut													○	○				

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T2000Z	T1500A	T1200A
TPMR1.81.50.5EFK	TPMR090202N-FK	.219	.094	.0078	-				▲
TPMR1.81.51EFK	TPMR090204N-FK			.0156		●	●	●	▲
TPMR1.81.52EFK	TPMR090208N-FK			.0313		●	●		▲
TPMR220.5EFK	TPMR110302N-FK	.250	.125	.0078				★	▲
TPMR221EFK	TPMR110304N-FK			.0156		●	●	●	▲
TPMR222EFK	TPMR110308N-FK			.0313		●		●	▲
TPMR321EFK	TPMR160304N-FK	.375		.0156		●	●	●	▲
TPMR322EFK	TPMR160308N-FK			.0313		●	●	●	▲
TPMR323EFK	TPMR160312N-FK			.0469				★	

TPMR ENF

Rake Angle: 0°



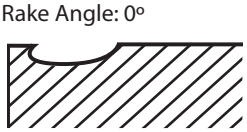


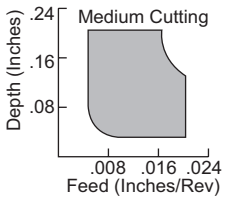
Cutting Conditions:	Coated										Cermet				Uncoated			
Continuous Cut	●	●		●														
Medium Cut	●	●	●	●														
Interrupted Cut	○	○	○	○														

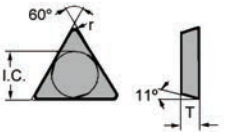
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P	AC700G
TPMR221ENF	TPMR110304N-SF	.250	.125	.0156	-	●	●	●	
TPMR222ENF	TPMR110308N-SF			.0313		●	●	●	●
TPMR321ENF	TPMR160304N-SF	.375		.0156		●	●	●	
TPMR322ENF	TPMR160308N-SF			.0313		●	●	●	●
TPMR323ENF	TPMR160312N-SF			.0469		●	●	●	
TPMR432ENF	TPMR220408N-SF	.500	.1875	.0313		●	●	●	
TPMR433ENF	TPMR220412N-SF			.0469		●	●	●	

TPMR EUJ

Rake Angle: 0°







Cutting Conditions:	Coated										Cermet				Uncoated			
Continuous Cut	○																	
Medium Cut	○																	
Interrupted Cut	○																	

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P
TPMR322EUJ	TPMR160308N-UJ	.375	.125	.0313	-	●

TRIANGULAR TYPE
POSITIVE INSERT

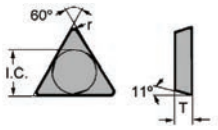
TP — Triangular Type / 11° Relief / Without Insert Hole

- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TPG

No Breaker

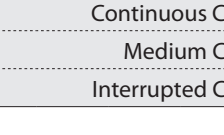


Cutting Conditions:	Coated				Cermet				Uncoated								
Continuous Cut	●	●	●		●	●	●	●				●	?	?			
Medium Cut	●	●	●		●	●	●	●		●	●	●	?	?			
Interrupted Cut	●	●					●	●		●			?	?			

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC510U	T1500Z	T2000Z	T1500A	T1200A	A30	G10E	H1	ST30E	EH20Z
TPG220.5	TPGN110302	.250	.125	.0078	-						●	▲			●		
TPG221	TPGN110304			.0156		●	●			●	●	▲			★		
TPG222	TPGN110308			.0313		●	●			●	●	▲			★		
TPG320.5	TPGN160302	.375		.0078					●	●	●	▲		●			
TPG321	TPGN160304			.0156		●	●	●	●	●	●	▲		●		●	
TPG322	TPGN160308			.0313		●	●	●	●	●	●	▲	★	●		●	▲
TPG323	TPGN160312			.0469		●	●							●			
TPG324	TPGN160316			.0625		●	●										
TPG332	TPGN160408			.0313		●	●										
TPG431	TPGN220404	.500	.1875	.0156		●	●					▲					
TPG432	TPGN220408			.0313		●	●	●				▲	★	●			
TPG433	TPGN220412			.0469		●	●					▲					
TPG434	TPGN220416			.0625		●	●					▲					
TPG436	TPGN220424			.0938		●	●										

TPMN

No Breaker



Cutting Conditions:	Coated							Cermet				Uncoated				
Continuous Cut	●	●	●	●				●	●				●	?		
Medium Cut	●	●	●	●	●			●	●			●	●	?		
Interrupted Cut	●	●	●		●			●	●			●	●	?		

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC700G	AC410K	AC420K	T1500A	T1200A	A30	ST20E	ST30E
TPMN221	TPMN110304	.250	.125	.0156	-			★	▲	●			★		
TPMN222	TPMN110308			.0313				★	▲	●			★		
TPMN321	TPMN160304	.375		.0156		●	●		▲	●			★		
TPMN322	TPMN160308			.0313		●	●	●		●	★	▲	●		●
TPMN323	TPMN160312			.0469				★		●			★		
TPMN431	TPMN220404	.500	.1875	.0156									★		
TPMN432	TPMN220408			.0313		●	●	●			★	▲	●		
TPMN433	TPMN220412			.0469		●	●	●							
TPMN434	TPMN220416			.0625									★	★	

TRIANGULAR TYPE
POSITIVE INSERT

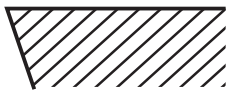
TE
- Triangular Type
- 20° Relief
- Without Insert Hole

- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

TEGE

No Breaker



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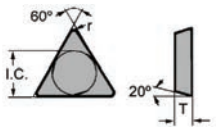
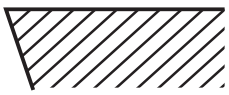


Cutting Conditions:	Coated				Cermet				Uncoated							
									H1							
Continuous Cut									●							
Medium Cut									◐							
Interrupted Cut																

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TEGE21.50.5	TEGE110202	.250	.094	.0078	-
TEGE21.51	TEGE110204			.0156	

TEGN

No Breaker



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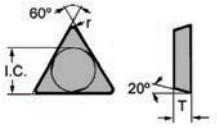


Cutting Conditions:	Coated				Cermet				Uncoated							
					T1500A	T1200A			H1							
Continuous Cut					●	●			●							
Medium Cut					◐	◐			◐							
Interrupted Cut					◌	◌										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
TEGN220.5	TEGN110302	.250	.125	.0078	-
TEGN222	TEGN110308			.0313	
TEGN320.5	TEGN160302	.375		.0078	
TEGN322	TEGN160308			.0313	

35° DIAMOND TYPE
POSITIVE INSERT

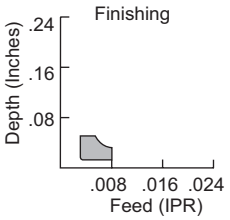
VB — 35° Diamond Type; 5° Relief; With Insert Hole

- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VBGT FX

Rake Angle: 15°

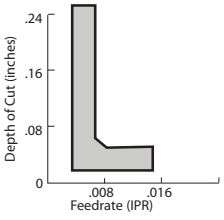


Cutting Conditions:	Coated						Cermet					Uncoated				
	AC530U															
Continuous Cut	●															
Medium Cut	◐															
Interrupted Cut	◌															

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U
VBGT220.5LFX	VBGT110302L-FX	.250	.125	.0078	.134	★

VBGT ESI

Rake Angle: 15°



Cutting Conditions:	Coated						Cermet					Uncoated				
	AC530U	AC6030M	AC510U	AC520U												
Continuous Cut	●	●	●													
Medium Cut	◐	◐	●	●												
Interrupted Cut	◌	◌		●												

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	AC6030M	AC510U	AC520U
VBGT220MESI	VBGT110301MN-SI	.250	.125	.0039	.134	●	●	●	●
VBGT220.5MESI	VBGT110302MN-SI			.0078		●	●	●	●
VBGT221MESI	VBGT110304MN-SI			.0156		●	●	●	●
VBGT222MESI	VBGT110308MN-SI			.0313		●	●	●	●
VBGT330MESI	VBGT160401MN-SI	.375	.1875	.0039	.1732	●	●	●	●
VBGT330.5MESI	VBGT160402MN-SI			.0078		●	●	●	●
VBGT331MESI	VBGT160404MN-SI			.0156		●	●	●	●
VBGT332MESI	VBGT160408MN-SI			.0313		●	●	●	●

M = Negative nose radius tolerance (-0.0001" to -0.0004")" as with similar items.

35° DIAMOND TYPE
POSITIVE INSERT

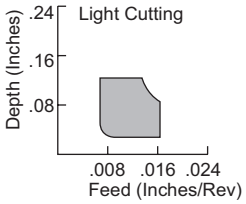
VB — 35° Diamond Type | 5° Relief | With Insert Hole

- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VBMT ENK

Rake Angle: 8°

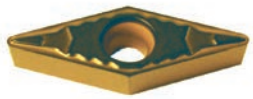


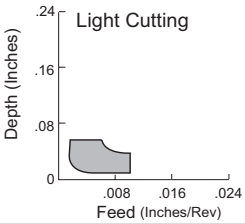
Cutting Conditions:	Coated								Cermet				Uncoated			
	AC8025P	AC820P														
Continuous Cut	●	●														
Medium Cut	●	●														
Interrupted Cut	●	●														

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VBMT332ENK	VBMT160408N-SK	.375	.1875	.0313	.1732

VBMT ELU

Rake Angle: 15°



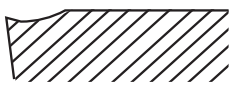


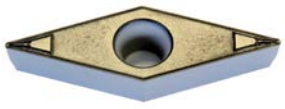
Cutting Conditions:	Coated										Cermet			Uncoated			
	AC810P	AC8025P	AC820P	AC700G	AC530U	AC6030M	AC6040M	AC630M	ACZ310		T1500Z	T2000Z	T3000Z				
Continuous Cut	●	●	●	●	●	●	●	●	○		●	●					
Medium Cut	●	●	●	●	●	●	●	●	○		●	●	●				
Interrupted Cut		●	●	●	●	●	●	●	○				●				

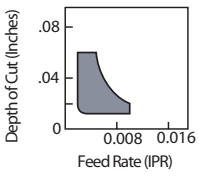
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VBMT221ELU	VBMT110304N-LU	.250	.125	.0156	.134
VBMT331ELU	VBMT160404N-LU	.375	.1875	.0156	.1732
VBMT332ELU	VBMT160408N-LU			.0313	

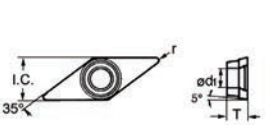
VBMT ELB

Rake Angle: 15°









Cutting Conditions:	Coated										Cermet			Uncoated			
	AC8025P	AC6020M															
Continuous Cut	●	○															
Medium Cut	●	○															
Interrupted Cut	●	○															

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VBMT220.5ELB	VBMT110302N-LB	.250	.125	.0078	.134
VBMT221ELB	VBMT110304N-LB			.0156	
VBMT222ELB	VBMT110308N-LB			.0313	
VBMT331ELB	VBMT160404N-LB	.375	.1875	.0156	.1732
VBMT332ELB	VBMT160408N-LB			.0313	
VBMT333ELB	VBMT160412N-LB			.0469	

35° DIAMOND TYPE
POSITIVE INSERT

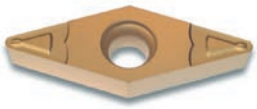
VB — 35° Diamond Type | 5° Relief | With Insert Hole

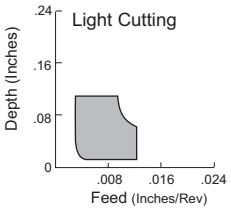
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VBMT
ESU

Rake Angle: 8°



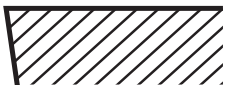


Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC700G	AC610M	AC6030M	AC630M	AC510U	AC520U	T1500Z	T2000Z	T3000Z	T1500A	T1200A
Continuous Cut	●	●	●		●	●	●	●	●	●	●	●	●		▲
Medium Cut	●	●	●	●	●	●	●	●	●	●	●	●	●		▲
Interrupted Cut		●	●	●	●		●	●		●			●	●	▲

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VBMT221ESU	VBMT110304N-SU	.250	.125	.0156	.134
VBMT222ESU	VBMT110308N-SU			.0313	
VBMT331ESU	VBMT160404N-SU	.375	.1875	.0156	.1732
VBMT332ESU	VBMT160408N-SU			.0313	

VBMA

No Breaker



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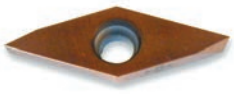

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Cutting Conditions:	AC700G	AC405K	AC415K	AC420K
Continuous Cut	★	★	★	●
Medium Cut	★	★	★	●
Interrupted Cut				

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1
VBMA331	VBMA160404	.375	.1875	.0156	.1732
VBMA332	VBMA160408			.0313	

35° DIAMOND TYPE
POSITIVE INSERT

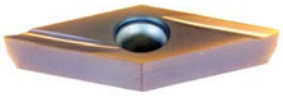
VC — 35° Diamond Type | 7° Relief | With Insert Hole

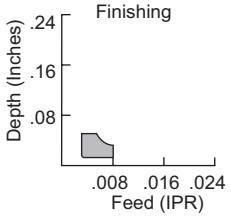
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VCGT FX

Rake Angle: 15°



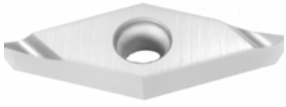


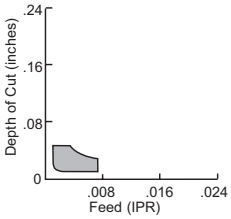
Cutting Conditions:	Coated						Cermet						Uncoated					
Continuous Cut	●	○					●	●										
Medium Cut	●	○					●	●										
Interrupted Cut	●	○					●	●										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310	T1500A	T1200A
VCGT220RFX	VCGT110301R-FX	.250	.125	.0039	.134	★	▲	★	▲
VCGT220LFX	VCGT110301L-FX			.0039		★	▲	★	▲
VCGT220.5RFX	VCGT110302R-FX			.0078		●	▲	●	▲
VCGT220.5LFX	VCGT110302L-FX			.0078		●	▲	★	▲
VCGT221RFX	VCGT110304R-FX			.0156		●			▲
VCGT221LFX	VCGT110304L-FX			.0156		●	▲		▲

VCGT FY

Rake Angle:



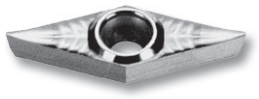


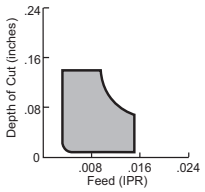
Cutting Conditions:	Coated						Cermet						Uncoated					
Continuous Cut	●	○																
Medium Cut	●	○																
Interrupted Cut	●	○																

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310
VCGT220RFY	VCGT110301R-FX	.250	.125	.0039	.134	★	▲
VCGT220.5RFY	VCGT110302R-FX			.0078		★	

VCGT NAG

Rake Angle: 8°





Cutting Conditions:	Coated						Cermet						Uncoated					
Continuous Cut													●					
Medium Cut													●					
Interrupted Cut																		

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	H1
VCGT220.5NAG	VCGT110302N-AG	.250	.125	.0078	.134	●
VCGT221NAG	VCGT110304N-AG			.0156		●
VCGT332NAG	VCGT160408N-AG	.375	.1875	.0313	.1732	★

35° DIAMOND TYPE
POSITIVE INSERT

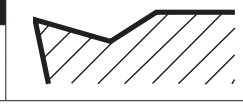
VC — 35° Diamond Type | 7° Relief | With Insert Hole

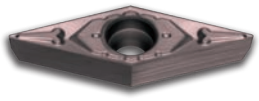
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

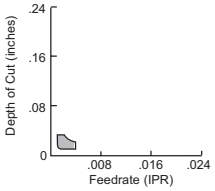
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VCGT EFC

Rake Angle: 15°







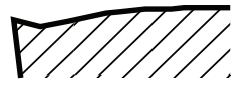
Cutting Conditions:	Coated							Cermet					Uncoated					
Continuous Cut	●							●										
Medium Cut	●							●										
Interrupted Cut	●							●										
	AC530U							T1500A										

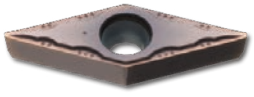
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	T1500A
VCGT220EFC	VCGT110301N-FC	.250	.125	.0039	.134	●	●
VCGT220MEFC	VCGT110301MN-FC			.0039			●
VCGT220.5EFC	VCGT110302N-FC			.0078		●	●
VCGT220.5MEFC	VCGT110302MN-FC			.0078			●
VCGT221EFC	VCGT110304N-FC			.0156		●	●
VCGT221MEFC	VCGT110304MN-FC			.0156			●

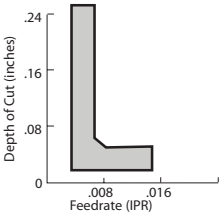
M = Negative nose radius tolerance (-0.0001" to -0.0004")

VCGT ESI

Rake Angle: 15°







Cutting Conditions:	Coated							Cermet					Uncoated					
Continuous Cut	●	●	●	●	●			●	●									
Medium Cut	●	●	●	●	●	●		●	●									
Interrupted Cut	●		●	●		●			●									
	AC530U	AC610M	AC6030M	AC630M	AC510U	AC520U		T1500Z	T1500A									

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	AC610M	AC6030M	AC630M	AC510U	AC520U	T1500Z	T1500A
VCGT220MESI	VCGT110301MN-SI	.250	.125	.0039	.134	●	●	●	●	●	●	●	●
VCGT220.5MESI	VCGT110302MN-SI			.0078		●	●	●	●	●	●	●	●
VCGT221MESI	VCGT110304MN-SI			.0156		●	●	●	●	●	●	●	●
VCGT222MESI	VCGT110308MN-SI			.0313		●	●	●	●	●	●	●	●
VCGT330MESI	VCGT160401MN-SI	.375	.1875	.0039	.1732	●	●	●	●	●	●	●	●
VCGT330.5MESI	VCGT160402MN-SI			.0078		●	●	●	●	●	●	●	●
VCGT331MESI	VCGT160404MN-SI			.0156		●	●	●	●	●	●	●	●
VCGT332MESI	VCGT160408MN-SI			.0313		●			●	●	●		

M = Negative nose radius tolerance (-0.0001" to -0.0004")

35° DIAMOND TYPE
POSITIVE INSERT

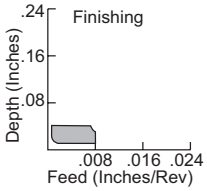
VC — 35° Diamond Type | 7° Relief | With Insert Hole

- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VCMT EFB

Rake Angle: 20°

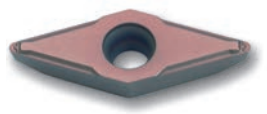


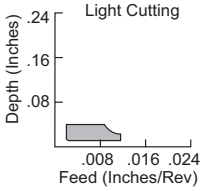
Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●										
Medium Cut					◐	◐										
Interrupted Cut						◌										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T1500A
VCMT331EFB	VCMT160404N-FB	.375	.1875	.0156	.1732	★	●
VCMT332EFB	VCMT160408N-FB			.0313		★	●

VCMT EFP

Rake Angle: 10°



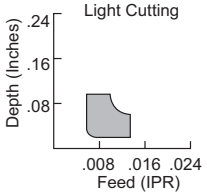


Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●										
Medium Cut					◐	◐										
Interrupted Cut						◌										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T2000Z	T1200A
VCMT331EFP	VCMT160404N-FP	.375	.1875	.0156	.1732	●	▲
VCMT332EFP	VCMT160408N-FP			.0313		●	▲

VCMT ENK

Rake Angle: 8°



Cutting Conditions:	Coated			Cermet			Uncoated							
Continuous Cut	●	●												
Medium Cut	◐	◐	◐											
Interrupted Cut	◌	◌	◌											

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P	AC820P	AC830P
VCMT331ENK	VCMT160404N-SK	.375	.1875	.0156	.1732	●	●	●
VCMT332ENK	VCMT160408N-SK			.0313		●	●	●

35° DIAMOND TYPE
POSITIVE INSERT

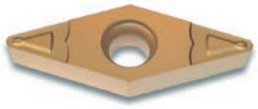
VC — 35° Diamond Type | 7° Relief | With Insert Hole

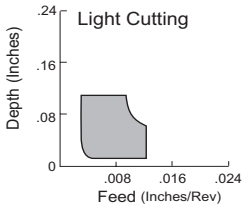
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

VCMT ESU

Rake Angle: 8°



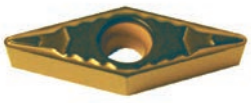


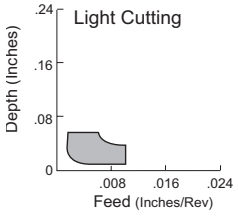
Cutting Conditions:	AC810P	AC8025P	AC820P	AC830P	AC610M	AC6020M	AC6030M	AC630M	AC510U	AC520U	T1500Z	T2000Z	T3000Z
Continuous Cut	●	●	●		○	○	○	○	●				
Medium Cut	●	●	●	●	○		○	○	●	●			
Interrupted Cut		●	●	●			○	○		●			

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC830P	AC610M	AC6020M	AC6030M	AC630M	AC510U	AC520U	T1500Z	T2000Z	T3000Z
VCMT220.5ESU	VCMT110302N-SU	.250	.125	.0078	.130						○							
VCMT221ESU	VCMT110304N-SU			.0156							○							
VCMT222ESU	VCMT110308N-SU			.0313							○							
VCMT331ESU	VCMT160404N-SU	.375	.1875	.0156	.1732	●	●	●	●	●	○	●	●	●	●			
VCMT332ESU	VCMT160408N-SU			.0313		●	●	●	●	●	○	●	●	●	●			

VCMT ELU

Rake Angle: 12°



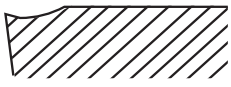


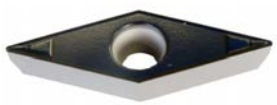
Cutting Conditions:	AC810P	AC8025P	AC820P	AC700G	AC6030M	AC630M	T1500Z	T2000Z	T3000Z
Continuous Cut	●	●	●	●	●	●	●	●	
Medium Cut	●	●	●	●	●	●	●	●	●
Interrupted Cut		●	●	●	●	●			●

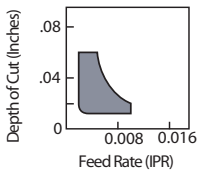
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC810P	AC8025P	AC820P	AC700G	AC6030M	AC630M	T1500Z	T2000Z	T3000Z
VCMT331ELU	VCMT160404N-LU	.375	.1875	.0156	.1732	●	●	●	●	●	●	●	●	●
VCMT332ELU	VCMT160408N-LU			.0313		●	●	●	●	●	★	★	●	●

VCMT ELB

Rake Angle: 15°







Cutting Conditions:	AC8025P
Continuous Cut	
Medium Cut	
Interrupted Cut	●

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC8025P
VCMT331ELB	VCMT160404N-LB	.375	.1875	.0156	.1732	●
VCMT332ELB	VCMT160408N-LB			.0313		●

80° TRIGON TYPE
POSITIVE INSERT

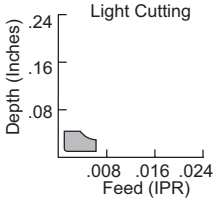
WB — 80° Trigon Type; 5° Relief; With Insert Hole

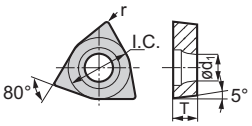
- **P** Steel
- **M** Stainless Steel
- **K** Cast Iron
- **N** Non-ferrous
- **S** Exotic Materials
- **H** Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WBGT FW

Rake Angle: 15°



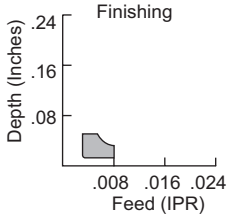


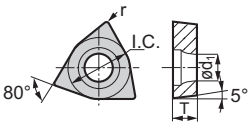
Cutting Conditions:	Coated							Cermet				Uncoated					
Continuous Cut								●	●	●	●						
Medium Cut								●	●	●	●						
Interrupted Cut										●	●						

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T2000Z	T1500A	T1200A
WBGT520.5RFW	WBGT060102R-FW	.156	.0625	.0078	.090			★	
WBGT520.5LFW	WBGT060102L-FW			.0078		●		★	▲
WBGT521RFW	WBGT060104R-FW			.0156				★	▲
WBGT521LFW	WBGT060104L-FW			.0156		●	●	★	▲
WBGT630.5RFW	WBGT080202R-FW	.1875	.094	.0078				★	▲
WBGT630.5LFW	WBGT080202L-FW			.0078		★	●	★	▲
WBGT631RFW	WBGT080204R-FW			.0156				★	
WBGT631LFW	WBGT080204L-FW			.0156				★	

WBGT FX

Rake Angle: 15°





Cutting Conditions:	Coated											Cermet		Uncoated			
Continuous Cut	●	○															
Medium Cut	●	○															
Interrupted Cut	●	○															

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310
WBGT520.5RFX	WBGT060102R-FX	.156	.0625	.0078	.090		▲
WBGT630.5RFX	WBGT080202R-FX	.1875	.094	.0078		★	
WBGT630.5LFX	WBGT080202L-FX			.0078		★	
WBGT631RFX	WBGT080204R-FX			.0156		★	▲
WBGT631LFX	WBGT080204L-FX			.0156		★	▲

80° TRIGON TYPE
POSITIVE INSERT

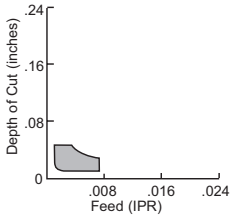
WB
- 80° Trigon Type
- 5° Relief
- With Insert Hole

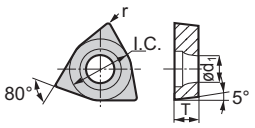
- P Steel
- M Stainless Steel
- K Cast Iron
- N Non-ferrous
- S Exotic Materials
- H Hardened Steel

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WBGT FY

Rake Angle: 15°



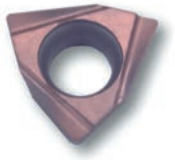


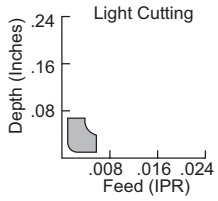
Cutting Conditions:	Coated				Cermet						Uncoated					
Continuous Cut	●	○			●	●										
Medium Cut	◐	◌			◐	◐										
Interrupted Cut	◌	◌			◌	◌										

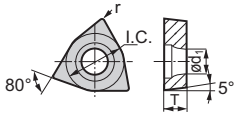
Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	AC530U	ACZ310	T1500A	T1200A
WBGT52.001LFY	WBGT0601003L-FY	.156	.0625	.0012	.090				
WBGT520.5RFY	WBGT060102R-FY			.0078			▲	★	▲
WBGT520.5LFY	WBGT060102L-FY			.0078			▲	★	▲
WBGT520LFY	WBGT060101L-FY			.0039		●			
WBGT521RFY	WBGT060104R-FY			.0156				★	
WBGT521LFY	WBGT060104L-FY			.0156			▲	●	▲

WBGT W

Rake Angle: 10°







Cutting Conditions:	Coated				Cermet				Uncoated							
Continuous Cut					●	●										
Medium Cut					◐	◐										
Interrupted Cut						◌										

Sumitomo Catalog #	ISO Catalog #	I.C.	T	r	ød1	T1500Z	T1500A
WBGT520.5L	WBGT060102L-W	.156	.0625	.0078	.090		●
WBGT521R	WBGT060104R-W			.0156			★
WBGT521L	WBGT060104L-W			.0156		●	★

Swiss Tooling

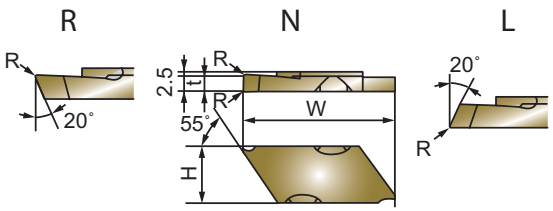
Swiss Tooling Inserts

for precision turning applications:
- *Cut-off*
- *Back Turn*
- *Boring Rough*
- *Boring Finishing*

P Steel
M Stainless Steel
K Cast Iron
N Non-ferrous
S Exotic Materials
H Hardened Steel

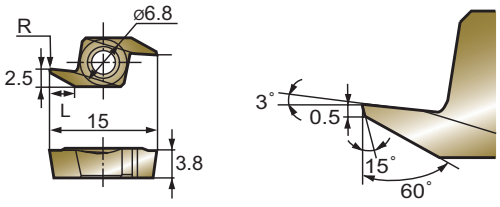
● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ In stock by 1st Quarter 2017

CTL CTR
for SCT Type Holder
(p. 313)



Sumitomo Catalog #	ISO Catalog #	t	R	W	H	Coated AC530U	Cermet	Uncoated
CTL121005R	CTL121005R	1.0	0.05	19.0	7.0	★		
CTL121005N	CTL121005N					★		
CTL121005L	CTL121005L					★		
CTL121505R	CTL121505R	1.5				★		
CTL121505N	CTL121505N					★		
CTL121505L	CTL121505L					★		
CTL122005R	CTL122005R	2.0				★		
CTL122005N	CTL122005N					★		
CTL122005L	CTL122005L					★		
CTR121005R	CTR121005R	1.0				●		
CTR121005N	CTR121005N					●		
CTR121005L	CTR121005L					●		
CTR121505R	CTR121505R	1.5				●		
CTR121505N	CTR121505N					●		
CTR121505L	CTR121505L					●		
CTR122005R	CTR122005R	2.0				●		
CTR122005N	CTR122005N					●		

BTR
for SBT Type Holder
(p. 228)



Sumitomo Catalog #	ISO Catalog #	I.C.	T	L	r	Coated AC530U	Cermet T1500A	Cermet T1200A	Uncoated
BTR3505	BTR3505	6.8	3.8	3.5	0.05	●	★	★	
BTR3515	BTR3515			3.5	0.15	●	★	★	
BTR5505	BTR5505			5.5	0.05	★			
BTR5515	BTR5515			5.5	0.15	★			
BTR8005	BTR8005			8.0	0.05	★			
BTR8015	BTR8015			8.0	0.15	★			

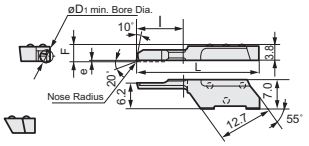
Swiss Tooling Inserts *(cont.)*

for precision turning applications:
- *Cut-off*
- *Back Turn*
- *BoringRoughing*
- *Boring Finishing*

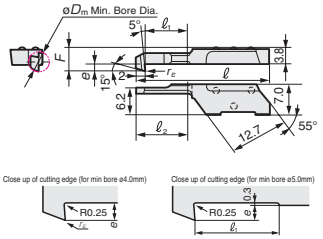
P Steel
M Stainless Steel
K Cast Iron
N Non-ferrous
S Exotic Materials
H Hardened Steel

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ In stock by 1st Quarter 2017

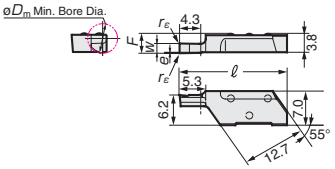
KBMXR



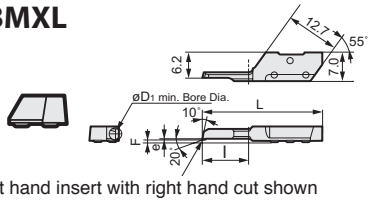
KBMZ



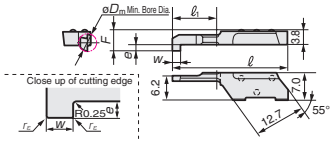
KBMFR



KBMXL



KBMG



Left hand insert with right hand cut shown

Boring Rough Inserts *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)						ACZ310	DA2200
	Min. Bore Dia.	F	e	Nose Radius	L	ℓ		
KBMXR0103-05	1.0	4.00	0.20	0.05	20.5	3	▲	
KBMXR0103-20	1.0	4.00	0.20	0.20	20.5	3	★	
KBMXR01506-05	1.5	4.05	0.25	0.05	23.5	6	★	
KBMXR01506-20	1.5	4.05	0.25	0.20	23.5	6	★	
KBMXR0206-05	2.0	4.05	0.25	0.05	23.5	6	▲	
KBMXR0206-20	2.0	4.05	0.25	0.20	23.5	6	★	
KBMXR0311-05	3.0	4.10	0.30	0.05	28.5	11	★	
KBMXR0311-10	3.0	4.10	0.30	0.10	28.5	11		★
KBMXR0311-20	3.0	4.10	0.30	0.20	28.5	11	★	
KBMXR0411-05	4.0	4.30	0.50	0.05	28.5	11	▲	
KBMXR0411-10	4.0	4.30	0.50	0.10	28.5	11		★
KBMXR0411-20	4.0	4.30	0.50	0.20	28.5	11	▲	
KBMXR0420-05	4.0	4.30	0.50	0.05	37.5	20		
KBMXR0420-20	4.0	4.30	0.50	0.20	37.5	20		
KBMXR0511-05	5.0	4.50	0.70	0.05	28.5	11	▲	
KBMXR0511-10	5.0	4.50	0.70	0.10	28.5	11		★
KBMXR0511-20	5.0	4.50	0.70	0.20	28.5	11	▲	
KBMXR0520-05	5.0	4.50	0.70	0.05	37.5	20	★	
KBMXR0520-20	5.0	4.50	0.70	0.20	37.5	20	★	

Boring Rough Inserts Right Hand Cut *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)						ACZ310
	Min. Bore Dia.	F	e	Nose Radius	L	ℓ	
KBMXL0206-05R	2.0	0.50	0.25	0.05	23.5	6	▲
KBMXL0206-20R	2.0	0.50	0.25	0.20	23.5	6	★
KBMXL0311-05R	3.0	0.50	0.30	0.05	28.5	11	★
KBMXL0311-20R	3.0	0.50	0.30	0.20	28.5	11	★
KBMXL0411-05R	4.0	0.50	0.50	0.05	28.5	11	▲
KBMXL0411-20R	4.0	0.50	0.50	0.20	28.5	11	▲
KBMXL0511-05R	5.0	0.50	0.50	0.05	28.5	11	★
KBMXL0511-20R	5.0	0.50	0.50	0.20	28.5	11	★
KBMXL0520-05R	5.0	0.50	0.50	0.05	37.5	20	★
KBMXL0520-20R	5.0	0.50	0.50	0.20	37.5	20	★

Back Boring *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)							ACZ310
	Min. Bore Dia.	F	e	Nose Radius	L	ℓ1	ℓ2	
KBMZR0411-05	4.0	5.10	1.10	0.05	28.5	9	11	★
KBMZR0411-20				0.20				★
KBMZR0511-05	5.0	5.10	1.30	0.05	28.5	9	11	★
KBMZR0511-20				0.20				★

Boring Finishing Inserts *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)						ACZ310	ACZ150
	Min. Bore Dia.	F	e	Nose Radius	L	ℓ		
KBMXR0103-05T	1.0	4.00	0.20	0.05	20.5	3	▲	
KBMXR0103-20T	1.0	4.00	0.20	0.20	20.5	3		★
KBMXR01506-05T	1.5	4.05	0.25	0.05	23.5	6		★
KBMXR01506-20T	1.5	4.05	0.25	0.20	23.5	6		★
KBMXR0206-05T	2.0	4.05	0.25	0.05	23.5	6	▲	
KBMXR0206-20T	2.0	4.05	0.25	0.20	23.5	6		★
KBMXR0311-05T	3.0	4.10	0.30	0.05	28.5	11		★
KBMXR0311-20T	3.0	4.10	0.30	0.20	28.5	11		★
KBMXR0411-05T	4.0	4.30	0.50	0.05	28.5	11	▲	
KBMXR0411-20T	4.0	4.30	0.50	0.20	28.5	11	▲	
KBMXR0511-05T	5.0	4.50	0.70	0.05	28.5	11	▲	
KBMXR0511-20T	5.0	4.50	0.70	0.20	28.5	11	▲	

T = Free cutting

Face Grooving *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)							ACZ150
	Min. Bore Dia.	W	F	e	Corner Radius	L	Maximum groove depth	
KBMFR0615-05	6.0	1.5	4.00	0.20	0.05	21.8	4.0	★
KBMFR0620-05	6.0	2.0	4.00	0.20	0.05	21.8	4.0	★
KBMFR0630-05	6.0	3.0	4.00	0.20	0.05	21.8	4.0	★

Internal Grooving *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)							ACZ310
	Min. Bore Dia.	W	F	e	Corner Radius	L	ℓ	
KBMGR0411-05	4.0	1.0	4.90	1.10	0.05	28.5	11	★
KBMGR0411-10		2.0			0.10			★
KBMGR0511-05	5.0	1.0	5.10	1.30	0.05	28.5	11	★
KBMGR0511-10		2.0			0.10			★

Swiss Tooling Inserts *(cont.)*

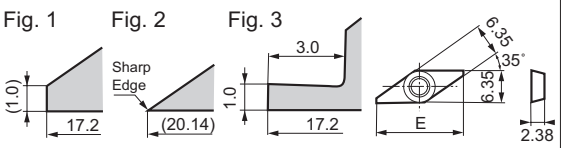
for precision turning applications:
- *Cut-off*
- *Back Turn*
- *Boring Rough*
- *Boring Finishing*

P Steel
M Stainless Steel
K Cast Iron
N Non-ferrous
S Exotic Materials
H Hardened Steel

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ In stock by 1st Quarter 2017

Blank Inserts *for SPB Type holder (p. 233)*

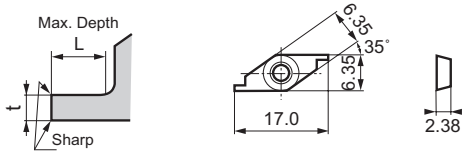
Uncoated



Sumitomo Catalog #	Dim. E (mm)	Application	Fig.	BL130
PBVX1102R-NB	17.20	General	1	★
PBVX1102R-SB	20.14	Sharp Edge	2	★
PBVX1102R-BB	14.20	Special	3	★

Grooving Inserts *for SPB Type holder (p. 233)*

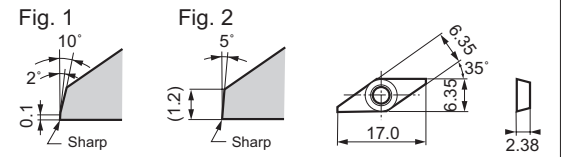
Uncoated



Sumitomo Catalog #	Dimensions (mm)		BL130
	Groove Depth	t	
PBVG1102R-030	0.5	0.3	★
PBVG1102R-050	1.0	0.5	★
PBVG1102R-100	2.0	1.0	★

Turning Inserts *for SPB Type holder (p. 233)*

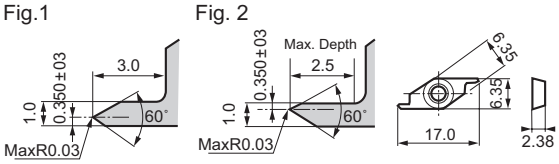
Uncoated



Sumitomo Catalog #	Cutting Edge Width (mm)	Wiper Edge	Fig.	BL130
PBVFW1102R	1.0	Yes	1	★
PBVFN1102R	1.0	No	2	★

Threading Inserts *for SPB Type holder (p. 233)*

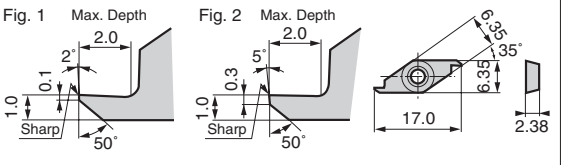
Uncoated



Sumitomo Catalog #	Pitch (mm)	Fig.	BL130
PBVTF1102R	0.2 ~ 0.5	1	★
PBVTB1102R	0.2 ~ 0.5	2	★

Back Turning Inserts *for SPB Type holder (p. 233)*

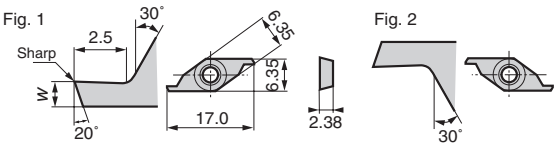
Uncoated



Sumitomo Catalog #	Cutting Edge Width (mm)	Wiper Edge	Fig.	BL130
PBVBN1102R	1.0	Yes	1	★
PBVBW1102R	1.0	No	2	★

Cut-off Inserts *for SPB Type holder (p. 233)*

Uncoated



Sumitomo Catalog #	Cutting Edge Width (mm)	Maximum Cut-off diameter	Fig.	BL130
PBVC1102L-50	1.0	5.0	1	★
PBVC1102R-50	1.0	5.0	2	★

SUMITOMO

CARBIDE - CBN - DIAMOND

1-800-950-5202

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Grooving, Cut-off & Threading Inserts

Pages 143-149

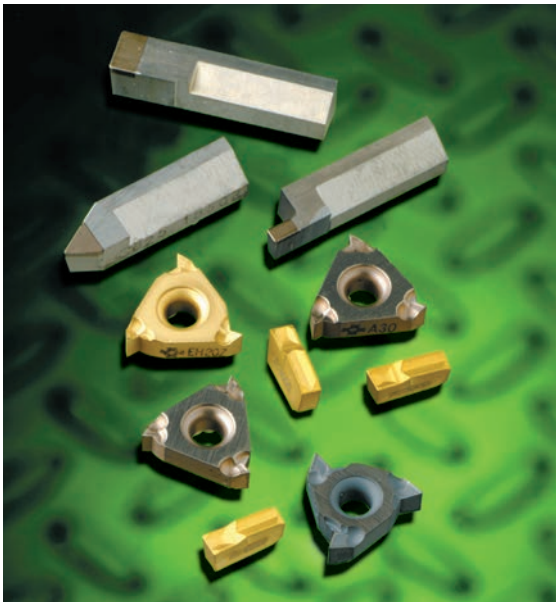


Fig. 1

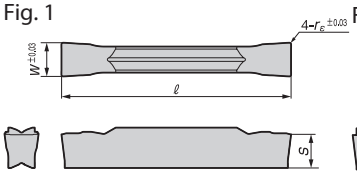
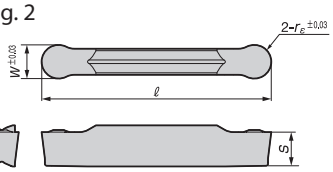
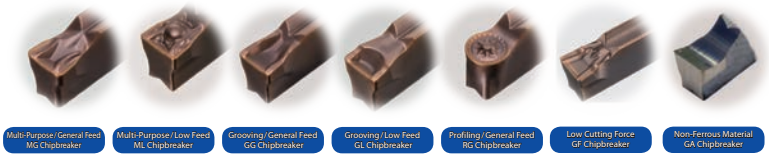


Fig. 2





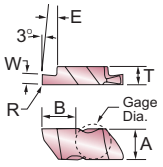
Multi-Purpose/General Feed MG Chipbreaker | Multi-Purpose/Low Feed ML Chipbreaker | Grooving/General Feed GG Chipbreaker | Grooving/Low Feed GL Chipbreaker | Profiling/General Feed RG Chipbreaker | Low Cutting Force GF Chipbreaker | Non-Ferrous Material GA Chipbreaker

Type		Cat. No.	Coated Carbide				Cermet	Uncoated Carbide	Dimensions (inch)					Figure
			S		K	P		N	W	rε	ℓ	Seat	S	
			AC520U	AC530U	AC425K	AC830P	T2500A	H10						
Deep Grooving Cut Off	General Feed GG Type	GCMN2002-GG	●	●	●	●			.078	.0078	.831	2	.142	
		GCMN2094R0.5-GG	●	●	●	●			.094	.0078	.831	2	.142	
		GCMN3002-GG	●	●	●	●			.118	.0078	.831	3	.150	
		GCMN3004-GG	●	●	●	●			.118	.0156	.831	3	.150	
		GCMN3125R0.5-GG	●	●	●	●			.125	.0078	.831	3	.150	
		GCMN4002-GG	●	●	●	●			.157	.0078	1.039	4	.157	
		GCMN4004-GG	●	●	●	●			.157	.0156	1.039	4	.157	
		GCMN5187R0.5-GG	●	●	●	●			.187	.0078	1.039	5	.161	
		GCMN5002-GG	●	●	●	●			.197	.0078	1.039	5	.161	
		GCMN5004-GG	●	●	●	●			.197	.0156	1.039	5	.161	
		GCMN6002-GG	●	●	●	●			.236	.0078	1.039	6	.177	
		GCMN6004-GG	●	●	●	●			.236	.0156	1.039	6	.177	
		GCMN6250R0.5-GG	●	●	●	●			.250	.0078	1.039	6	.177	
		GCMN6250R1.0-GG	●	●	●	●			.250	.0156	1.039	6	.177	
		GCMN7004-GG	●	●		●			.276	.0156	1.132	7	.217	
		GCMN8004-GG	●	●		●			.315	.0156	1.132	8	.236	
	Low Feed GL Type	GCMN2002-GL	●	●	●	●	○		.078	.0078	.831	2	.142	1
		GCMN2094R0.5-GL	●	●	●	●			.094	.0078	.831	2	.142	
		GCMN3002-GL	●	●	●	●	○		.118	.0078	.831	3	.150	
		GCMN3125R0.5-GL	●	●	●	●			.125	.0078	.831	3	.150	
		GCMN4002-GL	●	●	●	●	○		.157	.0078	1.039	4	.157	
		GCMN5187R0.5-GL	●	●	●	●			.187	.0078	1.039	5	.161	
		GCMN5002-GL	●	●	●	●			.197	.0078	1.039	5	.161	
		GCMN6002-GL	●	●	●	●			.236	.0078	1.039	6	.177	
		GCMN6250R0.5-GL	●	●	●	●			.250	.0078	1.039	6	.177	
		GCMN7004-GL	●	●		●			.276	.0156	1.132	7	.217	
		GCMN8004-GL	●	●		●			.315	.0156	1.132	8	.236	
Multi function (traversing)	General Feed MG Type	GCMN3004-MG	●	●	●	●			.118	.0156	.831	3	.150	
		GCMN3125R1.0-MG	●	●	●	●			.125	.0156	.831	3	.150	
		GCMN4008-MG	●	●	●	●			.157	.0312	1.039	4	.157	
		GCMN5187R2.0-MG	●	●	●	●			.187	.0312	1.039	5	.161	
		GCMN5008-MG	●	●	●	●			.197	.0312	1.039	5	.161	
		GCMN6008-MG	●	●	●	●			.236	.0312	1.039	6	.177	
		GCMN6250R2.0-MG	●	●	●	●			.250	.0312	1.039	6	.177	
		GCMN7008-MG	●	●	●	●			.276	.0313	1.132	7	.217	
		GCMN8008-MG	●	●	●	●			.315	.0313	1.132	8	.236	
	Low Feed ML Type	GCMN3002-ML	●	●	●	●	○		.118	.0078	.831	3	.150	
		GCMN3125R0.5-ML	●	●	●	●			.125	.0078	.831	3	.150	
		GCMN4004-ML	●	●	●	●	○		.157	.0156	1.039	4	.157	
		GCMN5187R1.0-ML	●	●	●	●			.187	.0156	1.039	5	.161	
		GCMN5004-ML	●	●	●	●			.197	.0156	1.039	5	.161	
		GCMN6004-ML	●	●	●	●			.236	.0156	1.039	6	.177	
		GCMN6250R1.0-ML	●	●	●	●			.250	.0156	1.039	6	.177	
		GCMN7004-ML	●	●	●	●			.276	.0156	1.132	7	.217	
		GCMN8004-ML	●	●	●	●			.315	.0156	1.132	8	.236	
Profiling	General Feed RG Type	GCMN3015-RG	●	●	●	●	○		.118	.059	.831	3	.150	2
		GCMN3125-RG	●	●	●	●			.125	.0625	.831	3	.150	
		GCMN4020-RG	●	●	●	●	○		.157	.078	1.039	4	.157	
		GCMN5187-RG	●	●	●	●			.187	.0938	1.039	5	.161	
		GCMN5025-RG	●	●	●	●			.197	.098	1.039	5	.161	
		GCMN6030-RG	●	●	●	●			.236	.118	1.039	6	.177	
		GCMN6250-RG	●	●	●	●			.250	.125	1.039	6	.177	
		GCMN7035-RG	●	●	●	●			.276	.138	1.144	7	.217	
		GCMN8040-RG	●	●	●	●			.315	.157	1.152	8	.236	

GND Series - Inserts Cont'd

Type		Cat. No.	Coated Carbide						Cermet		Uncoated Carbide		Dimensions (inch)					Figure
			S				K		P		N		W	rε	ℓ	Seat	S	
			AC520U		AC530U		AC425K		AC830P		T2500A		H10							
For Non-ferrous Materials	GA Type	GCGN2002-GA											○		.078	.0078	.831	2	.142	1
		GCGN3002-GA											○		.118	.0078	.831	3	.150	
		GCGN4004-GA											○		.157	.0156	1.039	4	.157	
		GCGN5004-GA											○		.197	.0156	1.039	5	.161	
		GCGN6004-GA											○		.236	.0156	1.039	6	.177	
Type		**Cat. No.**	**R**	**L**	**R**	**L**	**R**	**L**	**R**	**L**	**R**	**L**	**R**	**L**	**Dimensions (inch)**					
Cut-off (Handed)	CG-05 Type	GCM_2002-CG-05	●	●	●	●	●	●	●	●					.078	.0078	.831	2	.142	1
		GCM_3002-CG-05	●	●	●	●	●	●	●	●					.118	.0078	.831	3	.150	
		GCM_4002-CG-05	●	●	●	●	●	●	●	●					.157	.0078	1.039	4	.157	

SumiNotch GROOVING INSERTS



● USA Stocked Item

★ Worldwide Warehouse Item

▲ USA Limited Availability Item

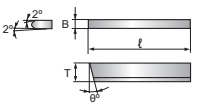
○ In stock by 1st Quarter 2017

Left				Dimension (in)							Right				
	Coated	CBN										Coated	CBN		Ceramic
SG	EH520V	BN2000	BN350	W ± .001	R	E ± .001	T	A	B	Gage Dia.	**SG**	EH520V	BN2000	BN350	SN2000K
SG-2031L	●			.031	.002/.005	.050	.150	.219	.2700	.1875	SG-2031R	●			
SG-2041L	●			.041	.002/.005	.050					SG-2041R	●			
SG-2047L	●			.047	.002/.005	.050					SG-2047R	●			
SG-2058L	●			.058	.005/.010	.050					SG-2058R	●			
SG-2062L	●			.062	.005/.010	.110					SG-2062R	●			
SG-2094L	●			.094	.005/.010	.110					SG-2094R	●			
SG-2125L	●			.125	.005/.010	.110					SG-2125R	●			
SG-3047L	●			.047	.005/.010	.120	.195	.344	.4050	.3750	SG-3047R	●	●	●	●
SG-3062L	●	●	●	.062	.005/.010	.120					SG-3062R	●	●	●	●
SG-3072L	●			.072	.005/.010	.120					SG-3072R	●			
SG-3088L	●			.088	.005/.010	.180					SG-3088R	●			
SG-3094L	●	●	●	.094	.005/.010	.180					SG-3094R	●	●	●	●
SG-3097L	●			.097	.005/.010	.180					SG-3097R	●			
SG-3105L	●			.105	.005/.010	.180					SG-3105R	●			
SG-3110L	●			.110	.005/.010	.180					SG-3110R	●			
SG-3122L	●			.122	.005/.010	.180					SG-3122R	●			
SG-3125L	●	●	●	.125	.005/.010	.180					SG-3125R	●	●	●	●
SG-3142L	●			.142	.005/.010	.180					SG-3142R	●			
SG-3156L	●			.156	.005/.010	.180					SG-3156R	●			
SG-3178L	●			.178	.005/.010	.180					SG-3178R	●			
SG-3185L	●			.185	.020/.025	.180					SG-3185R	●			
SG-3189L	●			.189	.020/.025	.180					SG-3189R	●		●	

Left		Dimension (in)							Right	
	Coated									Coated
SG-CB	EH520V	W ± .001	R	E ± .001	T	A	B	Gage Dia.	**SG**	EH520V
SG-2047L-CB	●	.047	.002/.005	.050	.150	.219	.2700	.1875	SG-2047R-CB	●
SG-2062L-CB	●	.062	.005/.010	.110					SG-2062R-CB	●
SG-2078L-CB	●	.078	.005/.010	.110					SG-2078R-CB	●
SG-2094L-CB	●	.094	.005/.010	.110					SG-2094R-CB	●
SG-2125L-CB	●	.125	.005/.010	.110					SG-2125R-CB	●
SG-3047L-CB	●	.047	.005/.010	.075	.195	.344	.4050	.3750	SG-3047R-CB	●
SG-3062L-CB	●	.062	.005/.010	.094					SG-3062R-CB	●
SG-3072L-CB	●	.072	.005/.010	.094					SG-3072R-CB	●
SG-3078L-CB	●	.078	.005/.010	.094					SG-3078R-CB	●
SG-3088L-CB	●	.088	.005/.010	.094					SG-3088R-CB	●
SG-3094L-CB	●	.094	.005/.010	.150					SG-3094R-CB	●
SG-3189L-CB	●	.189	.020/.025	.150					SG-3189R-CB	●

GROOVING INSERTS FOR CF HOLDERS

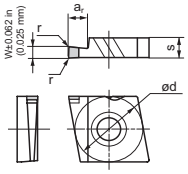
CFB



Sumitomo Catalog No.	Uncoated	Dimensions (in)		Holder
	G10E	B	T	
CFB3	●	.118	.1875	CF3-3
CFB3T	●			

BNC30G

BN2000



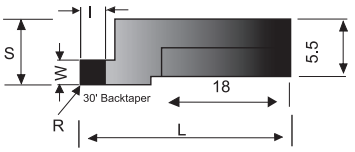
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

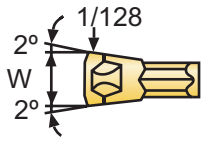
GROOVING INSERTS FOR GWB HOLDERS

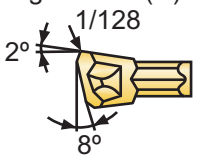
CGA	Coated	Uncoated	Dimensions				
	BNC30G	BN2000	W ± .001 in. ± .025 (mm)	a_r in (mm)	r in (mm)	ød in (mm)	s in (mm)
CGAR4062	●	●	.062 (1.575)	.1378 (3.5)	.0078 (.2)	.625 (15.875)	.1875 (4.76)
CGAL4062							
CGAR4094	●	●	.094 (2.388)	.1575 (4.0)			
CGAL4094							
CGAR4125	●	●	.125 (3.175)	.1969 (5.0)			
CGAL4125							
CGAR6189	●	●	.189 (4.801)				.25 (6.35)
CGAL6189							
CGAR1504150	●		.0591 (1.5)	.1378 (3.5)	.0078 (.2)	.625 (15.875)	.1875 (4.76)
CGAL1504150		●					
CGAR1504200	●	●	.0787 (2.0)				
CGAL1504200							
CGAR1504250	●		.0984 (2.5)	.1575 (4.0)			
CGAL1504250		●					
CGAR1504300	●	●	.1181 (3.0)				
CGAL1504300							
CGAR1504350	●		.1378 (3.5)	.1969 (5.0)			
CGAL1504350							
CGAR1504400	●	●	.1575 (4.0)				
CGAL1504400							
CGAR1504450	●		.1772 (4.5)				
CGAL1504450							
CGAR1506500	●	●	.1969 (5.0)				.25 (6.35)
CGAL1506500							
CGAR1506550	●		.2165 (5.5)				
CGAL1506550							
CGAR1506600	●	●	.2362 (6.0)				
CGAL1506600							

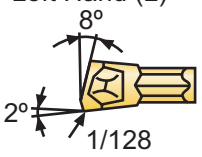
GROOVING INSERTS FOR BNGG HOLDERS

BNGNT *for holders (p. 263)*	CBN		Dimensions (mm)				
	BN250	BN350	W	I	R	L	S
BNGNT0200L	●		2.0	4.0	0.2	25.0	6.0
BNGNT0200R	●	●					
BNGNT0250L	●		2.5	4.0	0.2	25.0	6.0
BNGNT0250R	●						
BNGNT0300L	●		3.0	5.0	0.4	25.0	6.0
BNGNT0300R	●	●					
BNGNT0400L	●		4.0	6.0	0.4	26.0	6.0
BNGNT0400R	●	●					
BNGNT0500L			5.0	6.0	0.4	26.0	6.0
BNGNT0500R	●						
BNGNT0600L			6.0	7.0	0.4	27.0	6.0
BNGNT0600R	●						









- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

WCF□○□
General Steel

Catalog Number	Coated AC830P	W
WCFN2T	●	.0787
WCFR2T	●	
WCFN2-GG	●	
WCFN3	●	.1181
WCFR3	●	
WCFL3	●	
WCFN3-GG	●	
WCFN4	●	.1575
WCFR4	●	
WCFL4	●	
WCFN4-GG	●	
WCFN5	●	.1969
WCFR5	●	
WCFL5	●	
WCFN5-GG	●	

WCF□○A
Hard-to-cut metals
Slow feed

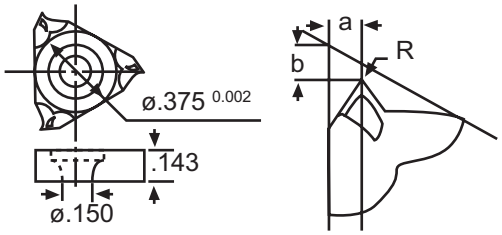
Catalog Number	Coated AC1030U	Coated AC225	Cermet T130A	Uncoated A30	Uncoated G10E	W
WCFN2-GF	●					.0787
WCFN3A		●	●	●	●	.1181
WCFR3A		●	●		▲	
WCFL3A		●	●	●	●	
WCFN3-GF	●					
WCFR3-CF	●					
WCFL3-CF	●					
WCFN4A		●	●		●	.1575
WCFR4A		●				
WCFL4A						
WCFN4-GF	●					
WCFR4-CF	●					
WCFL4-CF	●					
WCFN5A		●	●		●	.1969
WCFR5A		●				
WCFL5A						
WCFN5-GF	●					

WCF□○GF
Hard-to-cut metals
Slow feed

WCF□○CF
Hard-to-cut metals
Slow feed

WCF□○B
Cast iron
Aluminum alloy

Catalog Number	Uncoated G10E	W
WCFN3B	●	.1181
WCFR3B	●	
WCFL3B	●	
WCFN4B	●	.1575
WCFR4B		
WCFL4B	●	
WCFN5B	●	.1969
WCFR5B		
WCFL5B		



- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

EXTERNAL LAYDOWN - Full Profile (ISO Metric)

for holders (p. 305)

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade		R	Included Angle θ°	a	b
			Coated AC225	Cermet T130A				
TME100R	1.00	-	●	●	.0050	60	.031	.047
TME125R	1.25	-	●	●	.0067			
TME150R	1.50	-	●	●	.0080		.039	
TME175R	1.75	-	●	●	.0094		.047	
TME200R	2.00	-	●	●	.0106		.055	
TME250R	2.50	-	●	●	.0140			
TME300R	3.00	-	●	●	.0165		.071	

Full Profile (Inch)

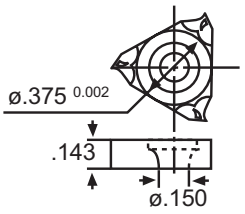
Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade		R	Included Angle θ°	a	b
			Coated AC225	Cermet T130A				
TUE24R	-	24	●	●	.0047	60	.031	.047
TUE20R	-	20	●	●	.0059			
TUE18R	-	18	●	●	.0067		.039	
TUE16R	-	16	●	●	.0079		.047	
TUE14R	-	14	●	●	.0091			
TUE12R	-	12	●	●	.0110		.055	
TUE08R	-	8	●	●	.0169		.071	

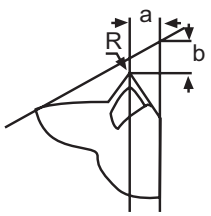
Partial Profile (60°)

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade		R	Included Angle θ°	a	b
			Coated AC225	Cermet T130A				
TME1020R	1.0 ~ 2.0	24 ~ 12	●	●	.005	60	.043	.047
TME1530R	1.50 ~ 3.00	16 ~ 8	●	●	.008		.063	.039

Partial Profile (55°)

Sumitomo Catalog Number	Inch	Threads/ in	Stock Grade		R	Included Angle θ°	a	b
			Coated AC225	Cermet T130A				
TWE1410R	-	14 ~ 10	●	●	.009	55	.055	.047
TWE2416R	-	24 ~ 16	●	●	.005			





- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

INTERNAL LAYDOWN - Full Profile (ISO Metric)

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade		R	Included Angle θ°	a	b
			Coated AC225	Cermet T130A				
TMI100R	1.00	-	●		.0024	60	.031	.047
TMI125R	1.25	-	●		.0030			
TMI150R	1.50	-	●	●	.0035		.039	
TMI175R	1.75	-	●		.0043		.047	
TMI200R	2.00	-	●	●	.0050		.055	
TMI250R	2.50	-	●		.0063			
TMI300R	3.00	-	●	●	.0080		.071	

Partial Profile (60°)

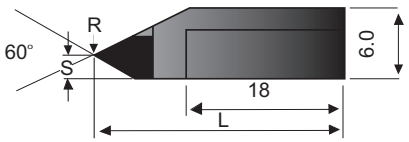
Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade		R	Included Angle θ°	a	b
			Coated AC225	Cermet T130A				
TMI1020R	1.0 ~ 2.0	24 ~ 12	●	●	.0024	60	.039	.047
TMI1530R	1.50 ~ 3.00	16 ~ 8	●	●	.0035		.060	

Partial Profile (NPT)

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade		R	Included Angle θ°	a	b
			Coated AC225	Cermet T130A				
TNPTI115R	-	11.5	●	●	.0004	60	.059	.043

THREADING INSERTS FOR BNGG HOLDERS

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade	R	Included Angle θ°	a	b
			CBN BN250				
BNTT1020R	1.0 ~ 2.0	-	●	.0024	60	.039	.047
BNTT1530R	1.50 ~ 3.00	-	●	.0035		.060	



SUMITOMO

CARBIDE - CBN - DIAMOND

1-800-950-5202

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Ceramic Inserts

Pages 151-155

SN2000K* → Finishing and roughing of cast iron

SN2100K* → Interrupted turning /milling of cast iron

SN1000S → SiAlON grade for continuous turning of exotic alloys

SN2000S → SiAlON grade for continuous to medium interrupted turning of exotic alloys

WX1500 → Cold pressed whiskered ceramic grade for continuous turning of exotic alloys

WX2500 → High speed turning of super alloys

WX2000 → High speed turning of super alloys

NB150H → High speed finishing of hardened steels

NB90S → High speed finishing of hardened steels

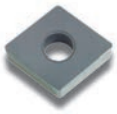
*__SN2000K__ & __SN2100K__ grades not shown in stock can be made to order. Call for price and delivery.

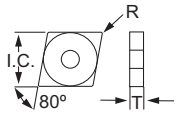
■ NEGATIVE

● USA Stocked Item ★ Worldwide Warehouse Item ▲ USA Limited Availability Item ○ In stock by 1st Quarter 2017

CNMA

Cutting Conditions:
Continuous Cut ●
Medium Cut ●
Interrupted Cut

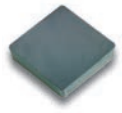


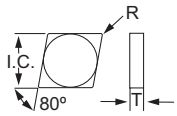


Catalog #	I.C.	T	r	Hole Dia.	SN2000K
CNMA432	.500	.1875	.0313	.2031	●
CNMA433			.0469		●
CNMA434			.0625		●
CNMA454		.3125	.0625		●
CNMA543	.625	.250	.0469	.250	●
CNMA544			.0625		●

CNMN

Cutting Conditions:
Continuous Cut ●
Medium Cut ●
Interrupted Cut

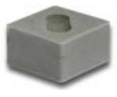


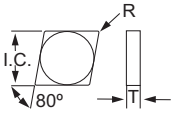


Catalog #	I.C.	T	r	Hole Dia.	SN2000K
CNMN434	.500	.1875	.0625	-	●

CNGX

Cutting Conditions:
Continuous Cut ●
Medium Cut ●
Interrupted Cut

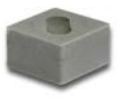


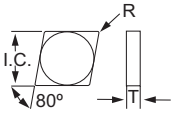


Catalog #	I.C.	T	r	Hole Dia.	SN2000K
CNGX452	.500	.3125	.0313	-	●

CNMX

Cutting Conditions:
Continuous Cut ●
Medium Cut ●
Interrupted Cut

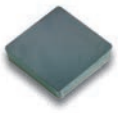


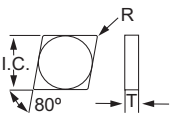


Sumitomo Catalog #	I.C.	T	r	Hole Dia.	SN2000K
CNMX453	.500	.3125	.0469	-	●
CNMX454	.500	.3125	.0625		●

CNG

Cutting Conditions: Grades
Continuous Cut ● ● ●
Medium Cut ● ●
Interrupted Cut ●



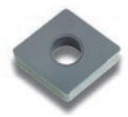


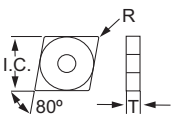
Catalog #	I.C.	T	r	Hole Dia.	SN2000K	WX2000	NB90S
CNG432	.500	.1875	.0313	-	●	●	●
CNG433			.0469		●	●	●
CNG434			.0625		●	●	
CNG452		.3125	.0313		●		●
CNG453			.0469		●		●
CNG454			.0625		●		●
CNG643	.750	.250	.0469				●

K Cast Iron
S Exotic Materials
H Hardened Steel

CNGA

Cutting Conditions: Grades
Continuous Cut ● ● ● ● ● ● ● ●
Medium Cut ● ● ● ● ● ● ● ●
Interrupted Cut ● ● ● ●

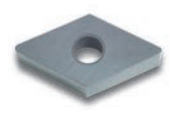


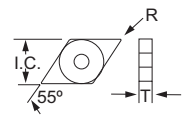


Catalog #	I.C.	T	r	Hole Dia.	SN2000K	SN2100K	SN1000S	SN2000S	WX1500	WX2500	WX2000	NB150H	NB90S
CNGA431	.500	.1875	.0156	.2031									▲
CNGA432			.0313		●	●	○	○	○	○	▲	○	▲
CNGA433			.0469		●	●	○	○	○	○	▲	○	▲
CNGA434			.0625		●	●	○	○	○	○	▲	○	▲
CNGA542	.625	.250	.0313	.250	●								
CNGA543			.0469		●								▲
CNGA544			.0625		●								
CNGA643	.750		.0469	.3126	●								
CNGA644			.0625		●								

DNGA

Cutting Conditions: Grades
Continuous Cut ● ● ● ● ● ● ●
Medium Cut ● ● ● ● ● ●
Interrupted Cut ● ● ●





Catalog #	I.C.	T	r	Hole Dia.	SN2000K	SN1000S	SN2000S	WX2500	WX2000	NB150H	NB90S
DNGA432	.500	.1875	.0313	.2031	●	○	○	○	▲	○	▲
DNGA433			.0469		●	○	○	○	▲	○	▲
DNGA434			.0625		●						▲

CERAMIC
INSERTS - NEGATIVE

SN2000K* → Finishing and roughing of cast iron

SN2100K* → Interrupted turning /milling of cast iron

SN1000S → SiAlON grade for continuous turning of exotic alloys

SN2000S → SiAlON grade for continuous to medium interrupted turning of exotic alloys

***SN2000K** & **SN2100K** grades not shown in stock can be made to order. Call for price and delivery.

WX1500 → Cold pressed whiskered ceramic grade for continuous turning of exotic alloys

WX2500 → High speed turning of super alloys

WX2000 → High speed turning of super alloys

NB150H → High speed finishing of hardened steels

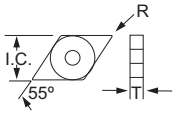
NB90S → High speed finishing of hardened steels

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

K Cast Iron
S Exotic Materials
H Hardened Steel

DNMX

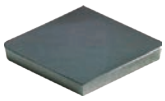
Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut

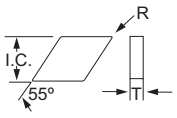


Catalog #	I.C.	T	r	Hole Dia.	SN2000K
DNMX354	.375	.3125	.0625	.2031	●
DNMX454	.500		.0625		●

DNG

Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut

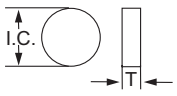




Catalog #	I.C.	T	r	Hole Dia.	SN2000K
DNG432	.500	.1875	.0313	.2031	●
DNG433			.0469		●
DNG434			.0625		●

RNG

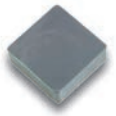
Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut — Grades

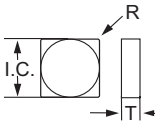


Catalog #	I.C.	T	r	Hole Dia.	SN2000K	SN2100K	SN1000S	SN2000S	WX1500	WX2500	WX2000	NB150H	NB90S
RNG32	.375	.125	-	-	●	●	○	○	○	○		○	▲
RNG33		.1875											▲
RNG42	.500	.125			●	●							
RNG43		.1875			●	●	○	○	○	○	▲	○	▲
RNG45					●	●	○	○	○	○	▲	○	▲
RNG55	.625	.3125			●	●	○	○	○	○		○	
RNG65	.750						○	○	○	○	▲	○	
RNG86	1.00	.375	-	-								○	

SNMN

Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut

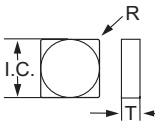




Catalog #	I.C.	T	r	Hole Dia.	SN2000K
SNMN434	.500	.1875	.0625	.2031	●

SNMX

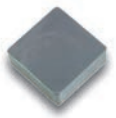
Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut

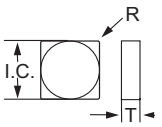


Catalog #	I.C.	T	r	Hole Dia.	SN2000K
SNMX453	.500	.3125	.0469	-	●
SNMX454	.500		.0625		●
SNMX554	.625		.0625		●

SNG

Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut — Grades

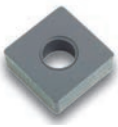


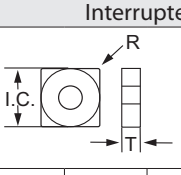


Catalog #	I.C.	T	r	Hole Dia.	SN2000K	SN2100K	WX2000
SNG432	.500	.1875	.0313	-	●	●	●
SNG433			.0469		●	●	●
SNG434			.0625		●	●	

SNGA

Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut — Grades





Catalog #	I.C.	T	r	Hole Dia.	SN2000K	WX2000	NB90S
SNGA432	.500	.1875	.0313	.2031	●	●	●
SNGA433			.0469		●	●	●
SNGA434			.0625		●		

CERAMIC
INSERTS - NEGATIVE

- **SN2000K*** → Finishing and roughing of cast iron
- **SN2100K*** → Interrupted turning /milling of cast iron
- **SN1000S** → SiAlON grade for continuous turning of exotic alloys
- **SN2000S** → SiAlON grade for continuous to medium interrupted turning of exotic alloys
- **WX1500** → Cold pressed whiskered ceramic grade for continuous turning of exotic alloys
- **WX2500** → High speed turning of super alloys
- **WX2000** → High speed turning of super alloys
- **NB150H** → High speed finishing of hardened steels
- **NB90S** → High speed finishing of hardened steels

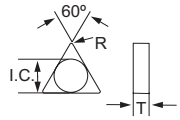
*SN2000K & SN2100K grades not shown in stock can be made to order. Call for price and delivery.

K Cast Iron
S Exotic Materials
H Hardened Steel

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ In stock by 1st Quarter 2017

TNG

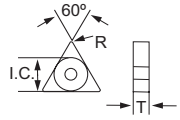
Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut — Grades



Catalog #	I.C.	T	r	Hole Dia.	SN2000K	NB90S
TNG321	.375	.125	.0156	-		●
TNG322			.0313			●
TNG331		.1875	.0156			●
TNG332			.0313		●	●
TNG333			.0469		●	
TNG334			.0625		●	
TNG352		.3125	.0313		●	
TNG353			.0469		●	
TNG432	.500	.3125	.0313		●	●
TNG433			.0469		●	●
TNG434			.0625		●	
TNG436			.0938		●	

TNGA

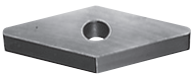
Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut — Grades

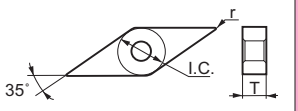


Catalog #	I.C.	T	r	Hole Dia.	SN2000K	NB90S
TNGA321	.375	.125	.0156	.150		●
TNGA322			.0313			●
TNGA332		.1875	.0313		●	●
TNGA333			.0469		●	●
TNGA334			.0625		●	
TNGA432	.500		.0313	.2031	●	●
TNGA433			.0469		●	●
TNGA434			.0625		●	●
TNGA436			.0938		●	
TNGA438			.1250		●	
TNGA543	.625	.250	.0469	.250	●	
TNGA544			.0625		●	

VNGA

Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut — Grades

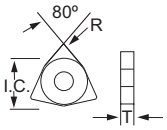




Catalog #	I.C.	T	r	Hole Dia.	SN2000K	WX2000	NB90S
VNGA331	.375	.1875	.0156	.150			●
VNGA332			.0313		●	●	●
VNGA333			.0469		●	●	●
VNGA432	.500		.0313	.2031			●
VNGA433			.0469				●

WNGA

Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut — Grades

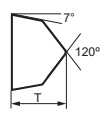


Catalog #	I.C.	T	r	Hole Dia.	SN2000K	SN2100K	SN1000S	SN2000S	WX2000	NB150H
WNGA432	.500	.1875	.0313	.2031	●	●	○	○	●	●
WNGA433			.0469		●		○	○	●	●
WNGA434			.0625				○	○		●

■ POSITIVE

RCGX

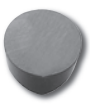
Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut — Grades

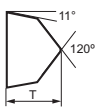


Catalog #	I.C.	T	r	Hole Dia.	SN2000K	SN1000S	SN2000S	WX1500	WX2500	WX2000	NB150H	NB90S
RCGX35	.375	.3125	-	-	●	○	○	○	○	▲	●	
RCGX45	.500				●	○	○	○	○	▲	●	▲
RCGX55	.625					○	○	○	○		●	

RPGX

Cutting Conditions: Continuous Cut, Medium Cut, Interrupted Cut — Grades





Catalog #	I.C.	T	r	Hole Dia.	SN1000S	SN2000S	WX1500	WX2500	WX2000
RPGX35	.375	.3125	-	-	○	○	○	○	▲
RPGX45	.500				○	○	○	○	▲
RPGX55	.625				○	○	○	○	

CERAMIC INSERTS - POSITIVE

SN2000K* → Finishing and roughing of cast iron

SN2100K* → Interrupted turning /milling of cast iron

SN1000S → SiAlON grade for continuous turning of exotic alloys

SN2000S → SiAlON grade for continuous to medium interrupted turning of exotic alloys

WX1500 → Cold pressed whiskered ceramic grade for continuous turning of exotic alloys

WX2500 → High speed turning of super alloys

WX2000 → High speed turning of super alloys

NB150H → High speed finishing of hardened steels

NB90S → High speed finishing of hardened steels

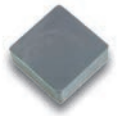
*__SN2000K__ & __SN2100K__ grades not shown in stock can be made to order. Call for price and delivery.

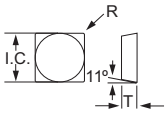
- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ In stock by 1st Quarter 2017

K Cast Iron
S Exotic Materials
H Hardened Steel

SPG

Cutting Conditions: Continuous Cut / Medium Cut / Interrupted Cut — Grades: SN2000K, SN2100K, NB90S

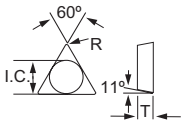




Catalog #	I.C.	T	r	Hole Dia.	SN2000K	SN2100K	NB90S
SPG422	.500	.125	.0313	-	●	●	●
SPG423			.0469			●	
SPG424			.0625			●	
SPG432		.1875	.0313		●	●	
SPG433			.0469		●	●	
SPG632	.750		.0313			●	
SPG633			.0469			●	
SPG634			.0625			●	

TPG

Cutting Conditions: Continuous Cut / Medium Cut / Interrupted Cut — Grades: SN2000K, SN2100K, NB90S

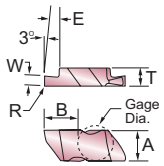


Catalog #	I.C.	T	r	Hole Dia.	SN2000K	SN2100K	NB90S
TPG221	.250	.125	.0156	-			●
TPG222			.0313				●
TPG321	.375		.0156				●
TPG322			.0313		●	●	●
TPG323			.0469		●	●	●
TPG332		.1875	.0313				●
TPG432	.500		.0313		●	●	●
TPG433			.0469		●	●	●

For GROOVING

SG

Cutting Conditions: Continuous Cut / Medium Cut / Interrupted Cut — Grades: SN2000K, SN2100K, WX2000, NB90S

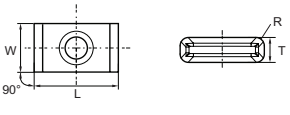


Catalog #	W ± .001	R	E ± .001	T	A	B	Gage Dia.	SN2000K	SN2100K	WX2000	NB90S
SG-3047R	.047	.005/.010	.075	.195	.344	.4050	.3750	●			
SG-3062R	.062	.005/.010	.094					●			
SG-3094R	.094	.005/.010	.150					●			
SG-3125R	.125	.005/.010	.150					●			

For MILLING

LNGX

Cutting Conditions: Continuous Cut / Medium Cut / Interrupted Cut — Grades: SN2000K, SN2100K, WX2000, NB90S



Catalog #	L	W	T	R	SN2000K	SN2100K	WX2000	NB90S
LNGX160516PNFN-W	.625	.375	.187	.063	●			

SUMITOMO

CARBIDE - CBN - DIAMOND

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PCBN & PCD Inserts

Pages 157-195

Cubic Boron Nitride (CBN) Inserts

See pages 580 - 581 for running parameters.

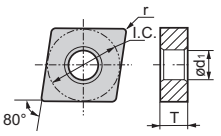
CN — 80° Diamond Type — Negative

- **K Cast Iron**
- **S Exotic Materials**
- **H Hardened Steel**
- **S/M Sintered Materials**

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

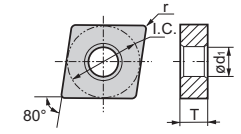
CNMA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K/S BN7000	Uncoated K/S BN700	Uncoated K/S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Full Tip		CNMA431	CNMA120404									●			★	●						.500	.1875	.0156	.020	.2031
		CNMA432	CNMA120408									●			●	●		●	●			.500	.1875	.0313	.020	.2031
		CNMA433	CNMA120412									●			★	●		●	●			.500	.1875	.0469	.020	.2031
Multi-Mid Tip		2MD-CNMA431	2MD-CNMA120404									●				●						.500	.1875	.0156	.020	.2031
		2MD-CNMA432	2MD-CNMA120408									●				●			●			.500	.1875	.0313	.020	.2031
		2MD-CNMA433	2MD-CNMA120412									●				●			●			.500	.1875	.0469	.020	.2031
Mini Tip		NS-CNMA431	NS-CNMA120404										●									.500	.1875	.0156	.015	.2031
		NS-CNMA432	NS-CNMA120408										●									.500	.1875	.0313	.015	.2031
		NS-CNMA433	NS-CNMA120412										▲									.500	.1875	.0469	.015	.2031
		NU-CNMA430.5	NU-CNMA120402													●						.500	.1875	.0078	.015	.2031
		NU-CNMA431	NU-CNMA120404								▲	●		●	●	●	●					.500	.1875	.0156	.015	.2031
		NU-CNMA432	NU-CNMA120408								●	●		●	●	●	●					.500	.1875	.0313	.015	.2031
		NU-CNMA433	NU-CNMA120412								●	●		●	●	●	●					.500	.1875	.0469	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

CNGA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K/S BN7000	Uncoated K/S BN700	Uncoated K/S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini Tip		2NC-CNGA430.5LT*	2NC-CNGA120402LT		★																	.500	.1875	.0078	.015	.2031
		2NC-CNGA431LE*	2NC-CNGA120404LE	★																		.500	.1875	.0156	.015	.2031
		2NC-CNGA431LS*	2NC-CNGA120404LS						★													.500	.1875	.0156	.015	.2031
		2NC-CNGA431LT*	2NC-CNGA120404LT		●																	.500	.1875	.0156	.015	.2031
		2NC-CNGA432	2NC-CNGA120408	●	●	●	●	●	●													.500	.1875	.0313	.015	.2031
		2NC-CNGA432LE*	2NC-CNGA120408LE	★																		.500	.1875	.0313	.015	.2031
		2NC-CNGA432LS*	2NC-CNGA120408LS			●		●	★													.500	.1875	.0313	.015	.2031
		2NC-CNGA432LT*	2NC-CNGA120408LT		●																	.500	.1875	.0313	.015	.2031
		2NC-CNGA432HS*	2NC-CNGA120408HS	●	●		●	●	●													.500	.1875	.0313	.015	.2031
		2NC-CNGA433	2NC-CNGA120412	●	●	●	●	●	●													.500	.1875	.0469	.015	.2031
		2NC-CNGA433LE*	2NC-CNGA120412	★																		.500	.1875	.0469	.015	.2031
		2NC-CNGA433LS*	2NC-CNGA120412LS			●		●	★													.500	.1875	.0469	.015	.2031
		2NC-CNGA433LT*	2NC-CNGA120412LT		●																	.500	.1875	.0469	.015	.2031
		2NC-CNGA433HS*	2NC-CNGA120412HS	●	●		●	●	●													.500	.1875	.0469	.015	.2031
		4NC-CNGA431	4NC-CNGA120404	●	●	●	●	●	●	★												.500	.1875	.0156	.015	.2031
		4NC-CNGA431ES*	4NC-CNGA120404ES		★																	.500	.1875	.0156	.015	.2031
		4NC-CNGA431LS*	4NC-CNGA120404LS			●	●	★														.500	.1875	.0156	.015	.2031
		4NC-CNGA431HS*	4NC-CNGA120404HS	●	●			●		★												.500	.1875	.0156	.015	.2031
		4NC-CNGA431W*	4NC-CNGA120404W	●	●	●	●	●	●													.500	.1875	.0156	.015	.2031
		4NC-CNGA431WG	4NC-CNGA120404WH	●	●		●	●														.500	.1875	.0156	.015	.2031
		4NC-CNGA431WH	4NC-CNGA120404WH	●	●		●	●														.500	.1875	.0156	.015	.2031
		4NC-CNGA432	4NC-CNGA120408	●	●	●	●	●	●	★												.500	.1875	.0313	.015	.2031
		4NC-CNGA432ES*	4NC-CNGA120408ES		●																	.500	.1875	.0313	.015	.2031
		4NC-CNGA432LS*	4NC-CNGA120408LS			●	●	●														.500	.1875	.0313	.015	.2031
		4NC-CNGA432HS*	4NC-CNGA120408HS	●	●		●	●		★												.500	.1875	.0313	.015	.2031
		4NC-CNGA432W*	4NC-CNGA120408W	●	●	●	●	●	●	★												.500	.1875	.0313	.015	.2031
		4NC-CNGA432WG	4NC-CNGA120408WG	●	●		●	●														.500	.1875	.0313	.015	.2031
		4NC-CNGA432WH	4NC-CNGA120408WH	●	●		●	●														.500	.1875	.0313	.015	.2031
		4NC-CNGA433	4NC-CNGA120412	●	●	●	●	●	●	★												.500	.1875	.0469	.015	.2031
		4NC-CNGA433ES	4NC-CNGA120412ES		●																	.500	.1875	.0469	.015	.2031
		4NC-CNGA433LS*	4NC-CNGA120412LS			●	●	★														.500	.1875	.0469	.015	.2031
		4NC-CNGA433HS*	4NC-CNGA120412HS	●	●		●	●		★												.500	.1875	.0469	.015	.2031

CN

80° Diamond Type

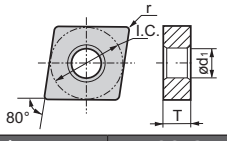
Negative

K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

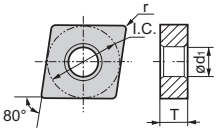
CNGA (cont.)



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K/S BN7000	Uncoated K/S BN700	Uncoated S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Multi-Mini Tip		4NC-CNGA433W*	4NC-CNGA120412W	●	●	●	●	●	●													.500	.1875	.0469	.015	.2031
		4NC-CNGA433WG	4NC-CNGA120412WG		●			●														.500	.1875	.0469	.015	.2031
		4NC-CNGA433WH	4NC-CNGA120412WH	●	●																	.500	.1875	.0469	.015	.2031
		2NU-CNGA431	2NU-CNGA120404								▲	▲		●	●	●	●	●	●		●	.500	.1875	.0156	.015	.2031
		2NU-CNGA431HS*	2NU-CNGA120404HS												●			●				.500	.1875	.0156	.015	.2031
		2NU-CNGA431F*	2NU-CNGA120404F																●			.500	.1875	.0156	.015	.2031
		2NU-CNGA431T*	2NU-CNGA120404T																★			.500	.1875	.0156	.015	.2031
		2NU-CNGA431W*	2NU-CNGA120404W																●			.500	.1875	.0156	.015	.2031
		2NU-CNGA431WG	2NU-CNGA120404WG												●						●	.500	.1875	.0156	.015	.2031
		2NU-CNGA431WH	2NU-CNGA120404WH												●						●	.500	.1875	.0156	.015	.2031
		2NU-CNGA431LE*	2NU-CNGA120404LE																		●	.500	.1875	.0156	.015	.2031
		2NU-CNGA431LF*	2NU-CNGA120404LF															●			●	.500	.1875	.0156	.015	.2031
		2NU-CNGA431LS*	2NU-CNGA120404LS																		●	.500	.1875	.0156	.015	.2031
		2NU-CNGA431LT*	2NU-CNGA120404LT											●	●							.500	.1875	.0156	.015	.2031
		2NU-CNGA432	2NU-CNGA120408									▲		●	●	●	●	●	●		●	.500	.1875	.0313	.015	.2031
		2NU-CNGA432HS*	2NU-CNGA120408HS												●			●				.500	.1875	.0313	.015	.2031
		2NU-CNGA432F*	2NU-CNGA120408F																●			.500	.1875	.0313	.015	.2031
		2NU-CNGA432T*	2NU-CNGA120408T																●			.500	.1875	.0313	.015	.2031
		2NU-CNGA432W*	2NU-CNGA120408W														●		●			.500	.1875	.0313	.015	.2031
		2NU-CNGA432WG	2NU-CNGA120408WG												●						●	.500	.1875	.0313	.015	.2031
		2NU-CNGA432WH	2NU-CNGA120408WH												●						●	.500	.1875	.0313	.015	.2031
		2NU-CNGA432LE*	2NU-CNGA120408LE																		●	.500	.1875	.0313	.015	.2031
		2NU-CNGA432LF*	2NU-CNGA120408LF															●			●	.500	.1875	.0313	.015	.2031
		2NU-CNGA432LS*	2NU-CNGA120408LS																		●	.500	.1875	.0313	.015	.2031
		2NU-CNGA432LT*	2NU-CNGA120408LT											●	●							.500	.1875	.0313	.015	.2031
		2NU-CNGA433	2NU-CNGA120412									▲		●	●	●	●	●	●		●	.500	.1875	.0469	.015	.2031
		2NU-CNGA433HS*	2NU-CNGA120412HS												●							.500	.1875	.0469	.015	.2031
		2NU-CNGA433W*	2NU-CNGA120412T																			.500	.1875	.0469	.015	.2031
		2NU-CNGA433T*	2NU-CNGA120412T																●			.500	.1875	.0469	.015	.2031
		2NU-CNGA433LT*	2NU-CNGA120412LT											●	●							.500	.1875	.0469	.015	.2031
Solid		CNGA432	CNGA120408																	●		.500	.1875	.0313	.150	.2031
		CNGA433	CNGA120412																	●		.500	.1875	.0469	.150	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

CNGG



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K/S BN7000	Uncoated K/S BN700	Uncoated S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini		2NU-CNGG431FV	2NC-CNGG120404FV												●							.500	.1875	.0156	.015	.2031
		2NU-CNGG431LV	2NC-CNGG120404LV												●							.500	.1875	.0156	.015	.2031
		2NU-CNGG432FV	2NC-CNGG120408FV												●							.500	.1875	.0313	.015	.2031
		2NU-CNGG432LV	2NC-CNGG120408LV												●							.500	.1875	.0313	.015	.2031
		4NC-CNGG431FV	4NC-CNGG120404FV	●	●		●	●														.500	.1875	.0156	.015	.2031
		4NC-CNGG431LV	4NC-CNGG120404LV	●	●		●	●														.500	.1875	.0156	.015	.2031
		4NC-CNGG432FV	4NC-CNGG120408FV	●	●		●	●														.500	.1875	.0313	.015	.2031
		4NC-CNGG432LV	4NC-CNGG120408LV	●	●		●	●														.500	.1875	.0313	.015	.2031
		4NC-CNGG432SV	4NC-CNGG120408SV		●			●														.500	.1875	.0313	.015	.2031
		4NC-CNGG432SVW	4NC-CNGG120408SVW					●														.500	.1875	.0313	.015	.2031
		4NC-CNGG433SV	4NC-CNGG120412SV		●			●														.500	.1875	.0469	.015	.2031

Note: SV style chipbreaker (see page 262 for more info).

Cubic Boron Nitride (CBN) Inserts

See pages 580 - 581 for running parameters.

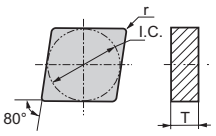
CN — 80° Diamond Type — Negative

- **K Cast Iron**
- **S Exotic Materials**
- **H Hardened Steel**
- **S/M Sintered Materials**

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

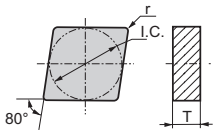
***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

CNGX



		Catalog No.	ISO Cat. No.	Coated H BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Uncoated K BNC500	H BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	K S BN7000	BN700	S M BNS800	BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Solid		CNGX433	CNGX120412																	●		.500	.1875	.0469	.150	-
		CNGX434	CNGX120416																	●		.500	.1875	.0625	.150	-

CNG



		Catalog No.	ISO Cat. No.	Coated H BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Uncoated K BNC500	H BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	K S BN7000	BN700	S M BNS800	BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Solid		CNG322	CNGN090308																	●		.375	.125	.0313	.150	-
		CNG323	CNGN090312																	●		.375	.125	.0469	.150	-
		CNG432	CNGN120408																	★		.500	.1875	.0313	.150	-
		CNG433	CNGN120412																	●		.500	.1875	.0469	.150	-
		CNG434	CNGN120416																	★		.500	.1875	.0625	.150	-

DN

55° Diamond Type

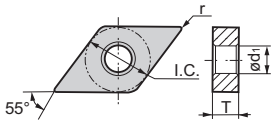
Negative

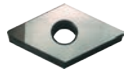
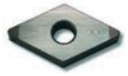
- K Cast Iron
- S Exotic Materials
- H Hardened Steel
- S/M Sintered Materials

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

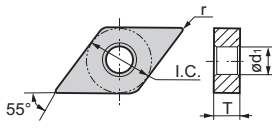
DNMA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K BN7000	Uncoated K BN700	Uncoated S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Full Tip		DNMA431	DNMA150404									●			★	●						.500	.1875	.0156	.020	.2031
		DNMA432	DNMA150408									●			★	●		●	●			.500	.1875	.0313	.020	.2031
		DNMA433	DNMA150412												★	●		●	●			.500	.1875	.0469	.020	.2031
Multi-Mid Tip		2MD-DNMA431	2MD-DNMA150404													●						.500	.1875	.0156	.020	.2031
		2MD-DNMA432	2MD-DNMA150408									●				●			●			.500	.1875	.0313	.020	.2031
		2MD-DNMA433	2MD-DNMA150412													●			●			.500	.1875	.0469	.020	.2031
Single Mini Tip		NS-DNMA431	NS-DNMA150404										●									.500	.1875	.0156	.015	.2031
		NS-DNMA432	NS-DNMA150408										●									.500	.1875	.0313	.015	.2031
		NS-DNMA433	NS-DNMA150412										●									.500	.1875	.0469	.015	.2031
		NU-DNMA430	NU-DNMA150401													●						.500	.1875	.0039	.015	.2031
		NU-DNMA430.5	NU-DNMA150402													●						.500	.1875	.0078	.015	.2031
		NU-DNMA431	NU-DNMA150404								●	●		●	●	●	●					.500	.1875	.0156	.015	.2031
		NU-DNMA432	NU-DNMA150408								●	●		●	●	●	●					.500	.1875	.0313	.015	.2031
		NU-DNMA433	NU-DNMA150412									●		●	●	●	▲					.500	.1875	.0469	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

DNGA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K BN7000	Uncoated K BN700	Uncoated S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini Tip		2MD-DNGA432	2MD-DNGA150408															●				.500	.1875	.0313	.020	.2031
		2NC-DNGA431LE*	2NC-DNGA150404LE	★																		.500	.1875	.0156	.015	.2031
		2NC-DNGA431LS*	2NC-DNGA150404LS						★													.500	.1875	.0156	.015	.2031
		2NC-DNGA431LT*	2NC-DNGA150404LT		●																	.500	.1875	.0156	.015	.2031
		2NC-DNGA432	2NC-DNGA150408	●	●	●	●	●	●													.500	.1875	.0313	.015	.2031
		2NC-DNGA432LE*	2NC-DNGA150408LE	★																		.500	.1875	.0313	.015	.2031
		2NC-DNGA432LS*	2NC-DNGA150408LS			●		●	★													.500	.1875	.0313	.015	.2031
		2NC-DNGA432LT*	2NC-DNGA150408LT		●																	.500	.1875	.0313	.015	.2031
		2NC-DNGA432HS*	2NC-DNGA150408HS	●	●		●	●	●													.500	.1875	.0313	.015	.2031
		2NC-DNGA433	2NC-DNGA150412	●	●	●	●	●	●													.500	.1875	.0469	.015	.2031
		2NC-DNGA433LE*	2NC-DNGA150412LE	★																		.500	.1875	.0469	.015	.2031
		2NC-DNGA433LS*	2NC-DNGA150412LS			●		●														.500	.1875	.0469	.015	.2031
		2NC-DNGA433LT*	2NC-DNGA150412LT		●																	.500	.1875	.0469	.015	.2031
		2NC-DNGA433HS*	2NC-DNGA150412HS	●	●		●	●	●													.500	.1875	.0469	.015	.2031
		4NC-DNGA431	4NC-DNGA150404	●	●	●	●	●	●	★												.500	.1875	.0156	.015	.2031
		4NC-DNGA431ES*	4NC-DNGA150404ES		★																	.500	.1875	.0156	.015	.2031
		4NC-DNGA431LS*	4NC-DNGA150404LS			●	●	★														.500	.1875	.0156	.015	.2031
		4NC-DNGA431HS*	4NC-DNGA150404HS	●	●		●	●		★												.500	.1875	.0156	.015	.2031
		4NC-DNGA431WG	4NC-DNGA150404WG	●	●		●	●														.500	.1875	.0156	.015	.2031
		4NC-DNGA431WH	4NC-DNGA150404WH	●	●		●	●														.500	.1875	.0156	.015	.2031
		4NC-DNGA432	4NC-DNGA150408	●	●	●	●	●	●	★												.500	.1875	.0313	.015	.2031
		4NC-DNGA432ES*	4NC-DNGA150408ES		●																	.500	.1875	.0313	.015	.2031
		4NC-DNGA432LS*	4NC-DNGA150408LS			●	●	★														.500	.1875	.0313	.015	.2031
		4NC-DNGA432HS*	4NC-DNGA150408HS	●	●		●	●		★												.500	.1875	.0313	.015	.2031
		4NC-DNGA432WG	4NC-DNGA150408WG	●	●		●	●														.500	.1875	.0313	.015	.2031
		4NC-DNGA432WH	4NC-DNGA150408WH	●	●		●	●														.500	.1875	.0313	.015	.2031
		4NC-DNGA433	4NC-DNGA150412	●	●	●	●	●	●	★												.500	.1875	.0469	.015	.2031
		4NC-DNGA433ES*	4NC-DNGA150412ES		●	●																.500	.1875	.0469	.015	.2031
		4NC-DNGA433LS*	4NC-DNGA150412LS			●	●	★	★													.500	.1875	.0469	.015	.2031
		4NC-DNGA433HS*	4NC-DNGA150412HS	●	●		●	●		★												.500	.1875	.0469	.015	.2031

Cubic Boron Nitride (CBN) Inserts

See pages 580 - 581 for running parameters.

DN

55° Diamond Type

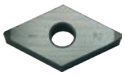
Negative

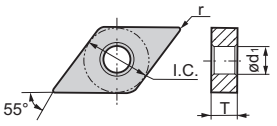
K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

DNGA (cont.)

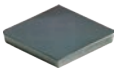


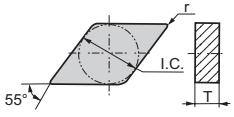


	Catalog No.	ISO Cat. No.	Coated H: BNC80	BNC100	BNC150	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K/S: BN7000	BN700	BNS800	Uncoated S/M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Multi-Mini Tip	2NU-DNGA431	2NU-DNGA150404											●	●	●	●	●	●		●	.500	.1875	.0156	.015	.2031
	2NU-DNGA431HS*	2NU-DNGA15040HS												●							.500	.1875	.0156	.015	.2031
	2NU-DNGA431F*	2NU-DNGA150404F																●			.500	.1875	.0156	.015	.2031
	2NU-DNGA431T*	2NU-DNGA150404T																★			.500	.1875	.0156	.015	.2031
	2NU-DNGA431LF*	2NU-DNGA150404LF															●				.500	.1875	.0156	.015	.2031
	2NU-DNGA431LT*	2NU-DNGA150404LT												●							.500	.1875	.0156	.015	.2031
	2NU-DNGA431WG	2NU-DNGA150408WG												●							.500	.1875	.0156	.015	.2031
	2NU-DNGA431WH	2NU-DNGA150404WH												●							.500	.1875	.0156	.015	.2031
	2NU-DNGA432	2NU-DNGA150408								●			●	●	●	●	●	●		●	.500	.1875	.0313	.015	.2031
	2NU-DNGA432HS*	2NU-DNGA150408HS												●			●				.500	.1875	.0313	.015	.2031
	2NU-DNGA432F*	2NU-DNGA150408F																●			.500	.1875	.0313	.015	.2031
	2NU-DNGA432T*	2NU-DNGA150408T																▲			.500	.1875	.0313	.015	.2031
	2NU-DNGA432LF*	2NU-DNGA150408LF															●				.500	.1875	.0313	.015	.2031
	2NU-DNGA432LT*	2NU-DNGA150408LT												●							.500	.1875	.0313	.015	.2031
	2NU-DNGA432WG	2NU-DNGA150408WG												●							.500	.1875	.0313	.015	.2031
	2NU-DNGA432WH	2NU-DNGA150408WH												●							.500	.1875	.0313	.015	.2031
	2NU-DNGA433	2NU-DNGA150412								●			●	●	●	●	●	●			.500	.1875	.0469	.015	.2031
	2NU-DNGA433HS*	2NU-DNGA150412HS												●			●				.500	.1875	.0469	.015	.2031
	2NU-DNGA433T*	2NU-DNGA150412T																●			.500	.1875	.0469	.015	.2031
	2NU-DNGA433LT*	2NU-DNGA150412LT											●	●							.500	.1875	.0469	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

DNG

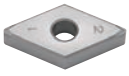


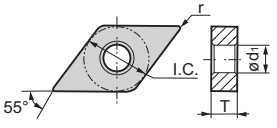


	Catalog No.	ISO Cat. No.	Coated H: BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K/S: BN7000	BN700	BNS800	Uncoated S/M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Solid	DNG322	DNGN110308																	★		.375	.125	.0313	.150	-
	DNG322F	DNGN110308F																	★		.375	.125	.0313	.150	-
	DNG323	DNGN110312																	★		.375	.125	.0469	.150	-
	DNG323F	DNGN110312F																	★		.375	.125	.0469	.150	-

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

DNGG





	Catalog No.	ISO Cat. No.	Coated H: BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K/S: BN7000	BN700	BNS800	Uncoated S/M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini	2NU-DNGG431FV	2NU-DNGG150404FV												●							.500	.1875	.0156	.015	.2031
	2NU-DNGG431LV	2NU-DNGG150404LV												●							.500	.1875	.0156	.015	.2031
	2NU-DNGG432FV	2NU-DNGG150408FV												●							.500	.1875	.0313	.015	.2031
	2NU-DNGG432LV	2NU-DNGG150408LV												●							.500	.1875	.0313	.015	.2031
	4NC-DNGG431FV	4NC-DNGG150404FV	●	●		●	●														.500	.1875	.0156	.015	.2031
	4NC-DNGG431LV	4NC-DNGG150404LV	●	●		●	●														.500	.1875	.0156	.015	.2031
	4NC-DNGG432FV	4NC-DNGG150408FV	●	●		●	●														.500	.1875	.0313	.015	.2031
	4NC-DNGG432LV	4NC-DNGG150408LV	●	●		●	●														.500	.1875	.0313	.015	.2031
	4NC-DNGG432SV	4NC-DNGG150408SV		●		●	●														.500	.1875	.0313	.015	.2031
	4NC-DNGG433SV	4NC-DNGG150412SV		●			●														.500	.1875	.0469	.015	.2031

Note: SV style chipbreaker (see page 262 for more info).

RN

Round Type

Negative

K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

RNG

Fig. 1

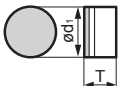
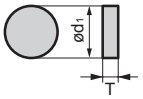


Fig. 2



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H **BNX20**	Uncoated H BNX25	Uncoated H BN1000	Uncoated H **BN2000**	Uncoated H **BN250**	Uncoated H BN350	Uncoated K S **BN7000**	Uncoated K S **BN700**	Uncoated K S **BNS800**	Uncoated S M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D.O.C.	Fig.
Full Top		RNG32B	RNGN090300B									●						●	●			.375	.125	-	.020	1
		RNG43B	RNGN120400B									●				●			●			.500	.1875	-	.020	1
Solid		RNG32	RNGN090300																	●		.375	.125	-	.150	2
		RNG32F	RNGN090300F																	★		.375	.125	-	.150	2
		RNG42	RNGN120300																	●		.500	.125	-	.150	2
		RNG42F	RNGN120300F																	★		.500	.125	-	.150	2
		RNG43	RNGN120400																	●		.500	.1875	-	.150	2

Note: Holders available for RNG inserts. Contact the Engineering Department.

Cubic Boron Nitride (CBN) Inserts

See pages 580 - 581 for running parameters.

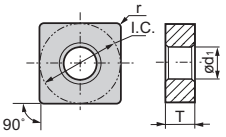
SN — Square Type — Negative

- **K Cast Iron**
- **S Exotic Materials**
- **H Hardened Steel**
- **S/M Sintered Materials**

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

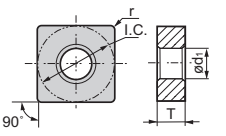
SNMA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K S BN7000	Uncoated K S BN700	Uncoated K S BNS800	Uncoated S M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Full Tip		SNMA432	SNMA120408												★	●		●	●			.500	.1875	.0313	.020	.2031
		SNMA433	SNMA120412												★	▲		●	●			.500	.1875	.0469	.020	.2031
Multi-Mid Tip		2MD-SNMA431	2MD-SNMA120404													●						.500	.1875	.0156	.020	.2031
		2MD-SNMA432	2MD-SNMA120408													●			●			.500	.1875	.0313	.020	.2031
		2MD-SNMA433	2MD-SNMA120412																●			.500	.1875	.0469	.020	.2031
Mini Tip		NU-SNMA431	NU-SNMA120404											●	●							.500	.1875	.0156	.015	.2031
		NU-SNMA432	NU-SNMA120408											●	★	●	●					.500	.1875	.0313	.015	.2031
		NU-SNMA433	NU-SNMA120412											●	★	●	●					.500	.1875	.0469	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

SNGA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K S BN7000	Uncoated K S BN700	Uncoated K S BNS800	Uncoated S M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini Tip		2NC-SNGA432	2NC-SNGA120408		●			●		★												.500	.1875	.0313	.015	.2031
		2NC-SNGA433	2NC-SNGA120412		●			●		★												.500	.1875	.0469	.015	.2031
Multi-Mini Tip		2NU-SNGA431	2NU-SNGA120404									★			●	★						.500	.1875	.0156	.015	.2031
		2NU-SNGA431HS*	2NU-SNGA120404HS												★							.500	.1875	.0156	.015	.2031
		2NU-SNGA431LT*	2NU-SNGA120404LT												★							.500	.1875	.0156	.015	.2031
		2NU-SNGA432	2NU-SNGA120408									★		●	●	●	●		●			.500	.1875	.0313	.015	.2031
		2NU-SNGA432HS*	2NU-SNGA120408HS												★							.500	.1875	.0313	.015	.2031
		2NU-SNGA432LT*	2NU-SNGA120408LT									★			★							.500	.1875	.0313	.015	.2031
		2NU-SNGA433	2NU-SNGA120412											●	●	●	●	●	●			.500	.1875	.0469	.015	.2031
		2NU-SNGA433HS*	2NU-SNGA120412HS												★			●				.500	.1875	.0469	.015	.2031
		2NU-SNGA433T*	2NU-SNGA120412T																●			.500	.1875	.0469	.015	.2031
		2NU-SNGA433LT*	2NU-SNGA120412LT												★							.500	.1875	.0469	.015	.2031
Solid		SNGA432	SNGA120408																	★		.500	.1875	.0313	.150	.2031
		SNGA433	SNGA120412																	★		.500	.1875	.0469	.150	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

SN

Square Type

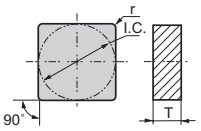
Negative

K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

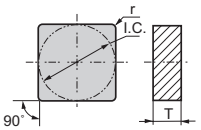
***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

SNGX



	Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K/S BN7000	Uncoated K/S BN700	Uncoated K/S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Solid CBN	SNGX433	SNGX120412																	★		.500	.1875	.0469	.150	-
	SNGX434	SNGX120416																	●		.500	.1875	.0625	.150	-

SNG



	Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H **BNX20**	Uncoated H BNX25	Uncoated H BN1000	Uncoated H **BN2000**	Uncoated H BN250	Uncoated H BN350	Uncoated K/S BN7000	Uncoated K/S BN700	Uncoated K/S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Solid	SNG322	SNGN090308																	●		.375	.125	.0313	.150	-
	SNG322F*	SNGN090308F																	★		.375	.125	.0313	.150	-
	SNG323	SNGN090312																	●		.375	.125	.0469	.150	-
	SNG323F*	SNGN090312F																	★		.375	.125	.0469	.150	-
	SNG422	SNGN120308																	●		.500	.125	.0313	.150	-
	SNG422F*	SNGN120308F																	★		.500	.125	.0313	.150	-
	SNG423	SNGN120312																	●		.500	.125	.0469	.150	-
	SNG423F*	SNGN120312F																	★		.500	.125	.0469	.150	-
	SNG424	SNGN120316																	●		.500	.125	.0625	.150	-
	SNG432	SNGN120408									★			★					●		.500	.1875	.0313	.150	-
	SNG433	SNGN120412												★					●		.500	.1875	.0469	.150	-
	SNG434	SNGN120416																	●		.500	.1875	.0625	.150	-

Cubic Boron Nitride (CBN) Inserts

See pages 580 - 581 for running parameters.

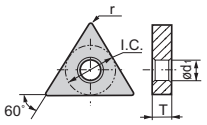
TN — 60° Triangle Type — Negative

- **K Cast Iron**
- **S Exotic Materials**
- **H Hardened Steel**
- **S/M Sintered Materials**

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

TNMA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K/S BN7000	Uncoated K BN700	Uncoated S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Full Tip		TNMA330.5	TNMA160402									●			★							.375	.1875	.0078	.020	.150
		TNMA331	TNMA160404									●			★	●						.375	.1875	.0156	.020	.150
		TNMA332	TNMA160408												★	●			●			.375	.1875	.0313	.020	.150
		TNMA333	TNMA160412												★				●			.375	.1875	.0469	.020	.150
		TNMA431	TNMA220404									●										.500	.1875	.0156	.020	.2031
		TNMA432	TNMA220408									●			★	●						.500	.1875	.0313	.020	.2031
		TNMA433	TNMA220412												★	●						.500	.1875	.0469	.020	.2031
Multi-Mid Tip		3MD-TNMA331	3MD-TNMA160404													●						.375	.1875	.0156	.020	.150
		3MD-TNMA332	3MD-TNMA160408													●			●			.375	.1875	.0313	.020	.150
Mini Tip		NS-TNMA331	NS-TNMA160404										●									.375	.1875	.0156	.015	.150
		NS-TNMA332	NS-TNMA160408										●									.375	.1875	.0313	.015	.150
		NU-TNMA330	NU-TNMA160401												●							.375	.1875	.0039	.015	.150
		NU-TNMA330.5	NU-TNMA160402												●							.375	.1875	.0078	.015	.150
		NU-TNMA331	NU-TNMA160404											●	●	●	●					.375	.1875	.0156	.015	.150
		NU-TNMA332	NU-TNMA160408								▲	●		●	●	●	●					.375	.1875	.0313	.015	.150
		NU-TNMA333	NU-TNMA160412									▲		●	●	●	●					.375	.1875	.0469	.015	.150
		NU-TNMA431	NU-TNMA220404									●			●	●						.500	.1875	.0156	.015	.2031
		NU-TNMA432	NU-TNMA220408								●	●		●		●						.500	.1875	.0313	.015	.2031
		NU-TNMA433	NU-TNMA150412									●		●		●						.500	.1875	.0469	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

TN

60° Triangle Type

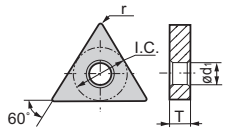
Negative

- K Cast Iron
- S Exotic Materials
- H Hardened Steel
- S/M Sintered Materials

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

TNGA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K S BN7000	Uncoated K S BN700	Uncoated K S BNS800	Uncoated S M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini-Tip		3NC-TNGA330.5LT*	3NC-TNGA160402LT		★																	.375	.1875	.0078	.015	.150
		3NC-TNGA331LE*	3NC-TNGA160404LE	★																		.375	.1875	.0156	.015	.150
		3NC-TNGA331LS*	3NC-TNGA160404LS						★													.375	.1875	.0156	.015	.150
		3NC-TNGA331LT*	3NC-TNGA160404LT		●																	.375	.1875	.0156	.015	.150
		3NC-TNGA332	3NC-TNGA160408	●	●	●	●	●	●													.375	.1875	.0313	.015	.150
		3NC-TNGA332LE*	3NC-TNGA160408LE	★																		.375	.1875	.0313	.015	.150
		3NC-TNGA332LS*	3NC-TNGA160408LS			●		●	★													.375	.1875	.0313	.015	.150
		3NC-TNGA332LT*	3NC-TNGA160408LT		●																	.375	.1875	.0313	.015	.150
		3NC-TNGA332HS*	3NC-TNGA160408HS		●			●	●													.375	.1875	.0313	.015	.150
		3NC-TNGA333LE*	3NC-TNGA160412LE																			.375	.1875	.0469	.015	.150
		3NC-TNGA333LT*	3NC-TNGA160412LT																			.375	.1875	.0469	.015	.150
		6NC-TNGA331	6NC-TNGA160404	●	●	●	●	●	●	★												.375	.1875	.0156	.015	.150
		6NC-TNGA331ES*	6NC-TNGA160404ES		★																	.375	.1875	.0156	.015	.150
		6NC-TNGA331LS*	6NC-TNGA160404LS				●	★														.375	.1875	.0156	.015	.150
		6NC-TNGA331HS*	6NC-TNGA160404HS	●	●		●	●		★												.375	.1875	.0156	.015	.150
		6NC-TNGA332	6NC-TNGA160408	●	●	●	●	●	●	★												.375	.1875	.0313	.015	.150
		6NC-TNGA332ES*	6NC-TNGA160408ES		★																	.375	.1875	.0313	.015	.150
		6NC-TNGA332LS*	6NC-TNGA160408LS			●	●	★														.375	.1875	.0313	.015	.150
		6NC-TNGA332HS*	6NC-TNGA160408HS	●	●		●	●		★												.375	.1875	.0313	.015	.150
		6NC-TNGA333	6NC-TNGA160412	●	●	●	●	●	●	★												.375	.1875	.0469	.015	.150
		6NC-TNGA333ES*	6NC-TNGA160412ES		★																	.375	.1875	.0469	.015	.150
		6NC-TNGA333LS*	6NC-TNGA160412LS			●		★	★													.375	.1875	.0469	.015	.150
		6NC-TNGA333HS*	6NC-TNGA160412HS	●	●		●	●		★												.375	.1875	.0469	.015	.150
Multi-Mini Tip		3NU-TNGA331	3NU-TNGA160404									★		●	●	●	●	●	●		●	.375	.1875	.0156	.015	.150
		3NU-TNGA331LS*	3NU-TNGA160404LS																		●	.375	.1875	.0156	.015	.150
		3NU-TNGA331HS*	3NU-TNGA160404HS												●						●	.375	.1875	.0156	.015	.150
		3NU-TNGA331T*	3NU-TNGA160404T																★			.375	.1875	.0156	.015	.150
		3NU-TNGA331LE*	3NU-TNGA160404LE																		●	.375	.1875	.0156	.015	.150
		3NU-TNGA331LF*	3NU-TNGA160404LF																		●	.375	.1875	.0156	.015	.150
		3NU-TNGA331LT*	3NU-TNGA160404LT											●	●							.375	.1875	.0156	.015	.150
		3NU-TNGA332	3NU-TNGA160408									★		●	●	●	●	●	●		●	.375	.1875	.0313	.015	.150
		3NU-TNGA332LS*	3NU-TNGA160408LS																		●	.375	.1875	.0313	.015	.150
		3NU-TNGA332HS*	3NU-TNGA160408HS												●			●			●	.375	.1875	.0313	.015	.150
		3NU-TNGA332T*	3NU-TNGA160408T																●			.375	.1875	.0313	.015	.150
		3NU-TNGA332LE*	3NU-TNGA160408LE																		●	.375	.1875	.0313	.015	.150
		3NU-TNGA332LF*	3NU-TNGA160408LF																		●	.375	.1875	.0313	.015	.150
		3NU-TNGA332LT*	3NU-TNGA160408LT											●	●							.375	.1875	.0313	.015	.150
		3NU-TNGA333	3NU-TNGA160412									★		●	●	●	●		●		●	.375	.1875	.0469	.015	.150
		3NU-TNGA333HS*	3NU-TNGA160412HS												●							.375	.1875	.0469	.015	.150
		3NU-TNGA333LT*	3NU-TNGA160412LT											●	●							.375	.1875	.0469	.015	.150
Solid CBN		TNGA332	TNGA160408																	★		.375	.1875	.0313	.150	.150
		TNGA333	TNGA160412																	★		.375	.1875	.0469	.150	.150

Cubic Boron Nitride (PCBN) Inserts

See pages 580 - 581 for running parameters.

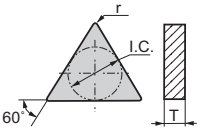
TN — 60° Triangle Type — Negative

K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

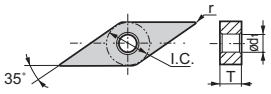
TNG

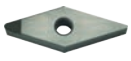
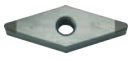
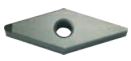


		Catalog No.	ISO Cat. No.	Coated H: BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K: BN7000	BN700	Uncoated S: BNS800	Uncoated M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Full Tip		TNG331	TNGN160408												★							.375	.1875	.0156	.150	-
		TNG332	TNGN160408									★			★							.375	.1875	.0313	.150	-
		TNG333	TNGN160412												★							.375	.1875	.0469	.150	-
Solid CBN		TNG222	TNGN110308																	●		.250	.125	.0313	.150	-
		TNG222F*	TNGN110308F																	★		.250	.125	.0313	.150	-
		TNG223	TNGN110312																	★		.250	.125	.0469	.150	-
		TNG223F*	TNGN110312F																	★		.250	.125	.0469	.150	-
		TNG333	TNGN160412																	●		.375	.1875	.0469	.150	-
		TNG334	TNGN160416																	★		.375	.1875	.0625	.150	-

VN — 35° Diamond Type — Negative

VNMA



		Catalog No.	ISO Cat. No.	Coated H: BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K: BN7000	BN700	Uncoated S: BNS800	Uncoated M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Full Tip		VNMA331	VNMA160404									●			★	●		●				.375	.1875	.0156	.020	.150
		VNMA332	VNMA160408									●			★	●		●	●			.375	.1875	.0313	.020	.150
Multi-Mid Tip		2MD-VNMA331	2MD-VNMA160404													●						.375	.1875	.0156	.020	.150
		2MD-VNMA332	2MD-VNMA160408									●				●			●			.375	.1875	.0313	.020	.150
		2MD-VNMA333	2MD-VNMA160412													●						.375	.1875	.0469	.020	.150
Mini Tip		NS-VNMA331	NS-VNMA160404										●									.375	.1875	.0156	.015	.150
		NS-VNMA332	NS-VNMA160408										●									.375	.1875	.0313	.015	.150
		NU-VNMA330	NU-VNMA160401												●							.375	.1875	.0039	.015	.150
		NU-VNMA330.5	NU-VNMA160402												●							.375	.1875	.0078	.015	.150
		NU-VNMA331	NU-VNMA160404								●	●		●	●	●	●					.375	.1875	.0156	.015	.150
		NU-VNMA332	NU-VNMA160408								●	●		●	●	●	●					.375	.1875	.0313	.015	.150
		NU-VNMA333	NU-VNMA160412									●		●		●	●					.375	.1875	.0469	.015	.150

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

VN

35° Diamond Type

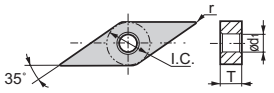
Negative

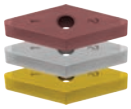
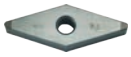
K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

VNGA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K BN7000	Uncoated K BN700	Uncoated S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini Tip		2NC-VNGA330.5LT	2NC-VNGA160402LT		★																	.375	.1875	.0078	.015	.150
		2NC-VNGA331LT	2NC-VNGA160404LT		●																	.375	.1875	.0156	.015	.150
		2NC-VNGA332	2NC-VNGA160408	●	●	●	●	●	●													.375	.1875	.0313	.015	.150
		2NC-VNGA332LS*	2NC-VNGA160408LS					●														.375	.1875	.0313	.015	.150
		2NC-VNGA332LT*	2NC-VNGA160408LT		●																	.375	.1875	.0313	.015	.150
		2NC-VNGA332HS*	2NC-VNGA160408HS		●			●	●													.375	.1875	.0313	.015	.150
		2NC-VNGA333LT*	2NC-VNGA160412LT		★																	.375	.1875	.0469	.015	.150
		4NC-VNGA331	4NC-VNGA160404	●	●	●	●	●	●	★												.375	.1875	.0156	.015	.150
		4NC-VNGA331ES*	4NC-VNGA160404ES		●																	.375	.1875	.0156	.015	.150
		4NC-VNGA331LS*	4NC-VNGA160404LS			●	●	●														.375	.1875	.0156	.015	.150
		4NC-VNGA331HS*	4NC-VNGA160404HS	●	●		●	●		★												.375	.1875	.0156	.015	.150
		4NC-VNGA332	4NC-VNGA160408	●	●	●	●	●	●	★												.375	.1875	.0313	.015	.150
		4NC-VNGA332ES*	4NC-VNGA160408ES		●																	.375	.1875	.0313	.015	.150
		4NC-VNGA332LS*	4NC-VNGA160408LS			●	●	●														.375	.1875	.0313	.015	.150
		4NC-VNGA332HS*	4NC-VNGA160408HS	●	●		●	●		★												.375	.1875	.0313	.015	.150
		4NC-VNGA333	4NC-VNGA160412		●			●														.375	.1875	.0469	.015	.150
		4NC-VNGA333ES*	4NC-VNGA160412ES		★																	.375	.1875	.0469	.015	.150
Multi-Mini Tip		2NU-VNGA331	2NU-VNGA160404									★		●	●	●	●	●	●		●	.375	.1875	.0156	.015	.150
		2NU-VNGA331HS*	2NU-VNGA160404HS												●							.375	.1875	.0156	.015	.150
		2NU-VNGA331LT*	2NU-VNGA160404LT											●	●							.375	.1875	.0156	.015	.150
		2NU-VNGA332	2NU-VNGA160408									●		●	●	●	●	●	●		●	.375	.1875	.0313	.015	.150
		2NU-VNGA332HS*	2NU-VNGA160408HS												●			●				.375	.1875	.0313	.015	.150
		2NU-VNGA332F*	2NU-VNGA160408F																●			.375	.1875	.0313	.015	.150
		2NU-VNGA332T*	2NU-VNGA160408T																●			.375	.1875	.0313	.015	.150
		2NU-VNGA332LF*	2NU-VNGA160408LF															●				.375	.1875	.0313	.015	.150
		2NU-VNGA332LT*	2NU-VNGA160408LT											●	●							.375	.1875	.0313	.015	.150
		2NU-VNGA333	2NU-VNGA160412															●				.375	.1875	.0469	.015	.150

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Cubic Boron Nitride (PCBN) Inserts

See pages 580 - 581 for running parameters.

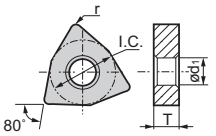
WN — 80° Trigon Type — Negative

- **K Cast Iron**
- **S Exotic Materials**
- **H Hardened Steel**
- **S/M Sintered Materials**

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

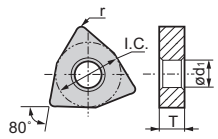
***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

WNMA



	Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K/S BN7000	Uncoated K/S BN700	Uncoated K/S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Mini Tip	NU-WNMA431	NU-WNMA080404											●	●	●	●					.500	.1875	.0156	.015	.2031
	NU-WNMA432	NU-WNMA080408											●	●	●	●					.500	.1875	.0313	.015	.2031
	NU-WNMA433	NU-WNMA080412													●						.500	.1875	.0469	.015	.2031

WNGA



	Catalog No.	ISO Cat. No.	Coated H **BNC2010**	Coated H **BNC2020**	Coated H **BNC100**	Coated H **BNC160**	Coated H **BNC200**	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H **BN1000**	Uncoated H BN2000	Uncoated H BN250	Uncoated H **BN350**	Uncoated K/S **BN7000**	Uncoated K/S **BN700**	Uncoated K/S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini Tip	3NC-WNGA432LT	3NC-WNGA080408LT		★																	.500	.1875	.0313	.015	.2031
	6NC-WNGA432	6NC-WNGA080408	●	●	●	●	●														.500	.1875	.0313	.015	.2031
	6NC-WNGA432LS	6NC-WNGA080408LS					★														.500	.1875	.0313	.015	.2031
	6NC-WNGA432HS	6NC-WNGA080408HS		●			★														.500	.1875	.0313	.015	.2031
	6NC-WNGA432WG	6NC-WNGA080408WG	●	●		●	●														.500	.1875	.0313	.015	.2031
	6NC-WNGA432WH	6NC-WNGA080408WH	●	●		●	●														.500	.1875	.0313	.015	.2031
	6NC-WNGA433WG	6NC-WNGA080412WG	●	●		●	●														.500	.1875	.0469	.015	.2031
	6NC-WNGA433WH	6NC-WNGA080412WH	●	●		●	●														.500	.1875	.0469	.015	.2031
Multi-Mini Tip	3NU-WNGA432	3NU-WNGA080408											●			●	●	●			.500	.1875	.0313	.015	.2031
	3NU-WNGA433	3NU-WNGA080412														●	●	●			.500	.1875	.0469	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

CC

80° Diamond Type

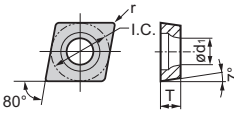
7° Relief

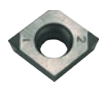
K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

CCGA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K S BN7000	Uncoated K S BN700	Uncoated S BN5800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini Tip		NC-CCGA21.51	NC-CCGW060204	●	●	●	●	●														.250	.094	.0156	.015	.110
		2NC-CCGA21.50.5	2NC-CCGW060202		●			●		★												.250	.094	.0078	.015	.110
		2NC-CCGA21.50.5LE	2NC-CCGW060202LE	★																		.250	.094	.0078	.015	.110
		2NC-CCGA21.50.5LT	2NC-CCGW060202LT		★																	.250	.094	.0078	.015	.110
		2NC-CCGA21.50.5WG	2NC-CCGW060202WG	●	●		●	●														.250	.094	.0078	.015	.110
		2NC-CCGA21.51	2NC-CCGW060204		●			●		★												.250	.094	.0156	.015	.110
		2NC-CCGA21.51LE	2NC-CCGW060204LE	★																		.250	.094	.0156	.015	.110
		2NC-CCGA21.51LT	2NC-CCGW060204LT		●																	.250	.094	.0156	.015	.110
		2NC-CCGA21.51WG	2NC-CCGW060204WG	●	●		●	●														.250	.094	.0156	.015	.110
		2NC-CCGA21.52	2NC-CCGW060208	●	●					★												.250	.094	.0313	.015	.110
		2NC-CCGA21.52WG	2NC-CCGW060208WG	●	●		●	●														.250	.094	.0313	.015	.110
		2NC-CCGA32.50.5	2NC-CCGW09T302		●			●		★												.375	.156	.0078	.015	.1732
		2NC-CCGA32.50.5LE	2NC-CCGW09T302LE	★																		.375	.156	.0078	.015	.1732
		2NC-CCGA32.50.5LT	2NC-CCGW09T302LT		★																	.375	.156	.0078	.015	.1732
		2NC-CCGA32.50.5WG	2NC-CCGW09T302WG	●	●		●	●														.375	.156	.0078	.015	.1732
		2NC-CCGA32.51	2NC-CCGW09T304	●	●	●	●	●	●	★												.375	.156	.0156	.015	.1732
		2NC-CCGA32.51LE	2NC-CCGW09T304LE	★																		.375	.156	.0156	.015	.1732
		2NC-CCGA32.51LS	2NC-CCGW09T304LS						★													.375	.156	.0156	.015	.1732
		2NC-CCGA32.51LT	2NC-CCGW09T304LT		●																	.375	.156	.0156	.015	.1732
		2NC-CCGA32.51W	2NC-CCGW09T304W	●	●	●	●	●														.375	.156	.0156	.015	.1732
		2NC-CCGA32.51WG	2NC-CCGW09T304WG		●		●	●														.375	.156	.0156	.015	.1732
		2NC-CCGA32.52	2NC-CCGW09T308	●	●	●	●	●	●	★												.375	.156	.0313	.015	.1732
		2NC-CCGA32.52LS	2NC-CCGA32.52LS						★													.375	.156	.0313	.015	.1732
		2NC-CCGA32.52LT	2NC-CCGA32.52LT		●																	.375	.156	.0313	.015	.1732
		2NC-CCGA32.52WG	2NC-CCGA32.52WG	●	●		●	●														.375	.156	.0313	.015	.1732
Mini Tip		NU-CCGA21.50.5	NU-CCGW060202												●							.250	.094	.0078	.015	.110
		NU-CCGA21.50.5HS*	NU-CCGW060202HS												●							.250	.094	.0078	.015	.110
		NU-CCGA21.50.5LT*	NU-CCGW060202LT												●							.250	.094	.0078	.015	.110
		NU-CCGA21.51	NU-CCGW060204											●	●							.250	.094	.0156	.015	.110
		NU-CCGA21.51HS*	NU-CCGW060204HS												●							.250	.094	.0156	.015	.110
		NU-CCGA21.51LT*	NU-CCGW060204LT												●							.250	.094	.0156	.015	.110
		NU-CCGA21.52	NU-CCGW060208												●							.250	.094	.0313	.015	.110
		NU-CCGA21.52LT*	NU-CCGW060208LT												●							.250	.094	.0313	.015	.110
		NU-CCGA32.50.5	NU-CCGW09T302											●	●	●						.375	.156	.0078	.015	.1732
		NU-CCGA32.50.5HS*	NU-CCGW09T302HS												●							.375	.156	.0078	.015	.1732
		NU-CCGA32.50.5LT*	NU-CCGW09T302LT												●							.375	.156	.0078	.015	.1732
		NU-CCGA32.51	NU-CCGW09T304											●	●	●	●					.375	.156	.0156	.015	.1732
		NU-CCGA32.51HS*	NU-CCGW09T304HS												●							.375	.156	.0156	.015	.1732
		NU-CCGA32.51LT*	NU-CCGW09T304LT												●							.375	.156	.0156	.015	.1732
		NU-CCGA32.52	2NU-CCGW09T308												●							.375	.156	.0313	.015	.1732
		NU-CCGA32.52HS*	2NU-CCGW09T308HS												●							.375	.156	.0313	.015	.1732
		NU-CCGA32.52LT*	2NU-CCGW09T308LT*												●							.375	.156	.0313	.015	.1732
Multi-Mini Tip		2NU-CCGA21.50.5	2NU-CCGW060202															●	●			.250	.094	.0078	.015	.110
		2NU-CCGA21.50.5WG	2NU-CCGW060202WG												●						●	.250	.094	.0078	.015	.110
		2NU-CCGA21.51	2NU-CCGW060204															●	●		●	.250	.094	.0156	.015	.110
		2NU-CCGA21.51WG	2NU-CCGW060204WG												●						●	.250	.094	.0156	.015	.110
		2NU-CCGA21.52	2NU-CCGW060208															●	●		●	.250	.094	.0313	.015	.110
		2NU-CCGA21.52WG	2NU-CCGW060208WG												●						●	.250	.094	.0313	.015	.110
		2NU-CCGA32.50.5WG	2NU-CCGW09T302WG												●						●	.250	.094	.0078	.015	.110
		2NU-CCGA32.51	2NU-CCGW09T304											●			●	●	●		●	.375	.156	.0156	.015	.1732
		2NU-CCGA32.51W	2NU-CCGW09T304W																●			.375	.156	.0156	.015	.1732
		2NU-CCGA32.51WG	2NU-CCGW09T304WG												●						●	.375	.156	.0156	.015	.1732
		2NU-CCGA32.52	2NU-CCGW09T308											●			●	●	●		●	.375	.156	.0313	.015	.1732
		2NU-CCGA32.52LT	2NU-CCGW09T308LT											●								.375	.156	.0313	.015	.1732
		2NU-CCGA32.52W	2NU-CCGW09T308W																			.375	.156	.0313	.015	.1732
		2NU-CCGA32.52WG	2NU-CCGW09T308WG												●						●	.375	.156	.0313	.015	.1732
		2NU-CCGA431	2NU-CCGW120404															●	●			.500	.1875	.0156	.015	.2165
		2NU-CCGA432	2NU-CCGW120408															●	●			.500	.1875	.0313	.015	.2165

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Cubic Boron Nitride (PCBN) Inserts

See pages 580 - 581 for running parameters.

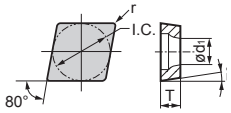
CC — 80° Diamond Type — 7° Relief

K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

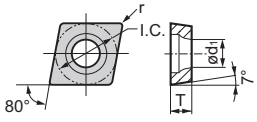
***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

CCGE



	Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H **BN2000**	Uncoated H **BN250**	Uncoated H **BN350**	Uncoated K S BN7000	Uncoated K S BN700	Uncoated S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Mini Tip	NU-CCGE621	NU-CCGW040104												★	●						.1875	.062	.0156	.015	-
	NU-CCGE621HS*	NU-CCGW040104HS												★							.1875	.062	.0156	.015	-
	NU-CCGE622	NU-CCGW040108												★	●						.1875	.062	.0313	.015	-
	NU-CCGE622HS*	NU-CCGW040108HS												★							.1875	.062	.0313	.015	-

CCGT

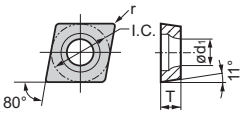


	Catalog No.	ISO Cat. No.	Coated H **BNC2010**	Coated H **BNC2020**	Coated H BNC100	Coated H **BNC160**	Coated H **BNC200**	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H **BN2000**	Uncoated H BN250	Uncoated H BN350	Uncoated K S BN7000	Uncoated K S BN700	Uncoated S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Coated Mini Tip	2NCCCGT21.50.5FV	2NC-CCGT060202N-FV	●	●		●	●														.250	.094	.0078	.015	.110
	2NCCCGT21.51FV	2NC-CCGT060204N-FV	●	●		●	●														.250	.094	.0156	.015	.110
	2NCCCGT21.52FV	2NC-CCGT060208N-FV	●	●		●	●														.250	.094	.0313	.015	.110
	2NCCCGT32.50.5LV	2NC-CCGT09T302N-LV	●	●		●	●														.375	.156	.0078	.015	.1732
	2NCCCGT32.51LV	2NC-CCGT09T304N-LV	●	●		●	●														.375	.156	.0156	.015	.1732
	2NCCCGT32.52LV	2NC-CCGT09T384N-LV	●	●		●	●														.375	.156	.0313	.015	.1732
Mini Tip	2NUCCGT21.50.5FV	2NU-CCGT060202N-FV												●							.250	.094	.0078	.015	.110
	2NUCCGT21.51FV	2NU-CCGT060204N-FV												●							.250	.094	.0156	.015	.110
	2NUCCGT21.52FV	2NU-CCGT060208N-FV												●							.250	.094	.0313	.015	.110
	2NUCCGT32.50.5LV	2NU-CCGT09T302N-LV												●							.375	.156	.0078	.015	.1732
	2NUCCGT32.51LV	2NU-CCGT09T304N-LV												●							.375	.156	.0156	.015	.1732
	2NUCCGT32.52LV	2NU-CCGT09T308N-LV												●							.375	.156	.0313	.015	.1732

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

CP — 80° Diamond Type — 11° Relief

CPGA



	Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H **BN2000**	Uncoated H **BN250**	Uncoated H BN350	Uncoated K S **BN7000**	Uncoated K S **BN700**	Uncoated S BNS800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ød1)
Mini Tip	NU-CPGA2.51.50.5	NU-CPGW080202												●	●						.3125	.094	.0078	.015	.134
	NU-CPGA2.51.50.5HS*	NU-CPGW080202HS												★							.3125	.094	.0078	.015	.134
	NU-CPGA2.51.51	NU-CPGW080204												●	●						.3125	.094	.0156	.015	.134
	NU-CPGA2.51.51HS*	NU-CPGW080204HS												★							.3125	.094	.0156	.015	.134
	NU-CPGA2.51.51LT*	NU-CPGW080204LT												★							.3125	.094	.0156	.015	.134
	NU-CPGA2.51.52	NU-CPGW080208												●	●						.3125	.094	.0313	.015	.134
	NU-CPGA2.51.52HS*	NU-CPGW080208HS												★							.3125	.094	.0313	.015	.134
	NU-CPGA320.5	NU-CPGW090302												★	●						.375	.125	.0078	.015	.1732
	NU-CPGA320.5HS*	NU-CPGW090302HS												★							.375	.125	.0078	.015	.1732
	NU-CPGA320.5LT*	NU-CPGW090302LT												★							.375	.125	.0078	.015	.1732
	NU-CPGA321	NU-CPGW090304												★	●						.375	.125	.0156	.015	.1732
	NU-CPGA321HS*	NU-CPGW090304HS												★							.375	.125	.0156	.015	.1732
	NU-CPGA321LT*	NU-CPGW090304LT												★							.375	.125	.0156	.015	.1732
	NU-CPGA322	NU-CPGW090308												★	★						.375	.125	.0313	.015	.1732
Multi-Mini Tip	NU-CPGA322HS*	NU-CPGW090308HS												★							.375	.125	.0313	.015	.1732
	NU-CPGA322LT*	NU-CPGW090308LT												★							.375	.125	.0313	.015	.1732
	2NU-CPGA32.51	2NU-CPGW09T304															●	●			.375	.156	.0156	.015	.1732
	2NU-CPGA32.52	2NU-CPGW09T308															●	●			.375	.156	.0313	.015	.1732

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

DC

55° Diamond Type

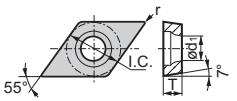
7° Relief

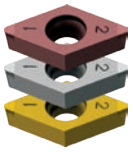
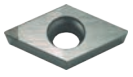
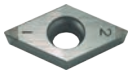
K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

DCGA DCGD



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K BN7000	Uncoated S BN700	Uncoated S BNS800	Uncoated S/M BN7500	Dimensions Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ødi)
Coated Mini Tip		2NC-DCGA21.50.5	2NC-DCGW070202		●			●														.250	.094	.0078	.015	.110
		2NC-DCGA21.50.5LT*	2NC-DCGW070202LT		●																	.250	.094	.0078	.015	.110
		2NC-DCGA21.50.5WG	2NC-DCGW070202WG	●	●		●	●														.250	.094	.00078	.015	.110
		2NC-DCGA21.51	2NC-DCGW070204	●	●	●	●	●		★												.250	.094	.0156	.015	.110
		2NC-DCGA21.51LS*	2NC-DCGW070204LS				●	●														.250	.094	.0156	.015	.110
		2NC-DCGA21.51LT*	2NC-DCGW070204LT		●																	.250	.094	.0156	.015	.110
		2NC-DCGA21.51WG	2NC-DCGW070204WG	●	●	●		●														.250	.094	.0156	.015	.110
		2NC-DCGA21.52WG	2NC-DCGW070208WG	●	●		●	●														.250	.094	.0313	.015	.110
		2NC-DCGA32.50.5	2NC-DCGW11T302		●			●		★												.375	.156	.0078	.015	.1732
		2NC-DCGA32.50.5LE*	2NC-DCGW11T302LE	★																		.375	.156	.0078	.015	.1732
		2NC-DCGA32.50.5LT*	2NC-DCGW11T302LT		★																	.375	.156	.0078	.015	.1732
		2NC-DCGA32.50.5WG	2NC-DCGW11T302WG	●	●		●	●														.375	.156	.0078	.015	.1732
		2NC-DCGA32.51	2NC-DCGW11T304	●	●	●	●	●	●	★												.375	.156	.0156	.015	.1732
		2NC-DCGA32.51LE*	2NC-DCGW11T304LE	★																		.375	.156	.0156	.015	.1732
		2NC-DCGA32.51LS*	2NC-DCGW11T304LS			●		●	★													.375	.156	.0156	.015	.1732
		2NC-DCGA32.51LT*	2NC-DCGW11T304LT		●																	.375	.156	.0156	.015	.1732
		2NC-DCGA32.51WG	2NC-DCGW11T304WG	●	●		●	●														.375	.156	.0156	.015	.1732
		2NC-DCGA32.52	2NC-DCGW11T308	●	●	●	●	●	●	★												.375	.156	.0313	.015	.1732
		2NC-DCGA32.52LE*	2NC-DCGW11T308LE	★																		.375	.156	.0313	.015	.1732
		2NC-DCGA32.52LS*	2NC-DCGW11T308LS			●		●	★													.375	.156	.0313	.015	.1732
		2NC-DCGA32.52LT*	2NC-DCGW11T308LT		●																	.375	.156	.0313	.015	.1732
		2NC-DCGA32.52WG	2NC-DCGW11T308WG	●	●		●	●														.375	.156	.0313	.015	.1732
Mini Tip		NU-DCGD21.50.5	NU-DCGW070202												●							.250	.094	.0078	.015	.110
		NU-DCGD21.51	NU-DCGW070204												●							.250	.094	.0156	.015	.110
		NU-DCGA21.50.5	NU-DCGW070202											●								.250	.094	.0078	.015	.110
		NU-DCGA21.50.5HS*	NU-DCGW070202HS											●								.250	.094	.0078	.015	.110
		NU-DCGA21.50.5LT*	NU-DCGW070202LT											●								.250	.094	.0078	.015	.110
		NU-DCGA21.51	NU-DCGW070204											●								.250	.094	.0156	.015	.110
		NU-DCGA21.51HS*	NU-DCGW070204HS											●								.250	.094	.0156	.015	.110
		NU-DCGA21.51LT*	NU-DCGW070204LT											●								.250	.094	.0156	.015	.110
		NU-DCGA21.52	NU-DCGW070208											●								.250	.094	.0313	.015	.110
		NU-DCGA21.52LT*	NU-DCGW070208LT											●								.250	.094	.0313	.015	.110
		NU-DCGA32.50.5	NU-DCGW11T302											●								.375	.156	.0078	.015	.1732
		NU-DCGA32.50.5HS*	NU-DCGW11T302HS											●								.375	.156	.0078	.015	.1732
		NU-DCGA32.50.5LT*	NU-DCGW11T302LT											●								.375	.156	.0078	.015	.1732
		NU-DCGA32.51	NU-DCGW11T304									●		●	●							.375	.156	.0156	.015	.1732
		NU-DCGA32.51HS*	NU-DCGW11T304HS											●								.375	.156	.0156	.015	.1732
		NU-DCGA32.51LT*	NU-DCGW11T304LT											●								.375	.156	.0156	.015	.1732
		NU-DCGA32.52	NU-DCGW11T308											●								.375	.156	.0313	.015	.1732
		NU-DCGA32.52LS*	NU-DCGW11T308LS											●								.375	.156	.0313	.015	.1732
		NU-DCGA32.52LE*	NU-DCGW11T308LE											●								.375	.156	.0313	.015	.1732
		NU-DCGA32.53	NU-DCGW11T312											●								.375	.156	.0469	.015	.1732
		NU-DCGA32.53LT*	NU-DCGW11T312LT											●								.375	.156	.0469	.015	.1732
Multi-Mini Tip		2NU-DCGA21.50.5	2NU-DCGW070202															●	●			.250	.094	.0078	.015	.110
		2NU-DCGA21.50.5WG	2NU-DCGW070202WG											●							●	.250	.094	.0078	.015	.110
		2NU-DCGA21.51	2NU-DCGW070204											●				●	●		●	.250	.094	.0156	.015	.110
		2NU-DCGA21.51W	2NU-DCGW070204W															●				.250	.094	.0156	.015	.110
		2NU-DCGA21.51WG	2NU-DCGW070204WG											●							●	.250	.094	.0156	.015	.110
		2NU-DCGA21.52	2NU-DCGW070208											●				●	●		●	.250	.094	.0313	.015	.110
		2NU-DCGA21.52WG	2NU-DCGW070208WG											●							●	.250	.094	.0313	.015	.110
		2NU-DCGA32.50.5	2NU-DCGW11T302																		●	.375	.156	.0078	.015	.1732
		2NU-DCGA32.50.5LS*	2NU-DCGW11T302LS																		●	.375	.156	.0078	.015	.1732
		2NU-DCGA32.50.5LE*	2NU-DCGW11T302LE																		●	.375	.156	.0078	.015	.1732
		2NU-DCGA32.50.5LF*	2NU-DCGW11T302LF																		●	.375	.156	.0078	.015	.1732
		2NU-DCGA32.50.5WG	2NU-DCGW11T302WG											●							●	.375	.156	.0078	.015	.1732
		2NU-DCGA32.51	2NU-DCGW11T304											●		●	●	●			●	.375	.156	.0156	.015	.1732
		2NU-DCGA32.51LS*	2NU-DCGW11T304LS																		●	.375	.156	.0156	.015	.1732
		2NU-DCGA32.51LE*	2NU-DCGW11T304LE																		●	.375	.156	.0156	.015	.1732
		2NU-DCGA32.51LF*	2NU-DCGW11T304LF																		●	.375	.156	.0156	.015	.1732
		2NU-DCGA32.51W	2NU-DCGW11T304W															●				.375	.156	.0156	.015	.1732
		2NU-DCGA32.51WG	2NU-DCGW11T304WG											●							●	.375	.156	.0156	.015	.1732
		2NU-DCGA32.52	2NU-DCGW11T308											●		●	●	●			●	.375	.156	.0313	.015	.1732
		2NU-DCGA32.52LS*	2NU-DCGW11T308LS																		●	.375	.156	.0313	.015	.1732
		2NU-DCGA32.52LE*	2NU-DCGW11T308LE																		●	.375	.156	.0313	.015	.1732
		2NU-DCGA32.52LF*	2NU-DCGW11T308LF																		●	.375	.156	.0313	.015	.1732
		2NU-DCGA32.52W	2NU-DCGW11T308W															●				.375	.156	.0313	.015	.1732
		2NU-DCGA32.52WG	2NU-DCGW11T308WG												●						●	.375	.156	.0313	.015	.1732

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Cubic Boron Nitride (PCBN) Inserts

See pages 580 - 581 for running parameters.

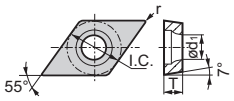
DC — 55° Diamond Type — 7° Relief

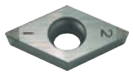
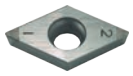
K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

DCGT



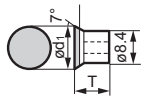
		Catalog No.	ISO Cat. No.	Coated H: BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K: BN7000	BN700	Uncoated S: BNS800	Uncoated M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Dia. (ødi)
Coated Mini Tip		2NCDCGT21.50.5FV	2NC-DCGT070202N-FV	●	●		●	●														.250	.094	.0078	.015	.110
		2NCDCGT21.51FV	2NC-DCGT070204N-FV	●	●		●	●														.250	.094	.0156	.015	.110
		2NCDCGT21.52FV	2NC-DCGT070208N-FV	●	●		●	●														.250	.094	.0313	.015	.110
		2NCDCGT32.50.5LV	2NC-DCGT11T302N-FV	●	●		●	●														.375	.156	.0078	.015	.1732
		2NCDCGT32.51LV	2NC-DCGT11T304N-FV	●	●		●	●														.375	.156	.0156	.015	.1732
		2NCDCGT32.52LV	2NC-DCGT11T308N-FV	●	●		●	●														.375	.156	.0313	.015	.1732
Mini Tip		2NUDCGT21.50.5FV	2NU-DCGT070202N-FV												●							.250	.094	.0078	.015	.110
		2NUDCGT32.50.5FV	2NU-DCGT11T302N-FV												●							.375	.156	.0078	.015	.1732
		2NUDCGT32.50.5LV	2NU-DCGT11T302N-LV												●							.375	.156	.0078	.015	.1732
		2NUDCGT32.51LV	2NU-DCGT11T304N-LV												●							.375	.156	.0156	.015	.1732
		2NUDCGT32.52LV	2NU-DCGT11T308N-LV												●							.375	.156	.0313	.015	.1732

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

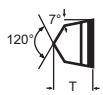
RC — Round Type — 7° Relief

RCGA RCGX

RCGA



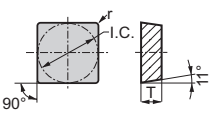
RCGX



			Catalog No.	ISO Cat. No.	Coated H: BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K: BN7000	BN700	Uncoated S: BNS800	Uncoated M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Full Tip	RCGA 	RCGX 	RCGA094	RCGA0906MO													★						.354	.250	-	.040	-
			RCGX25	RCGX060700																●			.250	.309	-	.040	-
			RCGX35	RCGX090700																●			.375	.309	-	.040	-
			RCGX45	RCGX120700																●			.500	.312	-	.040	-

SP — Square Type — 11° Relief

SPG



		Catalog No.	ISO Cat. No.	Coated H: BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K: BN7000	BN700	Uncoated S: BNS800	Uncoated M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Full Tip		SPG322	SPGN090308																●			.375	.125	.0313	.020	-
		SPG421	SPGN120304													●						.500	.125	.0156	.020	-
Mini Tip		NU-SPG321HS*	NU-SPGN090304HS												★							.375	.125	.0156	.015	-
		NU-SPG321LT*	NU-SPGN090304LT												★							.375	.125	.0156	.015	-
		NU-SPG322	NU-SPGN090308												●							.375	.125	.0313	.015	-
		NU-SPG322HS*	NU-SPGN090308HS												★							.375	.125	.0313	.015	-
		NU-SPG322LT*	NU-SPGN090308LT												★							.375	.125	.0313	.015	-

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

SP

Square Type

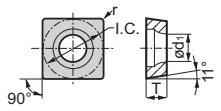
11° Relief

K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

SPGA



	Catalog No.	ISO Cat. No.	Coated H: BNC80	BNC100	BNC150	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K: BN7000	BN700	Uncoated S: BNS800	Uncoated M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Full Tip	SPGA322	SPGW090308													●						.375	.125	.0313	.020	.130

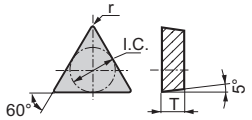
Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

TB

60° Triangle Type

5° Relief

TBGE



	Catalog No.	ISO Cat. No.	Coated H: BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K: BN7000	BN700	Uncoated S: BNS800	Uncoated M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Full Top	TBGE520.5B	TBGE060102B												●	●						.156	.0625	.0078	.020	-
	TBGE520.5BSN	TBGE060102-BSN									▲										.156	.0625	.0078	.020	-
	TBGE521B	TBGE060104B								★	★			●	●		●	●			.156	.0625	.0156	.020	-
	TBGE521BSN										★										.156	.0625	.0156	.020	-
	TBGE522B	TBGE060108B									★			●	●						.156	.0625	.0313	.020	-
	TBGE522BSN										★										.156	.0625	.0313	.020	-

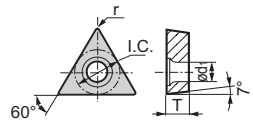
Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.
BSN = Light edge preparation

TC

60° Triangle Type

7° Relief

TCGA



	Catalog No.	ISO Cat. No.	Coated H: BNC160	BNC200	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K: BN7000	BN700	Uncoated S: BNS800	Uncoated M: BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Multi-Mini Tip	3NU-TCGA21.51	3NU-TCGW110204															●	●			.250	.156	.0156	.015	.110
	3NU-TCGA21.52	3NU-TCGW110208															●	●			.250	.156	.0313	.015	.110
	3NU-TCGA32.51	3NU-TCGW16T304																			.375	.1875	.0156	.015	.1693
	3NU-TCGA32.52	3NU-TCGW16T308															●				.375	.1875	.0313	.015	.1693
Coated Mini Tip	3NC-TCGA21.51	3NC-TCGW110204		●					●												.250	.094	.0156	.015	.110
	3NC-TCGA32.52	3NC-TCGW16T308							●												.375	.156	.0313	.015	.1693
	NC-TCGA21.51	NC-TCGW110204	●	●	●	●	●														.250	.094	.0156	.015	.110
	NC-TCGA21.52	NC-TCGW110208	●	●	●	●	●														.250	.094	.0313	.015	.110

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Cubic Boron Nitride (PCBN) Inserts

See pages 580 - 581 for running parameters.

TP

60° Triangle Type

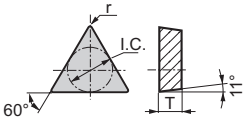
11° Relief

- **K Cast Iron**
- **S Exotic Materials**
- **H Hardened Steel**
- **S/M Sintered Materials**

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

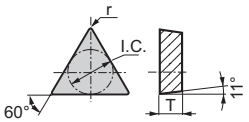
TPEE



	Catalog No.	ISO Cat. No.	Coated H BNC80	BNC100	BNC150	BNC160	BNC200	BNC300	Coated K BNC500	Uncoated H BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K BN500	BN7000	BN700	Uncoated S BNS800	Uncoated SM BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Full Top	TPEE632B	TPEE080208B																	●			.1875	.094	.0313	.020	-
	TPEE632BH	TPEE080208BH																	●			.1875	.094	.0313	.020	-

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.
H = Hone only

TPG



	Catalog No.	ISO Cat. No.	Coated H BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K BNC500	Uncoated H BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K BN7000	BN700	Uncoated S BNS800	Uncoated SM BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Full Tip	TPG1.81.51	TPGN090204												★							.219	.094	.0156	.020	-
	TPG1.81.51HS*	TPGN090204HS												★							.219	.094	.0156	.020	-
	TPG221	TPGN110304									●			★	●		●	●			.250	.125	.0156	.020	-
	TPG221HS*	TPGN110304HS												★							.250	.125	.0156	.020	-
	TPG222	TPGN110308									●			★	●		●	●			.250	.125	.0313	.020	-
	TPG222HS*	TPGN110308HS												★							.250	.125	.0313	.020	-
	TPG321	TPGN160304									●			★	●						.375	.125	.0156	.020	-
	TPG321HS*	TPGN160304HS												★							.375	.125	.0156	.020	-
	TPG322	TPGN160308									●			★	●		●	●			.375	.125	.0313	.020	-
	TPG322HS*	TPGN160308HS												★							.375	.125	.0313	.020	-
	TPG323	TPGN160312															●	●			.375	.125	.0469	.020	-
	TPG432	TPGN220408									●			★							.500	.1875	.0313	.020	-
	TPG432HS*	TPGN220408HS												★							.500	.1875	.0313	.020	-
Multi-Mini Tip	3NU-TPG221	3NU-TPGN110304															●	●			.250	.125	.0156	.015	-
	3NU-TPG222	3NU-TPGN110308															●	●			.250	.125	.0313	.015	-
	3NU-TPG321	3NU-TPGN160304																●			.375	.125	.0156	.015	-
	3NU-TPG322	3NU-TPGN160308															●	●			.375	.125	.0313	.015	-
Mini Tip	NU-TPG220.5	NU-TPGN110302												●							.250	.125	.0078	.015	-
	NU-TPG220.5LT*	NU-TPGN110302LT												●							.250	.125	.0078	.015	-
	NU-TPG221	NU-TPGN110304									●		●	●	●	●					.250	.125	.0156	.015	-
	NU-TPG221HS*	NU-TPGN110304HS												●							.250	.125	.0156	.015	-
	NU-TPG221LT*	NU-TPGN110304LT												●							.250	.125	.0156	.015	-
	NU-TPG222	NU-TPGN110308									●		●	●	●	●					.250	.125	.0313	.015	-
	NU-TPG222HS*	NU-TPGN110308HS												●							.250	.125	.0313	.015	-
	NU-TPG222LT*	NU-TPGN110308LT												●							.250	.125	.0313	.015	-
	NU-TPG320.5	NU-TPGN160302												●							.375	.125	.0078	.015	-
	NU-TPG321	NU-TPGN160304									●		●	●	●	●					.375	.125	.0156	.015	-
	NU-TPG321HS*	NU-TPGN160304HS												●							.375	.125	.0156	.015	-
	NU-TPG321LT*	NU-TPGN160304LT												●							.375	.125	.0156	.015	-
	NU-TPG322	NU-TPGN160308									●		●	●	●	●					.375	.125	.0313	.015	-
	NU-TPG322HS*	NU-TPGN160308HS												●							.375	.125	.0313	.015	-
	NU-TPG322LT*	NU-TPGN160308LT												●							.375	.125	.0313	.015	-

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

TP

60° Triangle Type

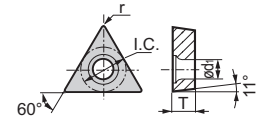
11° Relief

K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

TPGA TPGD TPGX



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated K BN250	Uncoated K BN350	Uncoated S BN7000	Uncoated S BN700	Uncoated S/M BN5800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Coated Mini Tip		NC-TPGA221	NC-TPGW110304	●	●	●	●	●														.250	.125	.0156	.015	.130
		NC-TPGA222	NC-TPGW110308	●	●		●	●														.250	.125	.0313	.015	.130
		3NC-TPGA1.81.50.5	3NC-TPGW090202							★												.219	.094	.0078	.015	.102
		3NC-TPGA1.81.51	3NC-TPGW090204							★												.219	.094	.0156	.015	.102
		3NC-TPGA220.5LE*	3NU-TPGW110302LE	★																		.250	.125	.0078	.015	.130
		3NC-TPGA220.5LT*	3NU-TPGW110302LT		★																	.250	.125	.0078	.015	.130
		3NC-TPGA221	3NC-TPGW110304		●			●		★												.250	.125	.0156	.015	.130
		3NC-TPGA221LE*	3NC-TPGW110304LE	★																		.250	.125	.0156	.015	.130
		3NC-TPGA221LS*	3NC-TPGW110304LS			★	●	●	★													.250	.125	.0156	.015	.130
		3NC-TPGA221LT*	3NC-TPGW110304LT		●																	.250	.125	.0156	.015	.130
		3NC-TPGA222	3NC-TPGW110308		●			●		★												.250	.125	.0313	.015	.130
		3NC-TPGA222LE*	3NC-TPGW110308LE	★																		.250	.125	.0313	.015	.130
		3NC-TPGA222LS	3NC-TPGW110308LS					●	★													.250	.125	.0313	.015	.130
		3NC-TPGA222LT*	3NC-TPGW110308LT		●																	.250	.125	.0313	.015	.130
		3NC-TPGA331	3NC-TPGW160404	●	●	●	●	★		★				●								.375	.1875	.0156	.015	.1693
		3NC-TPGA331LS	3NC-TPGW160404LS			★		★														.375	.1875	.0156	.015	.1693
		3NC-TPGA332	3NC-TPGW160408	●	●	●	●	●		★				●								.375	.1875	.0313	.015	.1693
		3NC-TPGA332LS	3NC-TPGW160408LS			★		★														.375	.1875	.0313	.015	.1693
Full Tip		TPGA221	TPGW110304									●			★	●						.250	.125	.0156	.020	.130
		TPGA221HS*	TPGW110304HS												★							.250	.125	.0156	.020	.130
		TPGA222	TPGW110308													●						.250	.125	.0313	.020	.130
		TPGA222HS*	TPGW110308HS												★							.250	.125	.0313	.020	.130
		TPGA331	TPGW160404									★				●						.375	.1875	.0156	.020	.1693
		TPGA331HS*	TPGW160404HS												★							.375	.1875	.0156	.020	.1693
		TPGA332	TPGW160408									★			★	●						.375	.1875	.0313	.020	.1693
		TPGA332HS*	TPGW160408HS												★							.375	.1875	.0313	.020	.1693
Multi-Mini Tip		3NU-TPGA21.51	3NU-TPGW110204															●	●		●	.250	.094	.0156	.015	.110
		3NU-TPGA21.51LS*	3NU-TPGW110204LS																		●	.250	.094	.0156	.015	.110
		3NU-TPGA21.51LE*	3NU-TPGW110204LE																		●	.250	.094	.0156	.015	.110
		3NU-TPGA21.51LF*	3NU-TPGW110204LF																		●	.250	.094	.0156	.015	.110
		3NU-TPGA21.52	3NU-TPGW110208															●	●		●	.250	.094	.0313	.015	.110
		3NU-TPGA220.5	3NU-TPGW110302															●	●		●	.250	.125	.0078	.015	.130
		3NU-TPGA220.5LF*	3NU-TPGW110302LF																			.250	.125	.0078	.015	.130
		3NU-TPGA221	3NU-TPGW110304															●	●		●	.250	.125	.0156	.015	.130
		3NU-TPGA221LS*	3NU-TPGW110304LS																		●	.250	.125	.0156	.015	.130
		3NU-TPGA221LE*	3NU-TPGW110304LE																		●	.250	.125	.0156	.015	.130
		3NU-TPGA221LF*	3NU-TPGW110304LF																		●	.250	.125	.0156	.015	.130
		3NU-TPGA222	3NU-TPGW110308															●	●		●	.250	.125	.0313	.015	.130
		3NU-TPGA222LF*	3NU-TPGW110308LF																		●	.250	.125	.0313	.015	.130
		3NU-TPGA331	3NU-TPGW160404												●		●	●	●			.375	.1875	.0156	.015	.1693
		3NU-TPGA332	3NU-TPGW160408												●		●	●	●			.375	.1875	.0313	.015	.1693
Mini-Tip		NU-TPGX21.50.5	NU-TPGW110202													●						.250	.094	.0078	.015	.110
		NU-TPGX21.51	NU-TPGW110204								●					●						.250	.094	.0156	.015	.110
		NU-TPGX21.51S	NU-TPGW110204S													●						.250	.094	.0156	.015	.110
		NU-TPGD630.5	NU-TPGW080202												●	●		●	●			.1875	.094	.0078	.015	.090
		NU-TPGD630.5HS*	NU-TPGW080202HS												●							.1875	.094	.0078	.015	.090
		NU-TPGD630.5LT*	NU-TPGW080202LT												●							.1875	.094	.0078	.015	.090
		NU-TPGD630.5S	NU-TPGW080202S													●						.1875	.094	.0078	.015	.090
		NU-TPGD631	NU-TPGW080204								●			●	●	●		●	●			.1875	.094	.0078	.015	.090
		NU-TPGD631HS*	NU-TPGW080204HS												●							.1875	.094	.0078	.015	.090
		NU-TPGD631LT*	NU-TPGW080204LT												●							.1875	.094	.0078	.015	.090
		NU-TPGD631S	NU-TPGW080204S													★						.1875	.094	.0078	.015	.090

S = Edge preparation for hardened steel boring

Cubic Boron Nitride (PCBN) Inserts

See pages 580 - 581 for running parameters.

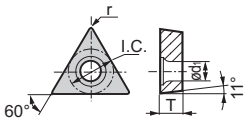
TP — 60° Triangle Type; 11° Relief

- **K Cast Iron**
- **S Exotic Materials**
- **H Hardened Steel**
- **S/M Sintered Materials**

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

TPGA TPGD TPGX (cont.)



Mini-Tip

Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2010	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K/S BN7000	Uncoated K/S BN700	Uncoated K/S BN5800	Uncoated S/M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
NU-TPGD632	NU-TPGW080208												●							.094	.0313	.1875	.015	.090
NU-TPGD632HS*	NU-TPGW080208HS												●							.094	.0313	.1875	.015	.090
NU-TPGA1.81.50.5	NU-TPGW090202												●	●						.219	.094	.0078	.015	.102
NU-TPGA1.81.50.5HS*	NU-TPGW090202HS												●							.219	.094	.0078	.015	.102
NU-TPGA1.81.50.5LT*	NU-TPGW090202LT												●							.219	.094	.0078	.015	.102
NU-TPGA1.81.51	NU-TPGW090204												●	●						.219	.094	.0156	.015	.102
NU-TPGA1.81.51HS*	NU-TPGW090204HS												●							.219	.094	.0156	.015	.102
NU-TPGA1.81.51LT*	NU-TPGW090204LT												●							.219	.094	.0156	.015	.102
NU-TPGA1.81.52	NU-TPGW090208												●							.219	.094	.0313	.015	.102
NU-TPGA21.50.5	NU-TPGW110202												●							.250	.094	.0078	.015	.110
NU-TPGA21.50.5LT*	NU-TPGW110202LT												●							.250	.094	.0078	.015	.110
NU-TPGA21.51	NU-TPGW110204												●							.250	.094	.0156	.015	.110
NU-TPGA21.51HS*	NU-TPGW110204HS												●							.250	.094	.0156	.015	.110
NU-TPGA21.51LT*	NU-TPGW110204LT												●							.250	.094	.0156	.015	.110
NU-TPGA220.5	NU-TPGW110302											●	●	●						.250	.125	.0078	.015	.130
NU-TPGA220.5HS*	NU-TPGW110302HS												●							.250	.125	.0078	.015	.130
NU-TPGA220.5LT*	NU-TPGW110302LT												●							.250	.125	.0078	.015	.130
NU-TPGA221	NU-TPGW110304								●	●		●	●	●	●					.250	.125	.0156	.015	.130
NU-TPGA221HS*	NU-TPGW110304HS												●							.250	.125	.0156	.015	.130
NU-TPGA221LT*	NU-TPGW110304LT												●							.250	.125	.0156	.015	.130
NU-TPGA221S	NU-TPGW110304LT									★				★						.250	.125	.0156	.015	.130
NU-TPGA222	NU-TPGW110308								●	●		●	●	●	●					.250	.125	.0313	.015	.130
NU-TPGA222HS*	NU-TPGW110308HS												●							.250	.125	.0313	.015	.130
NU-TPGA222LT*	NU-TPGW110308LT												●							.250	.125	.0313	.015	.130
NU-TPGA222S	NU-TPGW110308S									★				★						.250	.125	.0313	.015	.130
NU-TPGA320.5	NU-TPGW160302												●							.375	.125	.0078	.015	.1693
NU-TPGA321	NU-TPGW160304											●	●	●	●					.375	.125	.0156	.015	.1693
NU-TPGA322	NU-TPGW160308											●	●	●	●					.375	.125	.0313	.015	.1693
NU-TPGA331	NU-TPGW160404								●	●		●	●	●	●					.375	.1875	.0156	.015	.1693
NU-TPGA331HS*	NU-TPGW160404HS												●							.375	.1875	.0156	.015	.1693
NU-TPGA331LT*	NU-TPGW160404LT												●							.375	.1875	.0156	.015	.1693
NU-TPGA331S	NU-TPGW160404S									★				★						.375	.1875	.0156	.015	.1693
NU-TPGA332	NU-TPGW160408								●	●		●	●	●	●					.375	.1875	.0313	.015	.1693
NU-TPGA332HS*	NU-TPGW160408HS												●							.375	.1875	.0313	.015	.1693
NU-TPGA332LT*	NU-TPGW160408LT												●							.375	.1875	.0313	.015	.1693
NU-TPGA332S	NU-TPGW160408S									★				★						.375	.1875	.0313	.015	.1693

S = Edge preparation for hardened steel boring

VB

35° Diamond Type

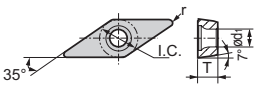
5° Relief

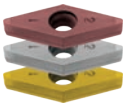
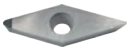
- **K Cast Iron**
- **S Exotic Materials**
- **H Hardened Steel**
- **S/M Sintered Materials**

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

***EDGE PREPARATIONS:** See page 579 for descriptions and performance ranges of CBN edge treatments.

VBGA



		Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K S BN7000	Uncoated K S BN700	Uncoated K S BN5800	Uncoated S M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D.O.C.	Hole Diameter
Coated Mini-Tip		2NC-VBGA220.5LT*	2NC-VBGW110302LT		★																	.250	.125	.0078	.015	.134
		2NC-VBGA221	2NC-VBGW110304	●	●	●	●	●		★												.250	.125	.0156	.015	.134
		2NC-VBGA221LS*	2NC-VBGW110304LS			●																.250	.125	.0156	.015	.134
		2NC-VBGA221LT*	2NC-VBGW110304LT			●																.250	.125	.0156	.015	.134
		2NC-VBGA222	2NC-VBGW110308		●			●		★												.250	.125	.0313	.015	.134
		2NC-VBGA330.5LE*	NU-VBGA160402LE	★																		.375	.1875	.0078	.015	.1732
		2NC-VBGA330.5LT*	NU-VBGA160402LT		★																	.375	.1875	.0078	.015	.1732
		2NC-VBGA331	2NC-VBGW160404		●			●		★												.375	.1875	.0156	.015	.1732
		2NC-VBGA331LE*	2NC-VBGW160404LE	★																		.375	.1875	.0156	.015	.1732
		2NC-VBGA331LT*	2NC-VBGW160404LT		●																	.375	.1875	.0156	.015	.1732
		2NC-VBGA332	2NC-VBGW160408		●			●		●												.375	.1875	.0313	.015	.1732
		2NC-VBGA332LE*	2NC-VBGW160408LE	★																		.375	.1875	.0313	.015	.1732
		2NC-VBGA332LT*	2NC-VBGW160408LT		●																	.375	.1875	.0313	.015	.1732
Multi-Mini Tip		2NU-VBGA221	2NU-VBGW110304															●	●			.250	.125	.0156	.015	.134
		2NU-VBGA222	2NU-VBGW110308															●	●			.250	.125	.0313	.015	.134
		2NU-VBGA331	2NU-VBGW160404															●				.375	.1875	.0156	.015	.1732
		2NU-VBGA332	2NU-VBGW160408															●				.375	.1875	.0313	.015	.1732
Mini-Tip		NU-VBGA220.5	NU-VBGA110302												●							.250	.125	.0078	.015	.134
		NU-VBGA220.5HS*	NU-VBGA110302HS												●							.250	.125	.0078	.015	.134
		NU-VBGA220.5LT*	NU-VBGA110302LT												●							.250	.125	.0078	.015	.134
		NU-VBGA221	NU-VBGA110304												●							.250	.125	.0156	.015	.134
		NU-VBGA221HS*	NU-VBGA110304HS												●							.250	.125	.0156	.015	.134
		NU-VBGA221LT*	NU-VBGA110304LT												●							.250	.125	.0156	.015	.134
		NU-VBGA222	NU-VBGA110308												●							.250	.125	.0313	.015	.134
		NU-VBGA222HS*	NU-VBGA110308HS												●							.250	.125	.0313	.015	.134
		NU-VBGA222LT*	NU-VBGA110308LT												●							.250	.125	.0313	.015	.134
		NU-VBGA330.5	NU-VBGA160402												●							.375	.1875	.0078	.015	.1732
		NU-VBGA330.5LT*	NU-VBGA160402LT												●							.375	.1875	.0078	.015	.1732
		NU-VBGA331	NU-VBGA160404												●							.375	.1875	.0156	.015	.1732
		NU-VBGA331HS*	NU-VBGA160404HS												●							.375	.1875	.0156	.015	.1732
		NU-VBGA331LT*	NU-VBGA160404LT												●							.375	.1875	.0156	.015	.1732
		NU-VBGA332	NU-VBGA160408												●							.375	.1875	.0313	.015	.1732
		NU-VBGA332HS*	NU-VBGA160408HS												●							.375	.1875	.0313	.015	.1732
		NU-VBGA332LT*	NU-VBGA160408LT												●							.375	.1875	.0313	.015	.1732

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Cubic Boron Nitride (PCBN) Inserts

See pages 580 - 581 for running parameters.

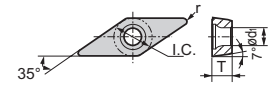
VC — 35° Diamond Type — 7° Relief

K Cast Iron
S Exotic Materials
H Hardened Steel
S/M Sintered Materials

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

***EDGE PREPARATIONS:**
See page 579 for descriptions and performance ranges of CBN edge treatments.

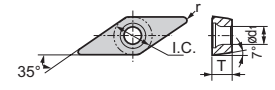
VCGA



	Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K S BN7000	Uncoated K S BN700	Uncoated K S BNS800	Uncoated S M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Coated Mini Tip	2NC-VCGA331	2NC-VCGW160404	●	●	●	●	●														.375	.1875	.0156	.015	.1732
	2NC-VCGA331LS*	2NC-VCGW160404LS			★		★														.375	.1875	.0156	.015	.1732
	2NC-VCGA331HS*	2NC-VCGW160404HS		●			★														.375	.1875	.0156	.015	.1732
	2NC-VCGA332	2NC-VCGW160408	●	●	●	●	●														.375	.1875	.0313	.015	.1732
	2NC-VCGA332LS*	2NC-VCGW160408LS			★		★														.375	.1875	.0313	.015	.1732
	2NC-VCGA332HS*	2NC-VCGW160408HS		●			★														.375	.1875	.0313	.015	.1732
Mini Tip	NU-VCGA1.51.50.5	NU-VCGW080202												★							.1874	.094	.0078	.015	.091
	NU-VCGA1.51.50.5LT*	NU-VCGW080202LT												★							.1874	.094	.0078	.015	.091
	NU-VCGA1.51.51	NU-VCGW080204												★							.1874	.094	.0156	.015	.091
	NU-VCGA1.51.51HS*	NU-VCGW080204HS												★							.1874	.094	.0156	.015	.091
	NU-VCGA1.51.51LT*	NU-VCGW080204LT												★							.1874	.094	.0156	.015	.091
	NU-VCGA1.51.52	NU-VCGW080208												★							.1874	.094	.0313	.015	.091
	NU-VCGA1.51.52HS*	NU-VCGW080208HS												★							.1874	.094	.0313	.015	.091
	NU-VCGA1.51.52LT*	NU-VCGW080208LT												★							.1874	.094	.0313	.015	.091
	NU-VCGA220.5	NU-VCGW110302												●	●						.250	.125	.0078	.015	.134
	NU-VCGA220.5HS*	NU-VCGW110302HS												●							.250	.125	.0078	.015	.134
	NU-VCGA221	NU-VCGW110304												●	★						.250	.125	.0156	.015	.134
	NU-VCGA221HS*	NU-VCGW110304												●							.250	.125	.0156	.015	.134

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

VCMA

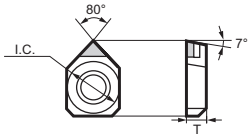


	Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC1500	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K S BN7000	Uncoated K S BN700	Uncoated K S BNS800	Uncoated S M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Full Tip	VCMA331	VCMW160404									★										.375	.1875	.0156	.020	.1732
	VCMA332	VCMW160404									★										.375	.1875	.0313	.020	.1732

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

ZN — 80° Special Shape — 7° Relief

ZNEX



	Catalog No.	ISO Cat. No.	Coated H BNC2010	Coated H BNC2020	Coated H BNC100	Coated H BNC160	Coated H BNC200	Coated H BNC300	Coated K BNC500	Uncoated H BNX10	Uncoated H BNX20	Uncoated H BNX25	Uncoated H BN1000	Uncoated H BN2000	Uncoated H BN250	Uncoated H BN350	Uncoated K S BN7000	Uncoated K S BN700	Uncoated K S BNS800	Uncoated S M BN7500	Inscribed Circle	Thickness	Nose Radius	Max. D. O. C.	Hole Diameter
Full Tip	NC-ZNEX620.5	NC-ZNEX040102		○			●														.1875	.0625	.0078	.015	.090
	NC-ZNEX621	NC-ZNEX040104		○			●														.1875	.0625	.0156	.015	.090
	NU-ZNEX620.5	NU-ZNEX040102												●	●			●			.1875	.0625	.0078	.015	.090
	NU-ZNEX621	NU-ZNEX040104												●	●		●	●			.1875	.0625	.0156	.015	.090

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.
ZNEX inserts are for use with BNZ holders.

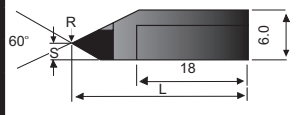
Threading & Grooving

- **K Cast Iron**
- **S Exotic Materials**
- **H Hardened Steel**
- **S/M Sintered Materials**

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

THREADING INSERTS *for BNGG Holder*

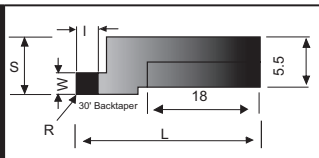
BNTT



Catalog No.	Coated H	Coated H	Coated H	Coated H	Coated H	Coated H	Coated K	Uncoated H	Uncoated H	Uncoated H	Uncoated H	Uncoated H	Uncoated H	Uncoated K	Uncoated K	Uncoated K	Uncoated S/M	Pitch	R	L	S
	BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	BNC500	BNX10	BNX20	BNX25	BN1000	BN2000	**BN250**	BN350		BN700	BNS800	BN7500				
Full Tip																						
BNTT1020R													●						1.0 ~ 2.0	.13	25.0	2.0
BNTT1530R													●						1.5 ~ 3.0	.20	25.0	2.0

GROOVING INSERTS *for BNGNT Holder*

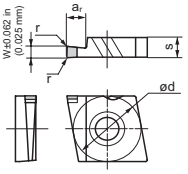
BNGNT



Catalog No.	Coated H	Coated H	Coated H	Coated H	Coated H	Coated H	Coated K	Uncoated H	Uncoated H	Uncoated H	Uncoated H	Uncoated H	Uncoated H	Uncoated K	Uncoated K	Uncoated K	Uncoated S/M	W	I	R	L	S
	BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	BNC500	BNX10	BNX20	BNX25	BN1000	BN2000	**BN250**	**BN350**		BN700	BNS800	BN7500					
Full Tip																							
BNGNT0200L													●						2.0	4.0	0.2	25.0	6.0
BNGNT0200R													●	●									
BNGNT0250L													●						2.5	4.0	0.2	25.0	6.0
BNGNT0250R													●	●									
BNGNT0300L													●						3.0	5.0	0.4	25.0	6.0
BNGNT0300R													●										
BNGNT0400L													●						4.0	6.0	0.4	26.0	6.0
BNGNT0400R													●	●									
BNGNT0500L																			5.0	6.0	0.4	26.0	6.0
BNGNT0500R													●										
BNGNT0600L																			6.0	7.0	0.4	27.0	6.0
BNGNT0600R													●										

GWB GROOVING INSERTS *for GWB Holder*

Right CGA	CBN BN2000	CBN BN250	CBN BNC30G	W ±.001 in ±.025 (mm)	a_r in (mm)	r in (mm)	ød in (mm)	s in (mm)	Left CGA	CBN BN2000	CBN BN250	CBN BNC30G
CGAR4062	●	●	●	.062 (1.575)	.1378 (3.5)	.0078 (.2)	.625 (15.875)	.1875 (4.76)	CGAL4062	●	●	●
CGAR4094	●	●	●	.094 (2.388)	.1575 (4.0)				CGAL4094	●	●	●
CGAR4125	●	●	●	.125 (3.175)	.1969 (5.0)				CGAL4125	●	●	●
CGAR6189	●	●	●	.189 (4.801)				.25 (6.35)	CGAL6189	●	●	●
CGAR1504150		●	●	.0591 (1.5)	.1378 (3.5)			.1875 (4.76)	CGAL1504150	●	●	●
CGAR1504200	●	●	●	.0787 (2.0)					CGAL1504200	●	●	●
CGAR1504250		●	●	.0984 (2.5)	.1575 (4.0)				CGAL1504250	●	●	●
CGAR1504300	●	●	●	.1181 (3.0)					CGAL1504300	●	●	●
CGAR1504350		●		.1378 (3.5)	.1969 (5.0)				CGAL1504350		●	●
CGAR1504400	●		●	.1575 (4.0)					CGAL1504400	●	●	●
CGAR1504450		●	●	.1772 (4.5)					CGAL1504450		●	●
CGAR1506500	●	★	●	.1969 (5.0)					CGAL1506500	●	★	●
CGAR1506550		●	●	.2165 (5.5)				.25 (6.35)	CGAL1506550		●	●
CGAR1506600	●		●	.2362 (6.0)					CGAL1506600	●	●	●



Cubic Boron Nitride (PCBN) Inserts & Polycrystalline Diamond (PCD) Inserts

Threading & Grooving

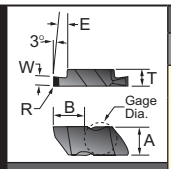
- K Cast Iron
- S Exotic Materials
- H Hardened Steel
- S/M Sintered Materials

See pages 580 - 581 for running parameters.

- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item
- ○ Available 1st Quarter 2017

SumiNOTCH GROOVING INSERTS *for SS & A-SE Holders*

SG



	Catalog No.	Coated H: BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC300	Coated K: BNC500	Uncoated H: BNX10	BNX20	BNX25	BN1000	BN2000	BN250	BN350	Uncoated K/S: BN700	BNS800	Uncoated S/M: BN7500	W ±.001	R	E ±.001	T	A	B	Gage Dia.
Full Tip	SG-3047R												●	●	●				.047	.005/.010	.075	.195	.344	.4050	.3750
	SG-3062L												●	●	●				.062	.005/.010	.094	.195	.344	.4050	.3750
	SG-3062R												●	●	●				.062	.005/.010	.094	.195	.344	.4050	.3750
	SG-3094L												●		●				.094	.005/.010	.150	.195	.344	.4050	.3750
	SG-3094R												●	●	●				.094	.005/.010	.150	.195	.344	.4050	.3750
	SG-3125L												●	●	●				.125	.005/.010	.150	.195	.344	.4050	.3750
	SG-3125R												●	●	●				.125	.005/.010	.150	.195	.344	.4050	.3750
	SG-3189R														●				.189	.020/.025	.150	.195	.344	.4050	.3750

PCD INSERTS - NEGATIVE

CN

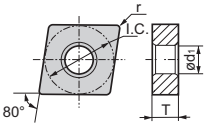
80° Diamond Type

Negative

EDGE PREPARATIONS:

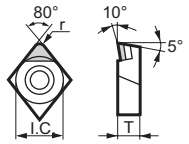
S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

CNMA



	Catalog No.	ISO Cat. No.	Stock N: DA90	DA150	DA1000	DA2200	Dimensions: Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	CNMA432	CNMA120408				●	.500	.1875	.0313	.2031	S	0°
	CNMA432H	CNMA120408H				●	.500	.1875	.0313	.2031	H	0°
NF Tip	NF-CNMA432	NF-CNMA120408			●	●	.500	.1875	.0313	.2031	S	0°
	NF-CNMA432H	NF-CNMA120408H				●	.500	.1875	.0313	.2031	H	0°

CNMX



	Catalog No.	ISO Cat. No.	Stock N: DA90	DA150	DA1000	DA2200	Dimensions: Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	CNMX431	CNMX120404		●		●	.500	.1875	.0156	.2031	S	10°
	CNMX432	CNMX120408		●		●	.500	.1875	.0313	.2031	S	10°
	CNMX433	CNMX120412		●		●	.500	.1875	.0469	.2031	S	10°
NF Tip	NF-CNMX431	NF-CNMX120404			●	●	.500	.1875	.0156	.2031	S	10°
	NF-CNMX432	NF-CNMX120408			●	●	.500	.1875	.0313	.2031	S	10°
	NF-CNMX433	NF-CNMX120412			★	★	.500	.1875	.0469	.2031	S	10°

CN

80° Diamond Type

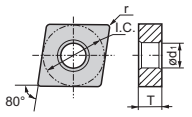
Negative

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

CNMX with Chipbreaker



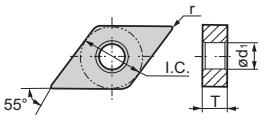
Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA200	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF-CNMX431LD	NF-CNMX120404LD				●		.500	.1875	.0156	.2031	S	0°
NF-CNMX431GD	NF-CNMX120404GD				●		.500	.1875	.0156	.2031	S	0°
NF-CNMX432LD	NF-CNMX120408LD				●		.500	.1875	.0312	.2031	S	0°
NF-CNMX432GD	NF-CNMX120408GD				●		.500	.1875	.0312	.2031	S	0°
NF-CNMX433LD	NF-CNMX120412LD				●		.500	.1875	.0469	.2031	S	0°
NF-CNMX433GD	NF-CNMX120412GD				●		.500	.1875	.0469	.2031	S	0°

DN

55° Diamond Type

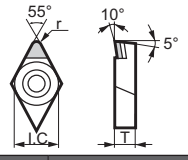
Negative

DNMA



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	DNMA432	DNMA150408				●	.500	.1875	.0313	.2031	S	0°
Standard Tip	DNMA432H	DNMA150408H				●	.500	.1875	.0313	.2031	H	0°
NF Tip	NF-DNMA432	NF-DNMA150408				●	.500	.1875	.0313	.2031	S	0°
NF Tip	NF-DNMA432H	NF-DNMA150408H				●	.500	.1875	.0313	.2031	H	0°

DNMX



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	DNMX431	DNMX150404		●		●	.500	.1875	.0156	.2031	S	10°
Standard Tip	DNMX432	DNMX150408		●		●	.500	.1875	.0313	.2031	S	10°
Standard Tip	DNMX433	DNMX150412		●		●	.500	.1875	.0469	.2031	S	10°
NF Tip	NF-DNMX430.5	NF-DNMX150402			●	●	.500	.1875	.0078	.2031	S	10°
NF Tip	NF-DNMX431	NF-DNMX150404			●	●	.500	.1875	.0156	.2031	S	10°
NF Tip	NF-DNMX432	NF-DNMX150408			●	●	.500	.1875	.0313	.2031	S	10°
NF Tip	NF-DNMX433	NF-DNMX150412			★	★	.500	.1875	.0469	.2031	S	10°

Polycrystalline Diamond (PCD) Inserts

See page 583 for running parameters.

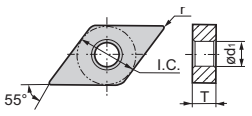
DN — 55° Diamond Type — Negative

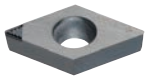
EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

DNMX with Chipbreaker

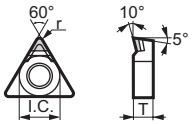




Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA200	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF-DNMX430.5LD	NF-DNMX150402LD				●		.500	.1875	.0078	.2031	S	0°
NF-DNMX430.5GD	NF-DNMX150402GD				●		.500	.1875	.0078	.2031	S	0°
NF-DNMX431LD	NF-DNMX150404LD				●		.500	.1875	.0156	.2031	S	0°
NF-DNMX431GD	NF-DNMX150404GD				●		.500	.1875	.0156	.2031	S	0°
NF-DNMX432LD	NF-DNMX150408LD				●		.500	.1875	.0312	.2031	S	0°
NF-DNMX432GD	NF-DNMX150408GD				●		.500	.1875	.0312	.2031	S	0°
NF-DNMX433LD	NF-DNMX150412LD				●		.500	.1875	.0469	.2031	S	0°
NF-DNMX433GD	NF-DNMX150412GD				●		.500	.1875	.0469	.2031	S	0°

TN — 60° Diamond Type — Negative

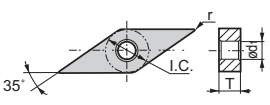
TNMX



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	TNMX331	TNMX160404				★	.375	.1875	.0156	.150	S	10°
Standard Tip	TNMX332	TNMX160408				★	.375	.1875	.0313	.150	S	10°
NF Tip	NF-TNMX330.5	NF-TNMX160402			●	●	.375	.1875	.0078	.150	S	10°
NF Tip	NF-TNMX331	NF-TNMX160404			●	●	.375	.1875	.0156	.150	S	10°
NF Tip	NF-TNMX332	NF-TNMX160408			●	●	.375	.1875	.0313	.150	S	10°

VN — 35° Diamond Type — Negative

VNMA



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
	VNMA333H	VNMA160412H	●			●	.375	.1875	.0469	.150	H	0°
NF Tip	NF-VNMA332	NF-VNMA160408			●	●	.375	.1875	.0313	.150	S	0°
NF Tip	NF-VNMA333	NF-VNMA160412			●	●	.375	.1875	.0469	.150	S	0°
NF Tip	NF-VNMA333H	NF-VNMA160412H				●	.375	.1875	.0469	.150	H	0°

VN

35° Diamond Type

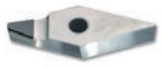
Negative

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

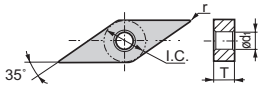
● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

VNMX



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	VNMX331	VNMX160404		●		●	.375	.1875	.0156	.150	S	10°
	VNMX332	VNMX160408		●		●	.375	.1875	.0313	.150	S	10°
	VNMX333	VNMX160412		●		●	.375	.1875	.0469	.150	S	10°
NF Tip	NF-VNMX330.5	NF-VNMX160402			●	●	.375	.1875	.0078	.150	S	10°
	NF-VNMX331	NF-VNMX160404			●	●	.375	.1875	.0156	.150	S	10°
	NF-VNMX332	NF-VNMX160408			●	●	.375	.1875	.0313	.150	S	10°
	NF-VNMX333	NF-VNMX160412			★	●	.375	.1875	.0469	.150	S	10°

VNMX with Chipbreaker



Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA200	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF-VNMX330.5LD	NF-VNMX160402LD				●		.375	.1875	.0078	.150	S	0°
NF-VNMX330.5GD	NF-VNMX160402GD				●		.375	.1875	.0078	.150	S	0°
NF-VNMX331LD	NF-VNMX160404LD				●		.375	.1875	.0156	.150	S	0°
NF-VNMX331GD	NF-VNMX160404GD				●		.375	.1875	.0156	.150	S	0°
NF-VNMX332LD	NF-VNMX160408LD				●		.375	.1875	.0312	.150	S	0°
NF-VNMX332GD	NF-VNMX160408GD				●		.375	.1875	.0312	.150	S	0°
NF-VNMX333LD	NF-VNMX160412LD				●		.375	.1875	.0469	.150	S	0°
NF-VNMX333GD	NF-VNMX160412GD				●		.375	.1875	.0469	.150	S	0°

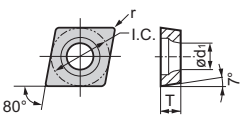
■ PCD INSERTS - POSITIVE

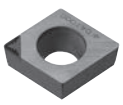
CC

80° Diamond Type

7° Relief

CCMT with Chipbreaker





Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA200	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF-CCMT21.50.5GD	NF-CCMT060202N-GD				●		.250	.094	.0078	.107	S	0°
NF-CCMT21.50.5LD	NF-CCMT060202N-LD				●		.250	.094	.0078	.107	S	0°
NF-CCMT21.51GD	NF-CCMT060204N-GD				●		.250	.094	.0156	.107	S	0°
NF-CCMT21.51LD	NF-CCMT060204N-LD				●		.250	.094	.0156	.107	S	0°
NF-CCMT32.50.5GD	NF-CCMT09T302N-GD				●		.375	.156	.0078	.1732	S	0°
NF-CCMT32.50.5LD	NF-CCMT09T302N-LD				●		.375	.156	.0078	.1732	S	0°
NF-CCMT32.51GD	NF-CCMT09T304N-GD				●		.375	.156	.0156	.1732	S	0°
NF-CCMT32.51LD	NF-CCMT09T304N-LD				●		.375	.156	.0156	.1732	S	0°
NF-CCMT32.52GD	NF-CCMT09T308N-GD				●		.375	.156	.0312	.1732	S	0°
NF-CCMT32.52LD	NF-CCMT09T308N-LD				●		.375	.156	.0312	.1732	S	0°

Polycrystalline Diamond (PCD) Inserts

See page 583 for running parameters.

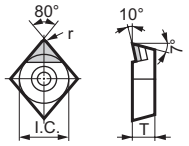
CC — 80° Diamond Type, 7° Relief

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

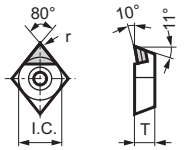
CCMX



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF Tip	NF-CCMX21.50	NF-CCMT060201			●	●	.250	.094	.0039	.110	S	10°
	NF-CCMX21.50.5	NF-CCMT060202			●	●	.250	.094	.0078	.110	S	10°
	NF-CCMX21.51	NF-CCMT060204			●	●	.250	.094	.0156	.110	S	10°
	NF-CCMX32.50.5	NF-CCMT09T302			●	●	.375	.156	.0078	.1732	S	10°
	NF-CCMX32.51	NF-CCMT09T304			●	●	.375	.156	.0156	.1732	S	10°
	NF-CCMX32.52	NF-CCMT09T308			●	●	.375	.156	.0313	.1732	S	10°

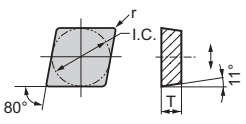
CP — 80° Diamond Type, 11° Relief

CPMX



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	CPMX2.51.50.5	CPMT080202				●	.3125	.094	.0078	.134	S	10°
	CPMX2.51.51	CPMT080204				●	.3125	.094	.0156	.134	S	10°
	CPMX2.51.52	CPMT080208				●	.3125	.094	.0313	.134	S	10°
	CPMX320.5	CPMT090302				●	.375	.125	.0078	.1732	S	10°
	CPMX321	CPMT090304				●	.375	.125	.0156	.1732	S	10°
	CPMX322	CPMT090308				●	.375	.125	.0313	.1732	S	10°
NF Tip	NF-CPMX21.51	NF-CPMT060204			●	●	.250	.094	.0156	.110	S	10°
	NF-CPMX21.52	NF-CPMT060208			●	●	.250	.094	.0313	.110	S	10°
	NF-CPMX32.51	NF-CPMT09T304			●	●	.375	.156	.0156	.1732	S	10°
	NF-CPMX32.52	NF-CPMT09T308			●	●	.375	.156	.0313	.1732	S	10°
	NF-CPMX320.5	NF-CPMT090302			●	●	.375	.125	.0078	.1732	S	10°
	NF-CPMX321	NF-CPMT090304			●	●	.375	.125	.0156	.1732	S	10°
	NF-CPMX322	NF-CPMT090308			●	●	.375	.125	.0313	.1732	S	10°

CPG



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	CPG422	CPGN120308				●	.500	.125	.0313	-	S	0°

CP

80° Diamond Type

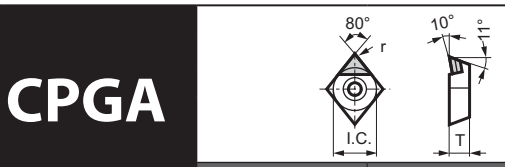
11° Relief

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

CPGA



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF Tip 	NF-CPGA321	NF-CPGW090304			●		.375	.125	.0156	.1732	S	10°
	NF-CPGA322	NF-CPGW090308			●		.375	.125	.0313	.1732	S	10°

CPEW

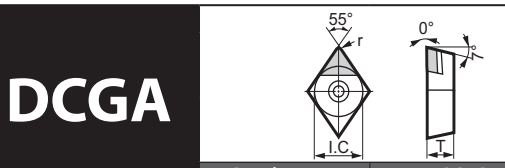
	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip 	CPEW32.52	CPEW09T308				●	.375	.156	.0313	.1732	S	10°

DC

55° Diamond Type

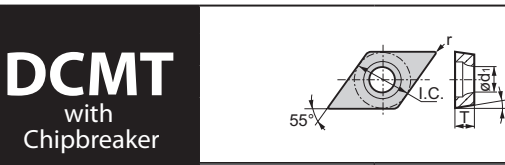
7° Relief

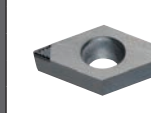
DCGA



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF Tip 	NF-DCGA32.50.5	NF-DCGT11T302			●		.375	.156	.0078	.1732	S	0°
	NF-DCGA32.51	NF-DCGT11T304			●		.375	.156	.0156	.1732	S	0°
	NF-DCGA32.52	NF-DCGT11T308			●		.375	.156	.0313	.1732	S	0°

DCMT with Chipbreaker



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA200	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
	NF-DCMT21.50.5GD	NF-DCMT070202N-GD				●		.250	.094	.0078	.107	S	0°
	NF-DCMT21.50.5LD	NF-DCMT070202N-LD				●		.250	.094	.0078	.107	S	0°
	NF-DCMT21.51GD	NF-DCMT070204N-GD				●		.250	.094	.0156	.107	S	0°
	NF-DCMT21.51LD	NF-DCMT070204N-LD				●		.250	.094	.0156	.107	S	0°
	NF-DCMT32.50.5GD	NF-DCMT11T302N-GD				●		.375	.156	.0078	.1732	S	0°
	NF-DCMT32.50.5LD	NF-DCMT11T302N-LD				●		.375	.156	.0078	.1732	S	0°
	NF-DCMT32.51GD	NF-DCMT11T304N-GD				●		.375	.156	.0156	.1732	S	0°
	NF-DCMT32.51LD	NF-DCMT11T304N-LD				●		.375	.156	.0156	.1732	S	0°
	NF-DCMT32.52GD	NF-DCMT11T308N-GD				●		.375	.156	.0312	.1732	S	0°
	NF-DCMT32.52LD	NF-DCMT11T308N-LD				●		.375	.156	.0312	.1732	S	0°

Polycrystalline Diamond (PCD) Inserts

See page 583 for running parameters.

DC

55° Diamond Type

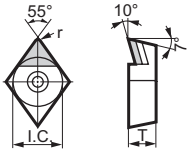
7° Relief

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

DCMX



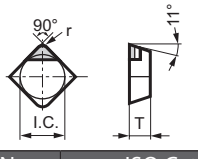
	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	DCMX21.50	DCMT070201				●	.250	.094	.0039	.110	S	10°
	DCMX21.50.5	DCMT070202				●	.250	.094	.0078	.110	S	10°
	DCMX21.51	DCMT070204				●	.250	.094	.0156	.110	S	10°
	DCMX32.50	DCMT11T301				●	.375	.156	.0039	.1732	S	10°
	DCMX32.50.5	DCMT11T302				●	.375	.156	.0078	.1732	S	10°
	DCMX32.51	DCMT11T304				●	.375	.156	.0156	.1732	S	10°
NF Tip	NF-DCMX21.50	NF-DCMT070201			●	●	.250	.094	.0039	.110	S	10°
	NF-DCMX21.50.5	NF-DCMT070202			●	●	.250	.094	.0078	.110	S	10°
	NF-DCMX21.51	NF-DCMT070204			●	●	.250	.094	.0156	.110	S	10°
	NF-DCMX32.50	NF-DCMT11T301			●	●	.375	.156	.0039	.1732	S	10°
	NF-DCMX32.50.5	NF-DCMT11T302			●	●	.375	.156	.0078	.1732	S	10°
	NF-DCMX32.51	NF-DCMT11T304			●	●	.375	.156	.0156	.1732	S	10°
	NF-DCMX32.52	NF-DCMT11T308			●	●	.375	.156	.0313	.1732	S	10°

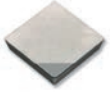
SP

Square Type

11° Relief

SPG





	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	SPG322	SPGN090308		●		●	.375	.125	.0313	-	S	0°
	SPG421	SPGN120304		●		●	.500	.125	.0156	-	S	0°
	SPG422	SPGN120308				●	.500	.125	.0313	-	S	0°
NF Tip	NF-SPG321	NF-SPGN090304			★	●	.375	.125	.0156	-	S	0°
	NF-SPG322	NF-SPGN090308			★	★	.375	.125	.0313	-	S	0°
	NF-SPG421	NF-SPGN120304			★	▲	.500	.125	.0156	-	S	0°
	NF-SPG422	NF-SPGN120308			★	●	.500	.125	.0313	-	S	0°

TB

60° Triangle Type

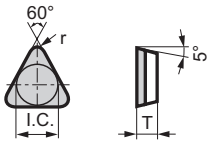
5° Relief

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

TBGE



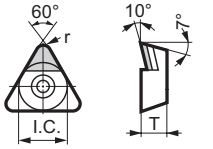
	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Full Top	TBGE520.5B	TBGE060102BSN		●		●	.156	.0625	.0078	-	S	0°
	TBGE521B	TBGE060104BSN		●		●	.156	.0625	.0156	-	S	0°
	TBGE522B	TBGE060108BSN				●	.156	.0625	.0313	-	S	0°
NF Tip	NF-TBGE520.5	NF-TBGN060102			●	●	.156	.0625	.0078	-	S	0°
	NF-TBGE521	NF-TBGN060104			★	★	.156	.0625	.0156	-	S	0°

TC

60° Triangle Type

7° Relief

TCMX



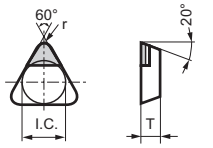
	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	TCMX1.81.50.5	TCMT090202				●	.219	.094	.0078	.110	S	10°
	TCMX1.81.51	TCMT090204				●	.219	.094	.0156	.110	S	10°
	TCMX21.50	TCMT110201				●	.250	.094	.0039	.110	S	10°
	TCMX21.50.5	TCMT110202				▲	.250	.094	.0078	.110	S	10°
	TCMX21.51	TCMT110204				●	.250	.094	.0156	.110	S	10°
NF Tip	NF-TCMX1.81.50.5	NF-TCMT090202			●	▲	.219	.094	.0078	.098	S	10°
	NF-TCMX1.81.51	NF-TCMT090204			●	●	.219	.094	.0156	.098	S	10°
	NF-TCMX21.50	NF-TCMT110201			●	▲	.250	.094	.0039	.110	S	10°
	NF-TCMX21.50.5	NF-TCMT110202			●	●	.250	.094	.0078	.110	S	10°
	NF-TCMX21.51	NF-TCMT110204			●	●	.250	.094	.0156	.110	S	10°

TE

60° Triangle Type

20° Relief

TEGN



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	TEGN321	TEGN160304				★	.375	.125	.0156	-	S	0°

Polycrystalline Diamond (PCD) Inserts

See page 583 for running parameters.

TP

60° Triangle Type

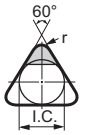
11° Relief

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

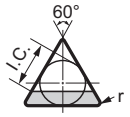
● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

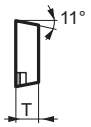
TPG



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA200	DA1000	DA2200	Dimensions Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	TPG221	TPGN110304		●	★		●	.250	.125	.0156	-	S	0°
	TPG222	TPGN110308		●	●		●	.250	.125	.0313	-	S	0°
	TPG321	TPGN160304		●	●		●	.375	.125	.0156	-	S	0°
	TPG322	TPGN160308		●	▲		●	.375	.125	.0313	-	S	0°
	TPG323	TPGN160312	●		●		●	.375	.125	.0469	-	S	0°
	TPG431	TPGN220404			▲		●	.500	.1875	.0156	-	S	0°
	TPG432	TPGN220408			●		●	.500	.1875	.0313	-	S	0°
NF Tip	NF-TPG1.81.51	NF-TPGN090204					●	.219	.094	.0156	-	S	0°
	NF-TPG220.5	NF-TPGN110302				●		.250	.125	.0078	-	S	0°
	NF-TPG221	NF-TPGN110304				●	●	.250	.125	.0156	-	S	0°
	NF-TPG222	NF-TPGN110308				●	●	.250	.125	.0313	-	S	0°
	NF-TPG320.5	NF-TPGN160302				●	●	.375	.125	.0078	-	S	0°
	NF-TPG321	NF-TPGN160304				●	●	.375	.125	.0156	-	S	0°
	NF-TPG322	NF-TPGN160308				●	●	.375	.125	.0313	-	S	0°

TPG-P





	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Dimensions Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF Tip	NF-TPG221P	NF-TPGN110304P			★	★	.250	.125	.0156	-	S	0°
	NF-TPG222P	NF-TPGN110308P			★	★	.250	.125	.0313	-	S	0°
	NF-TPG321P	NF-TPGN160304P			★	★	.375	.125	.0156	-	S	0°

TP

60° Triangle Type

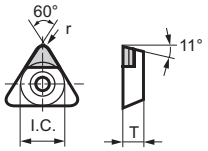
11° Relief

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

TPGA TPGD



		Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA200	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip		TPGA220	TPGW110301					●	.250	.125	.0039	.130	S	0°
		TPGA220.5	TPGW110302					●	.250	.125	.0078	.130	S	0°
		TPGA221	TPGW110304		●			●	.250	.125	.0156	.130	S	0°
		TPGA222	TPGW110308		★			●	.250	.125	.0313	.130	S	0°
		TPGA331	TPGW160404		●	▲		●	.375	.1875	.0156	.1693	S	0°
		TPGA332	TPGW160408		●			●	.375	.1875	.0313	.1693	S	0°
NF Tip		NF-TPGD630	NF-TPGW080201				★	★	.1875	.094	.0039	.090	S	0°
		NF-TPGD630.5	NF-TPGW080202				●	●	.1875	.094	.0078	.090	S	0°
		NF-TPGD631	NF-TPGW080204				●	●	.1875	.094	.0156	.090	S	0°
		NF-TPGA1.81.50.5	NF-TPGW090202				●	●	.219	.094	.0078	.102	S	0°
		NF-TPGA1.81.51	NF-TPGW090204				●	●	.219	.094	.0156	.102	S	0°
		NF-TPGA21.50	NF-TPGW110201				●	●	.250	.094	.0039	.107	S	0°
		NF-TPGA21.50.5	NF-TPGW110202				●	▲	.250	.094	.0078	.107	S	0°
		NF-TPGA21.51	NF-TPGW110204				●	●	.250	.094	.0156	.107	S	0°
		NF-TPGA220.5	NF-TPGW110302				●	●	.250	.125	.0078	.130	S	0°
		NF-TPGA221	NF-TPGW110304				●	●	.250	.125	.0156	.130	S	0°
		NF-TPGA222	NF-TPGW110308				●	●	.250	.125	.0313	.130	S	0°
		NF-TPGA320.5	NF-TPGW160302				●	●	.375	.125	.0078	.1693	S	0°
		NF-TPGA321	NF-TPGW160304				●	●	.375	.125	.0156	.1693	S	0°
		NF-TPGA322	NF-TPGW160308				●	●	.375	.125	.0313	.1693	S	0°
		NF-TPGA330	NF-TPGW160401				★	●	.375	.1875	.0039	.1693	S	0°
		NF-TPGA330.5	NF-TPGW160402				●	●	.375	.1875	.0078	.1693	S	0°
		NF-TPGA331	NF-TPGW160404				●	●	.375	.1875	.0156	.1693	S	0°
		NF-TPGA332	NF-TPGW160408				●	●	.375	.1875	.0313	.1693	S	0°

Polycrystalline Diamond (PCD) Inserts

See page 583 for running parameters.

TP

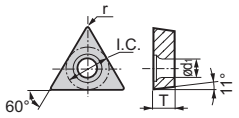
60° Triangle Type

11° Relief

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

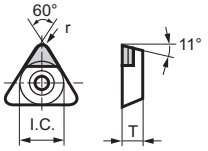
● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

TPMT with Chipbreaker



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA200	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF Tip	NF-TPMT630.5GD	NF-TPMT080202N-GD				●		.1875	.094	.0078	.090	S	0°
	NF-TPMT630.5LD	NF-TPMT080202N-LD				●		.1875	.094	.0078	.090	S	0°
	NF-TPMT631GD	NF-TPMT080204N-GD				●		.1875	.094	.0156	.090	S	0°
	NF-TPMT631LD	NF-TPMT080204N-LD				●		.1875	.094	.0156	.090	S	0°
	NF-TPMT1.81.50.5GD	NF-TPMT090202N-GD				●		.219	.094	.0078	.102	S	0°
	NF-TPMT1.81.50.5LD	NF-TPMT090202N-LD				●		.219	.094	.0078	.102	S	0°
	NF-TPMT1.81.51GD	NF-TPMT090204N-GD				●		.219	.094	.0156	.102	S	0°
	NF-TPMT1.81.51LD	NF-TPMT090204N-LD				●		.219	.094	.0156	.102	S	0°
	NF-TPMT21.50.5GD	NF-TPMT110202N-GD				●		.250	.094	.0078	.107	S	0°
	NF-TPMT21.50.5LD	NF-TPMT110202N-LD				●		.250	.094	.0078	.107	S	0°
	NF-TPMT21.51GD	NF-TPMT110204N-GD				●		.250	.094	.0156	.107	S	0°
	NF-TPMT21.51LD	NF-TPMT110204N-LD				●		.250	.094	.0156	.107	S	0°
	NF-TPMT220.5GD	NF-TPMT110302N-GD				●		.250	.125	.0078	.130	S	0°
	NF-TPMT220.5LD	NF-TPMT110302N-LD				●		.250	.125	.0078	.130	S	0°
	NF-TPMT221GD	NF-TPMT110304N-GD				●		.250	.125	.0156	.130	S	0°
	NF-TPMT221LD	NF-TPMT110304N-LD				●		.250	.125	.0156	.130	S	0°
	NF-TPMT222GD	NF-TPMT110308N-GD				●		.250	.125	.0312	.130	S	0°
	NF-TPMT222LD	NF-TPMT110308N-LD				●		.250	.125	.0312	.130	S	0°
	NF-TPMT330.5GD	NF-TPMT160402N-GD				●		.375	.1875	.0078	.1693	S	0°
	NF-TPMT330.5LD	NF-TPMT160402N-LD				●		.375	.1875	.0078	.1693	S	0°
	NF-TPMT331GD	NF-TPMT160404N-GD				●		.375	.1875	.0156	.1693	S	0°
	NF-TPMT331LD	NF-TPMT160404N-LD				●		.375	.1875	.0156	.1693	S	0°
	NF-TPMT332GD	NF-TPMT160408N-GD				●		.375	.1875	.0312	.1693	S	0°
	NF-TPMT332LD	NF-TPMT160408N-LD				●		.375	.1875	.0312	.1693	S	0°

TPMX



	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip	TPMX22V	TPMT110300				●	.250	.125	.0012	.130	S	0°
	TPMX220.5	TPMT110302				●	.250	.125	.0078	.130	S	0°
	TPMX221	TPMT110304				●	.250	.125	.0156	.130	S	0°
	TPMX222	TPMT110308				▲	.250	.125	.0313	.130	S	0°
NF Tip	NF-TPMX220	NF-TPMT110301			●	●	.250	.125	.0039	.130	S	0°
	NF-TPMX220.5	NF-TPMT110302			●	●	.250	.125	.0078	.130	S	0°
	NF-TPMX221	NF-TPMT110304			●	●	.250	.125	.0156	.130	S	0°
	NF-TPMX222	NF-TPMT110308			●	●	.250	.125	.0313	.130	S	0°

See page 583 for running parameters.

VC

35° Diamond Type

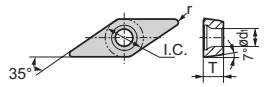
7° Relief

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

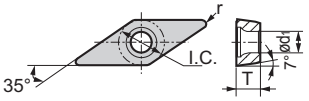
● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

VCMA



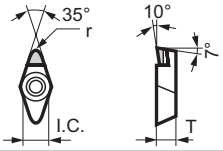
Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Dimensions Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip											
VCMA333	VCMW160412	▲			●	.375	.1875	.0469	.1732	S	0°
VCMA333WF	VCMW160412WF	●			●	.375	.1875	.0469	.1732	WF	0°
VCMA220520	VCMW220520				●	.500	.219	.3125	.1732	S	0°
NF Tip											
NF-VCMA332	NF-VCMW160408			●	●	.375	.1875	.0313	.1732	S	0°
NF-VCMA333	NF-VCMW160412			●	●	.375	.1875	.0469	.1732	S	0°
NF-VCMA333H	NF-VCMW160412H				●	.375	.1875	.0469	.1732	H	0°

VCMT with Chipbreaker



Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA200	DA1000	DA2200	Dimensions Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
NF Tip												
NF-VCMT220.5GD	NF-VCMT110302N-GD				●		.250	.125	.0078	.130	S	0°
NF-VCMT220.5LD	NF-VCMT110302N-LD				●		.250	.125	.0078	.130	S	0°
NF-VCMT221GD	NF-VCMT110304N-GD				●		.250	.125	.0156	.130	S	0°
NF-VCMT221LD	NF-VCMT110304N-LD				●		.250	.125	.0156	.130	S	0°
NF-VCMT331GD	NF-VCMT160404N-GD				●		.375	.1875	.0156	.1693	S	0°
NF-VCMT331LD	NF-VCMT160404N-LD				●		.375	.1875	.0156	.1693	S	0°
NF-VCMT332GD	NF-VCMT160408N-GD				●		.375	.1875	.0312	.1693	S	0°
NF-VCMT332LD	NF-VCMT160408N-LD				●		.375	.1875	.0312	.1693	S	0°
NF-VCMT333GD	NF-VCMT160412N-GD				●		.375	.1875	.0469	.1693	S	0°
NF-VCMT333LD	NF-VCMT160412N-LD				●		.375	.1875	.0469	.1693	S	0°

VCMX



Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Dimensions Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip											
VCMX333	VCMT160412				●	.375	.1875	.0469	.1732	S	10°
VCMX333WF	VCMT160412WF				●	.375	.1875	.0469	.1732	WF	10°
NF Tip											
NF-VCMX220	NF-VCMT110301			●	●	.250	.125	.0039	.134	S	10°
NF-VCMX220.5	NF-VCMT110302			●	●	.250	.125	.0788	.134	S	10°
NF-VCMX221	NF-VCMT110304			●	●	.250	.125	.0156	.134	S	10°
NF-VCMX331	NF-VCMT160404			●	●	.375	.1875	.0156	.1732	S	10°
NF-VCMX332	NF-VCMT160408			●	●	.375	.1875	.0313	.1732	S	10°
NF-VCMX333	NF-VCMT160412			●	●	.375	.1875	.0469	.1732	S	10°

Polycrystalline Diamond (PCD) Inserts

See page 583 for running parameters.

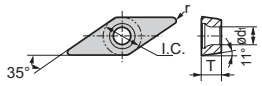
VP — 35° Diamond Type — 11° Relief

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017

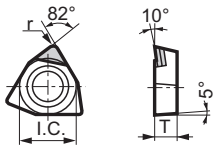
VPMA



Standard Tip	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
	VPMA443	VPMW220612				●	.500	.250	.0469	.214	S	0°
	VPMA443WF	VPMW220612WF				●	.500	.250	.0469	.214	WF	0°

WB — 80° Trigon Type — 5° Relief

WBMX



Standard Tip	Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
	WBMX520L	WBMT060101L				●	.156	.0625	.0039	.090	S	10°
	WBMX520.5L	WBMT060102L				●	.156	.0625	.0078	.090	S	10°
	WBMX521L	WBMT060104L				●	.156	.0625	.0156	.090	S	10°

MDE

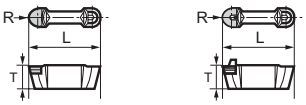
Dog Bone Type

for GDE Style Toolholders

EDGE PREPARATIONS:

S Standard
H Honed
K Reinforced
AW Chipbreaker Stud
WF High Luster "Mirror-Like" Finish

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item
○ Available 1st Quarter 2017



MDE		Catalog No.	ISO Cat. No.	Stock N DA90	DA150	DA1000	DA2200	Inscribed Circle	Thickness	Nose Radius	Hole Diameter	Edge Preparation	Rake Angle
Standard Tip		MDE3RN7	-				●	-	.335	.118	-	H	-7°
		MDE3RN7AW	-				●	-	.335	.118	-	AW	-7°
		MDE3RN7WF	-				▲	-	.335	.118	-	WF	-7°
		MDE3RN7AWWF	-				●	-	.335	.118	-	AW/WF	-7°
	 AW	MDE4RN7	-				●	-	.335	.157	-	H	-7°
		MDE4RN7AW	-				●	-	.335	.157	-	AW	-7°
		MDE4RN7WF	-				●	-	.335	.157	-	WF	-7°
		MDE4RN7AWWF	-				▲	-	.335	.157	-	AW/WF	-7°

Note: MDE inserts are held at a +7° rake angle by the GDER toolholder

1-800-950-5202

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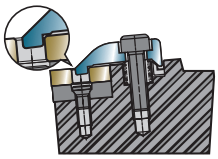
TOOLHOLDERS

Pages 197-216

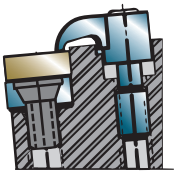
Toolholder Nomenclature

M — Insert Holding

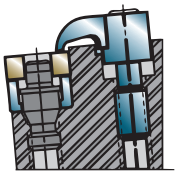
D Clamp Mechanism



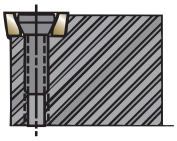
C Clamp



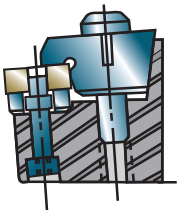
M Clamp and Lock Pin



S Screw Only



W Wedge Clamp*



*Sumitomo Standard Only

W — Insert Shape

C Diamond — 80°

D Diamond — 55°

R Round — 360°

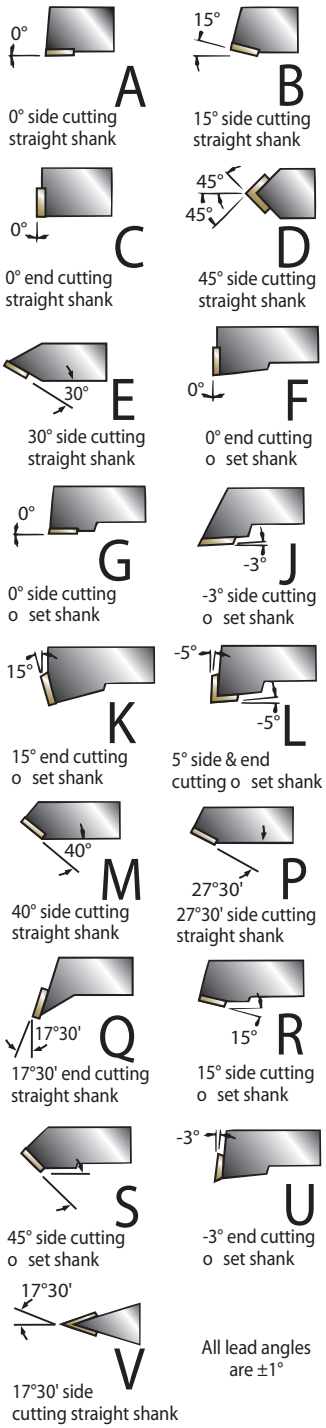
S Square — 90°

T Triangle — 60°

V Diamond — 35°

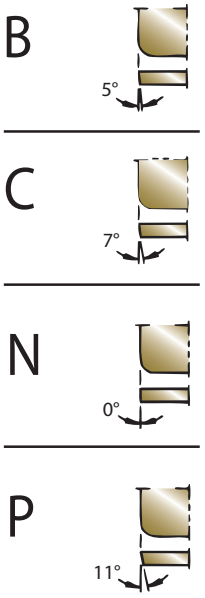
W Trigon — 80°

L — Toolholder Style



All lead angles are ±1°

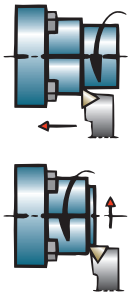
N — Insert Relief Angle



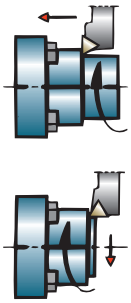
R

Hand

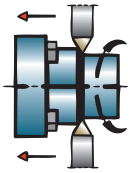
R
Right Hand



L
Left Hand

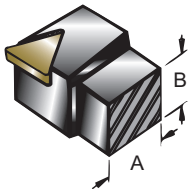


N
Neutral Hand



16

Shank Size



Square Shanks

This indicates the A & B dimensions in sixteenths (1/16).

examples:
12 = 12/16 =3/4 sq.
16 = 16/16 =1.0 sq.
20 = 20/16 =1-1/4 sq.

Rectangle Shanks

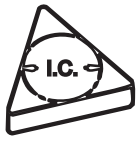
The first digit indicates the "A" dimension in eighths (1/8).

The second digit indicates the "B" dimension in quarters (1/4).

examples:
86 = A x B
1.0 x 1-1/2
85 = A x B
1.0 x 1-1/4

4

Insert Size



For equal sided inserts this indicates the inscribed circle (I.C.) in eighths (1/8)

examples,

6 = 6/8 =
3/4" I.C.

4 = 4/8 =
1/2" I.C.

2.5 = 2.5/8 =
5/16 I.C.

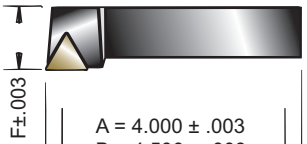
For rectangles and parallelograms two digits are necessary.

1st digit =
number of eighths (1/8) in width.

2nd digit =
number of quarters (1/4) in length.

D

Qualifications



A = 4.000 ± .003
B = 4.500 ± .003
C = 5.000 ± .003
D = 6.000 ± .003
E = 7.000 ± .003
J = 3.500 ± .003*
V = 3.500 ± .003*

*Sumitomo standard only

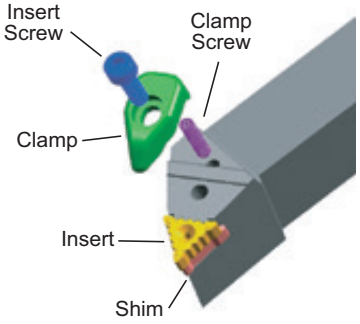
Master Gage Insert Nose Radius Chart for Qualified Holders

Insert I.C.	Nose Radius
1/4, 5/16	.015
3/8, 1/2	.031
5/8, 3/4	.047
1.0	.062

Overview – Insert Holding Methods

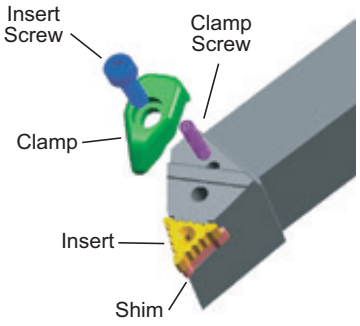
T-Rex Toolholders

- Available in the -LU, -GU and -SU chipbreakers with grades T2000Z, AC700G, AC8025P, AC820P, AC830P, AC610M, and AC630M
- Rigid clamping system ensures accurate insert indexing
- Up to 2.5mm (0.100") depth of cut
- **Six** 55° cutting edges versus the standard **four** edges of a DNMG insert



D Type Toolholders

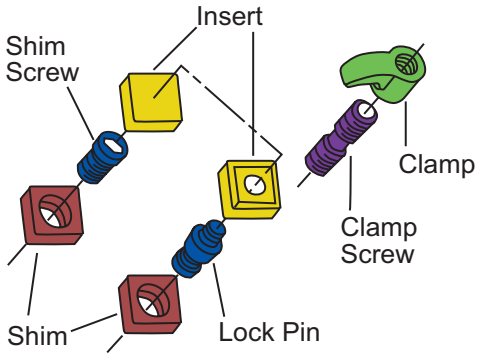
- Stable clamp improves the fracture resistance of the insert
- Better machined workpiece accuracy with improved insert indexing precision
- Easy 1-step insert indexing



ANSI Standard Combination Toolholders

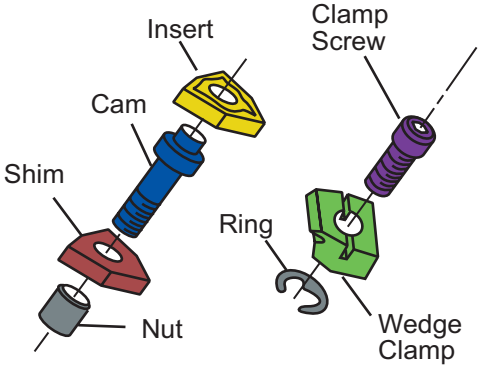
- A multiple-clamp and lock pin design for NC/CNC machines
- Maximum insert locking power with industry-standard NL lock pin mechanism
- Two different assembly options:

1. for unground P-Type inserts
2. for conventional precision-ground or utility-ground inserts with chipbreaker plates



Wedge Clamp Toolholders

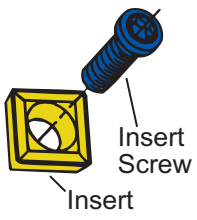
- Unique Sumitomo Standard multiple lock design.
- "Wedge Clamp" holding method also acts as pocket wall for Industry standard WNMG Inserts.
- Can be used for -5° end cutting and -5° side cutting applications.
- Available in 3/4″ to 1-1/4″ square shank sizes.

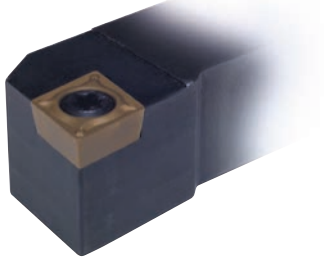


Screw-On Toolholders

- Qualified holders that conform to ISO-ANSI standards and utilize TORX* holding screws
- Shank sizes ranging from 3/8" to 1-1/2″
- Styles available for inserts with 5°, 7°, 11° clearance angles and advanced chip groove geometries

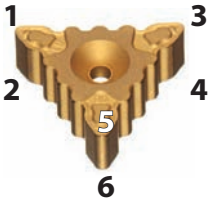
*TORX is a registered trademark of CamCar Division of Textron, Inc.





Replace your costly DNMG applications with the economical T-REX System!

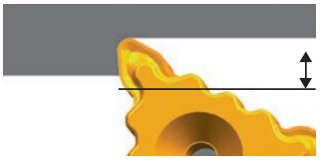
55° DNMG



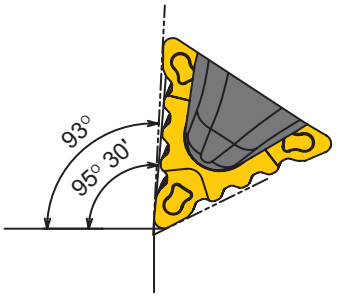
55° T-REX

Features & Benefits

- Available in the -LU, -GU and -SU chipbreakers with grades T2000Z, AC700G, AC8025P, AC820P, AC830P, AC610M, and AC630M
- Rigid clamping system ensures accurate insert indexing
- Up to 2.5mm (0.100") depth of cut
- **Six** 55° cutting edges versus the standard **four** edges of a DNMG insert



2.5mm (0.100")
Maximum
Depth of cut



Grade Selection

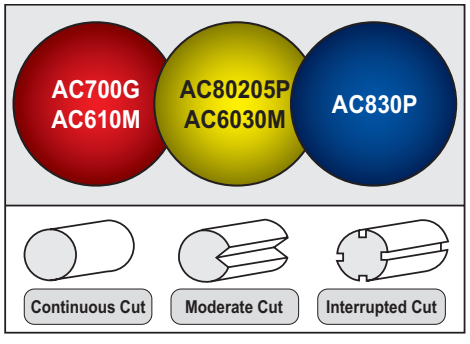
Grade	Speed (SFM)		
	Steels	Stainless Steels	Gray Cast Irons
T2000Z	700 - 1400	600 - 900	–
AC700G	400 - 900	–	600 - 1200
AC610M	500 - 1000	400 - 700	–
AC6030M	200 - 800	300 - 700	–
AC810P	600 -1200	–	–
AC8025P	300 - 800	–	–
AC830P	200 - 700	–	–

Chipbreaker Selection

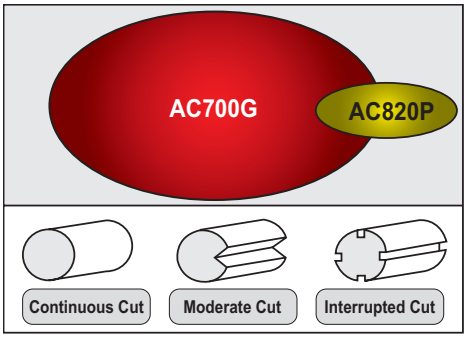
Grade	Applications
-LU	Finish to medium cutting
-SU	Finish to medium cutting
-GU	General purpose cutting

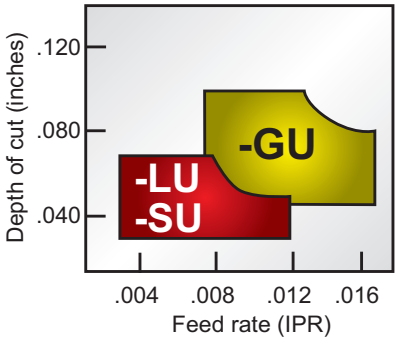
-LU -SU -GU

Steels and Stainless Steels



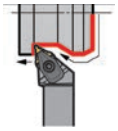
Gray and Ductile Cast Irons

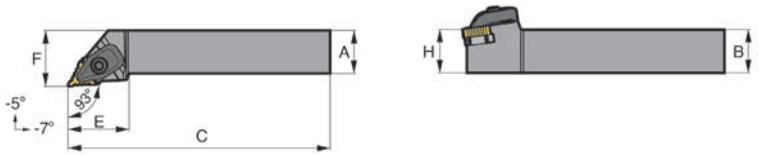




T-REX Toolholder

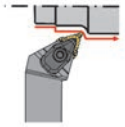
DTR-C Series

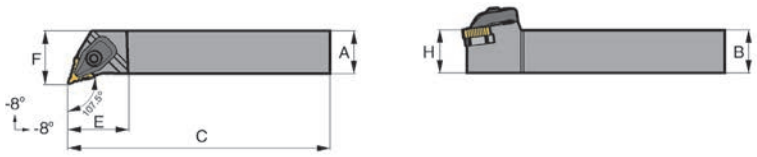




Sumitomo Cat. No.		Dimensions					
Right Hand	Left Hand	A	B	C	E	F	H
DTR55CR123B	DTR55CL123B	0.750″	0.750″	4.500″	1.375″	1.000″	0.750″
DTR55CR163D	DTR55CL163D	1.000″	1.000″	6.000″	1.375″	1.250″	1.000″
DTR55CR2525M17	DTR55CL2525M17	25.0mm	25.0mm	150.0mm	35.0mm	32.0mm	25.0mm

DTR-Q Series

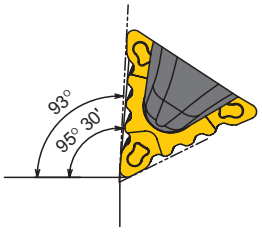




Sumitomo Cat. No.		Dimensions (Inch)					
Right Hand	Left Hand	A	B	C	E	F	H
DTR55QR163D	DTR55QL163D	1.000″	1.000″	6.000″	1.378″	1.260″	1.000″

T-REX Inserts

2.5mm (0.100″)
Maximum
Depth of cut



Please refer to page 70 for T-REX Inserts

Hardware



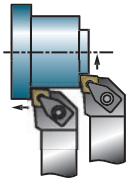


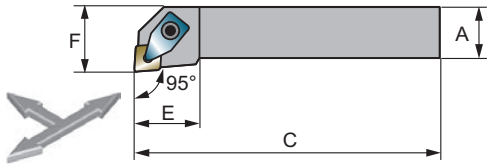


Clamp	Spring	Clamp Screw	Shim	Shim Screw	Wrench	Torx Wrench
TRCP3	SSP420	BX0520	TRW5505	BFTX0307N	TSW040	TRX10

Torque specifications for BX0520 clamp screw = 31-39 inch/lbs.

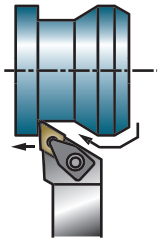
DCLN 95°

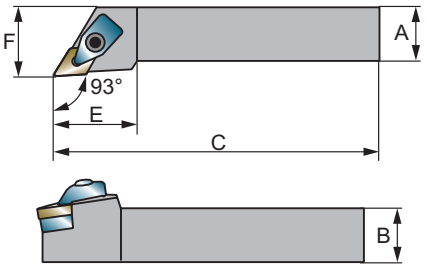




Catalog Number			A	B	C	E	F						
Right	Left	Applicable Insert						Clamp	Spring	Clamp Screw	Shim	Shim Screw	Wrench
DCLNR124B	DCLNL124B	CN_ _ 43	.750	.750	4.50	1.250	1.000	CL-2312	SP-4295	CLB-1907	ICSN433	ST-1160	LH040
DCLNR164D	DCLNL164D	CN_ _ 43	1.000	1.000	6.00	1.250	1.250						
DCLNR204D	DCLNL204D	CN_ _ 43	1.250	1.250	6.00	1.250	1.500						
DCLNR205D	DCLNL205D	CN_ _ 54	1.250	1.250	6.00	1.375	1.500	CL-2318			ICSN533	ST-1180	
DCLNR245E	DCLNL245E	CN_ _ 54	1.500	1.500	7.00	1.375	2.000						

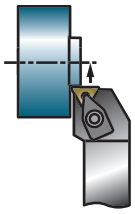
DDJ Series

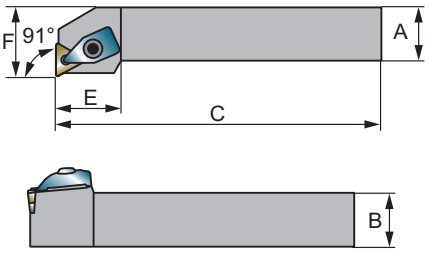




Sumitomo Cat. No.			A	B	C	E	F						
Right Hand	Left Hand	Applicable Insert						Clamp	Spring	Clamp Screw	Shim	Shim Screw	Wrench
DDJNR124B	DDJNL124B	DNMG43-	.750	.750	4.500	1.535	1.000	CL-2312	SP-4295	CLB-1907	DNS1504	ST-1160	LH040
DDJNR164D	DDJNL164D	DNMG43-	1.000	1.000	6.000	1.535	1.250	CL-2312	SP-4295	CLB-1907	DNS1504	ST-1160	LH040

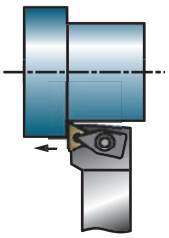
DTF Series

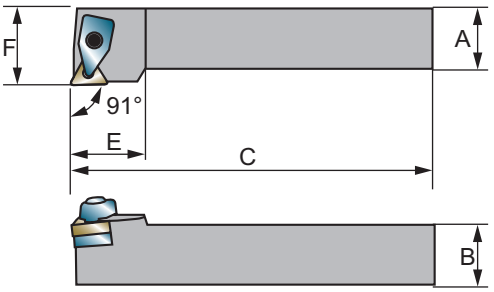




Sumitomo Cat. No.			A	B	C	E	F						
Right Hand	Left Hand	Applicable Insert						Clamp	Spring	Clamp Screw	Shim	Shim Screw	Wrench
DTFNR123B	DTFNL123B	TNMG33-	.750	.750	4.500	1.000	1.000	CL-2308	SCP-1	CLB-1915	ITSN323	ST-1150	LH025
DTFNR163D	DTFNL163D	TNMG33-	1.000	1.000	6.000	1.000	1.250	CL-2308	SCP-1	CLB-1915	ITSN323	ST-1150	LH025

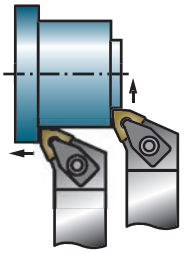
DTG Series

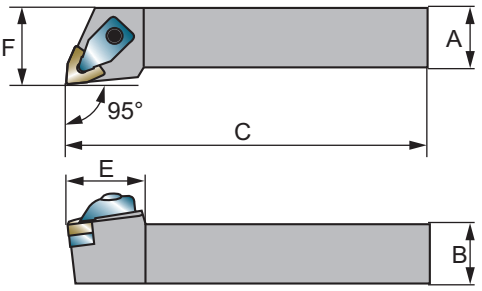




Sumitomo Cat. No.			A	B	C	E	F						
Right Hand	Left Hand	Applicable Insert						Clamp	Spring	Clamp Screw	Shim	Shim Screw	Wrench
DTGNR123B	DTGNL123B	TNMG33-	.750	.750	4.500	1.102	1.000	CL-2308	CLB-1915	CLB-1915	ITSN323	ST-1150	LH025
DTGNR163D	DTGNL163D	TNMG33-	1.000	1.000	6.000	1.102	1.250	CL-2308	CLB-1915	CLB-1915	ITSN323	ST-1150	LH025

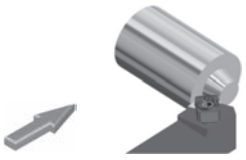
DWL Series

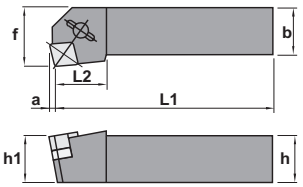




Sumitomo Cat. No.			A	B	C	E	F							
Right Hand	Left Hand	Applicable Insert						Clamp	Spring	Clamp Screw	Shim	Shim Screw	Wrench	Wrench
DWLNR123B	DWLNL123B	WNMG33-	.750	.750	4.500	1.000	1.000	SCP-4			IWSN322	S-34	TRX15	LH020
DWLNR124B	DWLNL124B	WNMG43-	.750	.750	4.500	1.250	1.000	CL-2312	SP-4295	CLB-1907	IWSN433	ST-1160	-	LH040
DWLNR163D	DWLNL163D	WNMG33-	1.000	1.000	6.000	1.000	1.250	SCP-4			IWSN322	S-34	TRX15	LH020
DWLNR164D	DWLNL164D	WNMG43-	1.000	1.000	6.000	1.250	1.250	CL-2312	SP-4295	CLB-1907	IWSN433	ST-1160	-	LH040

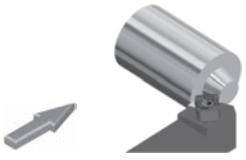
CCKN-CD

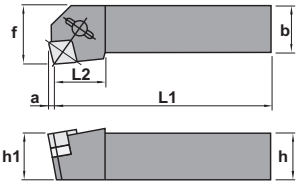




Catalog Number			b	h	h_1	L_1	L_2	f	a					
Right	Left	Applicable Insert								Shim	Screw	Chipbreaker	Clamp	Wrench
CCKNR164CD	CCKNL164CD	CNG45_ CNMN45_	1.000	1.000	1.000	6.000	1.338	1.250	0.122	ICSN434	BXD06135	CBCR45	CLCD45	LH040
CCKNR204CD	CCKNL204CD		1.250	1.250	1.250			1.500						

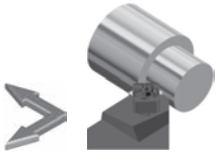
CCKN-CX

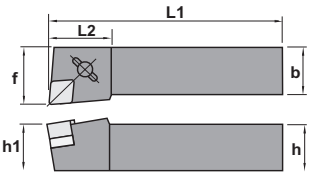




Catalog Number			b	h	h_1	L_1	L_2	f	a					
Right	Left	Applicable Insert								Shim	Screw	Chipbreaker	Clamp	Wrench
CCKNR164CX	CCKNL164CX	CNGX45_	1.000	1.000	1.000	6.000	1.338	1.250	0.122	ICSN434	BXD06135	CBCR45	CLCX45	LH040
CCKNR204CX	CCKNL204CX		1.250	1.250	1.250			1.500						

CCLN-CD



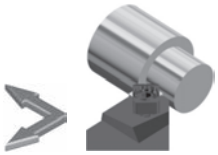
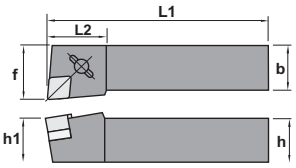


Catalog Number			b	h	h_1	L_1	L_2	f					
Right	Left	Applicable Insert							Shim	Screw	Chipbreaker	Clamp	Wrench
CCLNR164CD	CCLNL164CD	CNG45_ CNMN45_	1.000	1.000	1.000	6.000	1.338	1.250	ICSN434	BXD06135	CBCR45	CLCD45	LH040
CCLNR204CD	CCLNL204CD		1.250	1.250	1.250			1.500					

ANSI Combination Toolholders

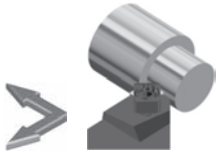
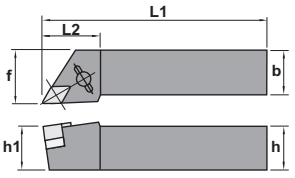
Toolholders for Ceramic Inserts

CCLN-CX

Catalog Number			b	h	h_1	L_1	L_2	f					
Right	Left	Applicable Inserts							Shim	Screw	Chipbreaker	Clamp	Wrench
CCLNR164CX	CCLNL164CX	CNGX45_	1.000	1.000	1.000	6.000	1.338	1.250	ICSN434	BXD06135	CBCR45	CLCX44	LH040
CCKNR204CX	CCLNL204CX		1.250	1.250	1.250			1.500					

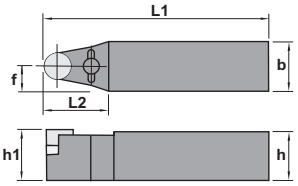
CDJN-CX

Catalog Number			b	h	h_1	L_1	L_2	f					
Right	Left	Applicable Inserts							Shim	Screw	Chipbreaker	Clamp	Wrench
CDJNR164CX	CDJNL164CX	DNGX45_	1.000	1.000	1.000	6.000	1.496	1.250	IDSN434	BXD06135	-	CLCXD45	LH040
CDJNR204CX	CDJNL204CX		1.250	1.250	1.250			1.500					

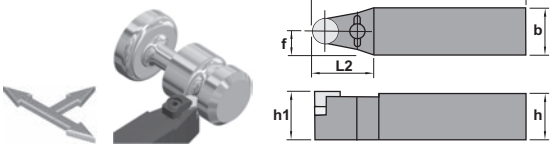
CRDC-CD





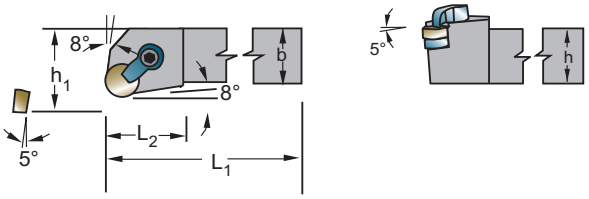
Catalog Number		b	h	h_1	L_1	L_2	f						
Neutral	Applicable Insert							Seat Screw	Seat	Clamp	Clamp Screw	Wrench	Wrench
CRDCN163CD	RCGX35	1.000	1.000	1.000	6.000	1.420	0.500	BFTX0315	IRSC35	CLCDRC34	BFTX0520	TRX15	LH030
CRDCN203CD		1.250	1.250	1.250			0.625						
CRDCN164CD	RCGX45	1.000	1.000	1.000		1.300	0.500	BFTX0520	IRSC45	CLCDRC45	BFTX0309	TRX20	
CRDCN204CD		1.250	1.250	1.250			0.625						

CRDN-CD



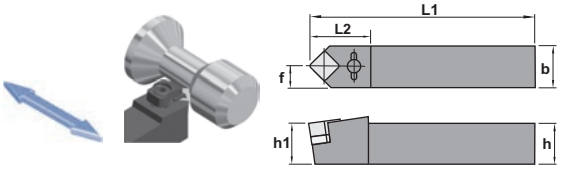
Catalog Number			b	h	h_1	L_1	L_2	f					
Neutral	-	Applicable Insert							Shim	Screw	Chipbreaker	Clamp	Wrench
CRDNN164CD	-	RNG45	1.000	1.000	1.000	6.000	1.500	0.500	IRSN43	BXD06135	CBCR45	CLCD45	LH040
CRDNN205CD	-	RNG55	1.250	1.250	1.250		1.417	0.625	IRSN53	BXD08135			
CRDNN245CD	-	RNG55	1.500	1.500	1.500			0.750					

CRGN-CD



Catalog Number			b	h	h_1	L_1	L_2	f					
Right	Left	Applicable Insert							Shim	Screw	Chipbreaker	Clamp	Wrench
CRGNR124CD	-	RNG45	.750	.750	.750	4.500	1.250	1.000	IRSN-43	BXD06135	CBCR45	CLCDRN55	LH040
CRGNR164CD	CRGNL164CD		1.000	1.000	1.000	6.000	1.338	1.250					
CRGNR204CD	CRGNR204CD		1.250	1.250	1.250			1.500					
CRGNR165CD	CRGNL165CD	RNG55	1.000	1.000	1.000			1.250	IRSN53	BXD08135			
CRGNR205CD	CRGNL205CD		1.250	1.250	1.250			1.500					

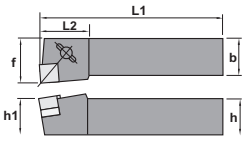
CSDN-CX



Catalog Number		b	h	h_1	L_1	L_2	f					
Right	Applicable Insert							Shim	Screw	Chipbreaker	Clamp	Wrench
CSDNN164CX	SNMX45	1.000	1.000	1.000	6.000	1.653	0.500	ISSN434	BXD06135	-	CLCX44	LH040
CSDNN204CX		1.250	1.250	1.250			0.625					

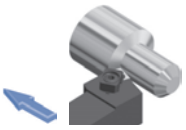
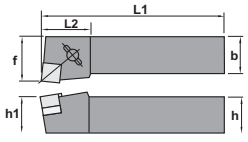
CSKN-CX





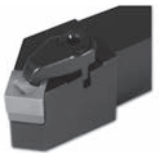
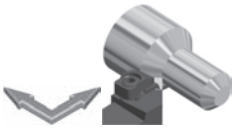
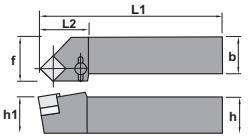
Catalog Number			b	h	h_1	L_1	L_2	f					
Right	Left	Applicable Insert							Shim	Screw	Chipbreaker	Clamp	Wrench
CSKNR164CX	CSKNL164CX	SNMX45	1.000	1.000	1.000	6.000	1.338	1.250	ISSN434	BXD06135	-	CLCX44	LH040
CSKNR204CX	CSKNL204CX		1.250	1.250	1.250								

CSRN-CX

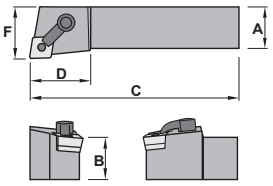
Catalog Number			b	h	h_1	L_1	L_2	f					
Right	Left	Applicable Insert							Shim	Screw	Chipbreaker	Clamp	Wrench
CSRNR164CX	CSRNL164CX	SNMX45	1.000	1.000	1.000	6.000	1.338	1.130	ISSN434	BXD06135	-	CLCX44	LH040
CSRNR204CX	CSRNL204CX		1.250	1.250	1.250			1.379					

CSSN-CX

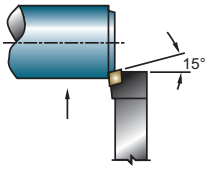
Catalog Number			b	h	h_1	L_1	L_2	f					
Right	Left	Applicable Insert							Shim	Screw	Chipbreaker	Clamp	Wrench
CSSNR164CX	CSSNL164CX	SNMX45	1.000	1.000	1.000	6.000	1.653	1.250	ISSN434	BXD06135	-	CLCX44	LH040
CSSNR204CX	CSSNL204CX		1.250	1.250	1.250			1.500					

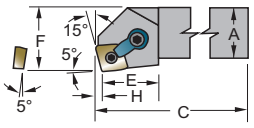
MCGN 90°



Catalog Number		Applicable Insert	A	B	C	D	F	Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
Right	Left													
MCGNR124B	MCGNL124B	CN_ _ 43	.750	.750	4.50	1.120	1.000	ICSN433	NL46	CL-20	XNS48	S46	LH3/32	LH030
MCGNR164D	MCGNL164D	CN_ _ 43	1.000	1.000	6.00	1.120	1.250							
MCGNR204D	MCGNL204D	CN_ _ 43	1.250	1.250	6.00	1.120	1.500							
MCGNL165D	MCGNR165D	CN_ _ 54	1.00	1.000	6.00	1.500	1.250	ICSN533	NL58	CL-12	XNS510	S58	LH030	LH040
MCGNR205D	MCGNL205D	CN_ _ 54	1.250	1.250	6.00	1.500	1.500							
MCGNR206D	MCGNL206D	CN_ _ 64	1.250	1.250	6.00	1.650	1.500	ICSN633	NL68				-	

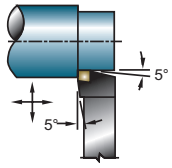
MCK Series

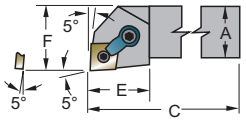




Sumitomo Cat. No.		Applicable Insert	A	B	C	E	F	H	Shim	Lock Pin	Clamp	Clamp Screw	OPTIONAL HARDWARE Shim Screw	Wrench	Wrench
Right Hand	Left Hand														
MCKNR124B	MCKNL124B	CNMG43-	.750	.750	4.500	1.20	1.000	.123	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCKNR164D	MCKNL164D	CNMG43-	1.000	1.000	6.000	1.20	1.250	.123	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCKNR206D	MCKNL206D	CNMG64-	1.250	1.250	6.000	1.47	1.500	.184	ICSN633	NL68	CL12	XNS510	S68	LH040	LH040

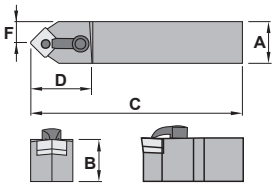
MCL Series





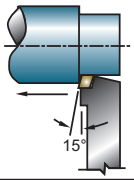
Sumitomo Cat. No.		Applicable Insert	A	B	C	E	F	Shim	Lock Pin	Clamp	Clamp Screw	OPTIONAL HARDWARE Shim Screw	Wrench	Wrench
Right Hand	Left Hand													
MCLNR083A	MCLNL083A	CNMG32-	.500	.500	4.000	1.000	.750	N/A	NL-33	CL-6	XNS-37	–	–	–
MCLNR103A	MCLNL103A	CNMG32-	.625	.625	4.000	1.000	.875	N/A	NL-33	CL-6	XNS-37	–	–	–
MCLNR123B	MCLNL123B	CNMG32-	.750	.750	4.500	1.000	1.000	ICSN-322	NL-34L	CL-6	XNS-37	S-34	–	–
MCLNR124B	MCLNL124B	CNMG43-	.750	.750	4.500	1.130	1.000	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCLNR164C	MCLNL164C	CNMG43-	1.000	1.000	5.000	1.250	1.250	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCLNR164D	MCLNL164D	CNMG43-	1.000	1.000	6.000	1.130	1.250	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCLNR165D	MCLNL165D	CNMG54-	1.000	1.000	6.000	1.470	1.250	ICSN533	NL58	CL12	XNS510	S58	LH040	LH030
MCLNR166D	MCLNL166D	CNMG64-	1.000	1.000	6.000	1.510	1.250	ICSN633	NL68	CL12	XNS510	S68	LH9/64	LH040
MCLNR204D	MCLNL204D	CNMG43-	1.250	1.250	6.000	1.130	1.500	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCLNR205D	MCLNL205D	CNMG54-	1.250	1.250	6.000	1.470	1.500	ICSN533	NL58	CL12	XNS510	S58	LH040	LH030
MCLNR206D	MCLNL206D	CNMG64-	1.250	1.250	6.000	1.510	1.500	ICSN633	NL68	CL12	XNS510	S68	LH9/64	LH040
MCLNR244D	MCLNL244D	CNMG43-	1.500	1.500	6.000	1.250	2.000	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCLNR245E	MCLNL245E	CNMG54-	1.500	1.500	7.000	1.375	2.000	ICSN533	NL58	CL12	XNS510	S58	LH040	LH030
MCLNR246E	MCLNL246E	CNMG64-	1.500	1.500	7.000	1.500	2.000	ICSN633	NL68	CL12	XNS510	S68	LH9/64	LH040

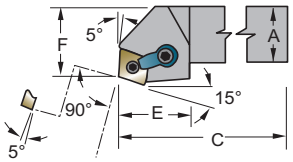
MCMN 50°

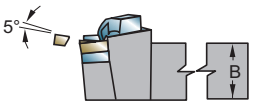


Catalog Number		A	B	C	D							
Nuetral	Applicable Insert					Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MCMNN124B	CN_ _ 43	.750	.750	4.50	1.280	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCMNN164D	CN_ _ 43	1.000	1.000	6.00	1.280							
MCMNN204D	CN_ _ 43	1.250	1.250	6.00	1.390							
MCMNN165D	CN_ _ 54	1.00	1.000	6.00	1.750	ICSN533	NL58	CL12	XNS510	S58	LH030	LH040
MCMNN205D	CN_ _ 54	1.250	1.250	6.00	1.610						-	

MCR Series

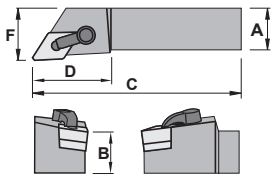






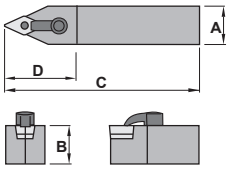
Sumitomo Cat. No.			A	B	C	E	F					OPTIONAL HARDWARE		
Right Hand	Left Hand	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MCRNR124B	MCRNL124B	CNMG43-	.750	.750	4.500	1.180	.750	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCRNR164D	MCRNL164D	CNMG43-	1.000	1.000	6.000	1.180	1.250	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCRNR204D	MCRNL204D	CNMG43-	1.250	1.250	6.000	1.180	1.500	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MCRNR246E	MCRNL246E	CNMG64-	1.500	1.500	7.000	1.500	2.000	ICSN633	NL68	CL12	XNS510	S68	LH9/64	LH040

MDJN 93°



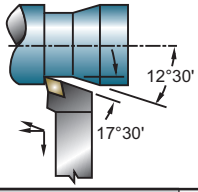
Catalog Number			A	B	C	D	F							
Right	Left	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MDJNR083A	MDJNL083A	DN_ _ 33	.500	.500	4.00	1.062	.625	–	–	CL7	XNS36	–	LH3/32	LH020
MDJNR103B	MDJNL103B	DN_ _ 33	.625	.625	4.50	1.250	.875							
MDJNR123B	MDJNL123B	DN_ _ 33	.750	.750	4.50	1.250	1.000							
MDJNR163D	MDJNL163D	DN_ _ 33	1.000	1.000	6.00	1.250	1.250							
MDJNR124B	MDJNL124B	DN_ _ 43	.750	.750	4.50	1.500	1.000	IDSN433	NL46	CL20	XNS48	S46		LH030
MDJNR164C	MDJNL164C	DN_ _ 43	1.000	1.000	5.00	1.250	1.250							
MDJNR164D	MDJNL164D	DN_ _ 43	1.000	1.000	6.00	1.500	1.250							
MDJNR204D	MDJNL204D	DN_ _ 43	1.250	1.250	6.00	1.500	1.500							

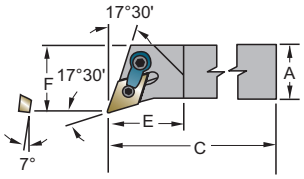
MDPN 62º 30'

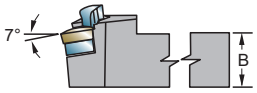


Catalog Number		A	B	C	D							
Nuetral	Applicable Insert					Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MDPNN123B	DN_ _ 33	.750	.750	4.50	1.620	-	NL34L	CL7	XNS36	-	LH3/32	LH020
MDPNN124B	DN_ _ 43	.750	.750	4.50	1.620	IDSN433	NL-46	CL-22	XNS48	S46		LH030
MDPNN164D	DN_ _ 43	1.00	1.00	6.00	1.620			CL20				
MDPNN204D	DN_ _ 43	1.250	1.250	6.00	1.620							

MDQ Series

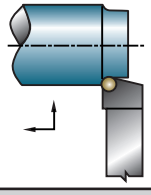


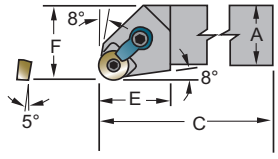


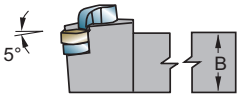


Sumitomo Cat. No.			A	B	C	E	F	OPTIONAL HARDWARE						
Right Hand	Left Hand	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MDQNR124B	MDQNL124B	DNMG43-	.750	.750	4.500	1.370	1.000	IDSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MDQNR164C	MDQNL164C	DNMG43-	1.000	1.000	5.000	1.370	1.250	IDSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MDQNR164D	MDQNL164D	DNMG43-	1.000	1.000	6.000	1.370	1.250	IDSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MDQNR204D	MDQNL204D	DNMG43-	1.250	1.250	6.000	1.370	1.500	IDSN433	NL46	CL20	XNS48	S46	LH3/32	LH030

MRG Series

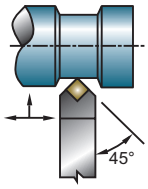


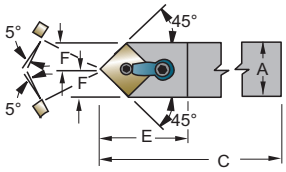


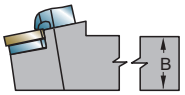


Sumitomo Cat. No.			A	B	C	E	F	OPTIONAL HARDWARE							
Right Hand	Left Hand	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Shim	Wrench	Wrench
MRGNR124B	MRGNL124B	RNMG43	.750	.750	4.500	1.060	1.000	IRSN43	NL46	CL20	XNS48	S46	IRSN-44	LH3/32	LH030
MRGNR164D	MRGNL164D	RNMG43	1.000	1.000	6.000	1.060	1.250	IRSN43	NL46	CL20	XNS48	S46	IRSN-44	LH3/32	LH030
MRGNR204D	MRGNL204D	RNMG43	1.250	1.250	6.000	1.060	1.500	IRSN43	NL46	CL20	XNS48	S46	IRSN-44	LH3/32	LH030

MSD Series

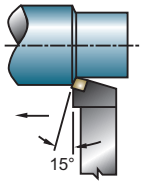


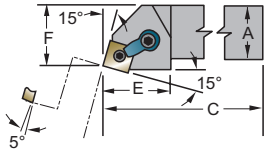


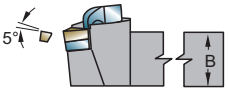


Sumitomo Cat. No.		A	B	C	E	F					OPTIONAL HARDWARE			
Neutral Hand	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Shim	Wrench	Wrench
MSDNN124B	SNMG43-	.750	.750	4.500	1.300	.375	ISSN433	NL46	CL20	XNS48	S46	ISSN-443	LH3/32	LH030
MSDNN164D	SNMG43-	1.000	1.000	6.000	1.300	.500	ISSN433	NL46	CL20	XNS48	S46	ISSN-443	LH3/32	LH030

MSR Series

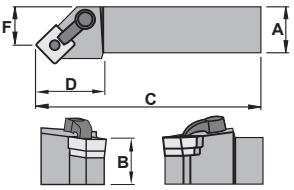






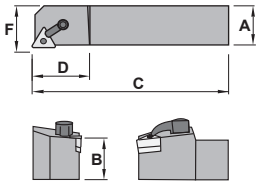
Sumitomo Cat. No.			A	B	C	E	F					OPTIONAL HARDWARE			
Right Hand	Left Hand	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Shim	Wrench	Wrench
MSRNR124B	MSRNL124B	SNMG43-	.750	.750	4.500	1.250	.880	ISSN433	NL46	CL20	XNS48	S46	ISSN-443	LH3/32	LH030
MSRNR164D	MSRNL164D	SNMG43-	1.000	1.000	6.000	1.250	1.130	ISSN433	NL46	CL20	XNS48	S46	ISSN-443	LH3/32	LH030
MSRNR205D	MSRNL205D	SNMG54-	1.250	1.250	6.000	1.500	1.353	ISSN533	NL58	CL12	XNS510	S58	ISSN-543	LH040	LH030
MSRNR206D	MSRNL206D	SNMG64-	1.250	1.250	6.000	1.590	1.321	ISSN633	NL68	CL12	XNS610	S68	ISSN-643	LH9/64	LH040

MSSN 45°



Catalog Number		Applicable Insert	A	B	C	D	F	Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
Right	Left													
MSSNR124B	MSSNL124B	SNM _ 43	.750	.750	4.50	1.230	.675	ISSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MSSNR164D	MSSNL164D	SNM _ 43	1.000	1.000	6.00	1.230	.925							
MSSNR165D	MSSNL165D	SNM _ 54	1.000	1.000	6.00	1.380	.847	ISSN533	NL58	CL12	XNS510	S58	LH040	
MSSNR205D	MSSNL205D	SNM _ 54	1.250	1.250	6.00	1.380	1.097							
MSSNR206D	MSSNL206D	SNM _ 64	1.250	1.250	6.00	1.470	1.011	ISSN633	NL68		XNS610	S68	LH9/64	LH040
MSSNR246E	MSSNL246E	SNM _ 64	1.500	1.500	7.00	1.470	1.511							

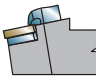
MTAN 90°



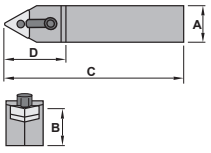
Catalog Number			A	B	C	D	F								
Right	Left	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench	*Optional Shim*
MTANR082A	MTANL082A	TN_ _ 22	.500	.500	4.00	.875	.500	-	NL-23	CL7	XNS-34	-	LH3/32	LH1/16	-
MTANR103B	MTANL103B	TN_ _ 32	.625	.625	4.50	1.000	1.000	ITSN323	NL34L	CL20	XNS48	S34	LH020	LH030	ITSN333
MTANR123B	MTANL123B	TN_ _ 33	.750	.750	4.50	1.060	.750								-
MTANR163D	MTANL163D	TN_ _ 33	1.000	1.00	6.00	1.060	1.000								
MTANR164D	MTANL164D	TN_ _ 43	1.000	1.000	6.00	1.220	1.000	ITSN433	NL46			S46	LH3/32		

MTENN(S) 60°

MTENN

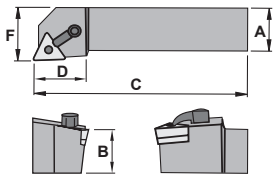


MTENNS (Square)



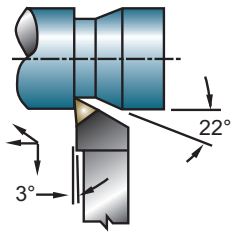
Catalog Number		A	B	C	D	F							
Nuetral	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MTENN082A	TN_ _ 22	.500	.500	4.000	1.000	.250	-	NL23	CL7	XNS-34	-	LH3/32	LH1/16
MTENN103B	TN_ _ 32	..625	.625	4.500	1.125	.312	ITSN323	NL34L	CL20	XNS48	S34	LH020	LH030
MTENN123B	TN_ _ 32	.750	.750	4.500	1.125	.375							
MTENNS163D	TN_ _ 33	1.000	1.000	6.000	1.500	.500					S46	LH3/32	LH030
MTENN164D	TN_ _ 43	1.000	1.000	6.000	1.500	.500	ITSN433				S34	LH020	LH030
MTENN205D	TN_ _ 54	1.250	1.250	6.000	1.625	.625	ITSN533	NL58	CL12	XNS510	S58	LH040	LH030
MTENN205E	TN_ _ 54	1.250	1.250	6.00	1.620	.625							

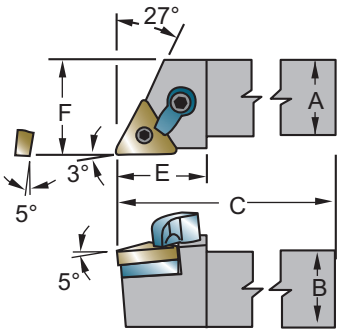
MTGN 90°



Catalog Number			A	B	C	D	F							
Right	Left	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MTGNR103B	MTGNL103B	TN_ _ 32	.625	.625	4.50	1.000	.875	ITSN323	NL34L	CL20	XNS48	S34	LH020	LH030
MTGNR123B	MTGNL123B	TN_ _ 32	.750	.750	4.50	1.060	1.000							
MTGNR163D	MTGNL163D	TN_ _ 33	1.000	1.000	6.00	1.060	1.250							
MTGNR164D	MTGNL164D	TN_ _ 43	1.000	1.000	6.00	1.220	1.250	ITSN433	NL46			S46	LH3/32	LH030

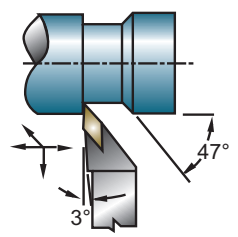
MTJ Series

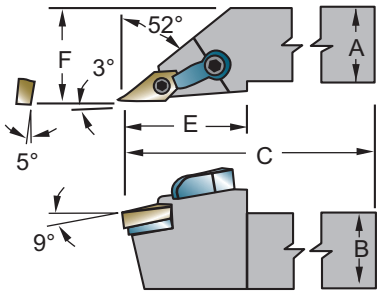




Sumitomo Cat. No.			A	B	C	E	F	OPTIONAL HARDWARE						
Right Hand	Left Hand	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MTJNR123B	MTJNL123B	TNMG32-	.750	.750	4.500	1.030	1.000	ITSN323	NL34L	CL20	XNS48	S34	LH020	LH030
MTJNR124B	–	TNMG43-	.750	.750	4.500	1.190	1.000	ITSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MTJNR163D	MTJNL163D	TNMG32-	1.000	1.000	6.000	1.030	1.250	ITSN323	NL34L	CL20	XNS48	S34	LH020	LH030
MTJNR164D	MTJNL164D	TNMG43-	1.000	1.000	6.000	1.250	1.250	ITSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
-	MTJNL204D	TNMG43-	1.250	1.250	6.000	1.250	1.500	ITSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
MTJNR204E	MTJNL204E	TNMG43-	1.250	1.250	7.000	1.190	1.250	ITSN433	NL46	CL20	XNS48	S46	LH3/32	LH030

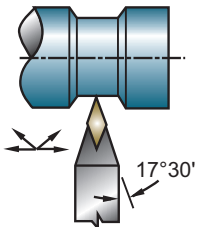
MVJ Series

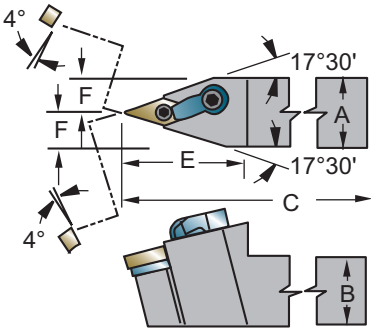




Sumitomo Cat. No.			A	B	C	E	F	OPTIONAL HARDWARE						
Right Hand	Left Hand	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MVJNR123B	MVJNL123B	VNMG33-	.750	.750	4.500	1.620	1.000	IVSN322	NL34L	CL-22	XNS48	S34	LH020	LH030
MVJNR163D	MVJNL163D	VNMG33-	1.000	1.000	6.000	1.620	1.250	IVSN322	NL34L	CL-22	XNS48	S34	LH020	LH030
MVJNR164C	MVJNL164C	VNMG43-	1.000	1.000	5.000	2.125	1.250	IVSN433	NL46	CL30	XNS510	S46	LH3/32	LH040
MVJNR164D	MVJNL164D	VNMG43-	1.000	1.000	6.000	1.880	1.250	IVSN433	NL46	CL30	XNS510	S46	LH3/32	LH040
MVJNR203D	MVJNL203D	VNMG33-	1.250	1.250	6.000	1.750	1.500	IVSN322	NL34L	CL-22	XNS48	S34	LH020	LH030
MVJNR204D	MVJNL204D	VNMG43-	1.250	1.250	6.000	1.880	1.500	IVSN433	NL-46	CL30	XNS510	S46	LH3/32	LH040

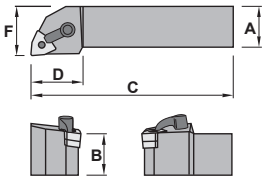
MVV Series





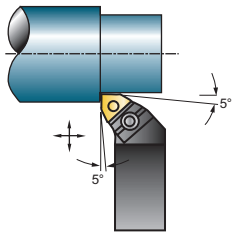
Sumitomo Cat. No.		A	B	C	E	F		OPTIONAL HARDWARE					
Neutral Hand	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MVVNN123B	VNMG33-	.750	.750	4.500	1.620	.375	IVSN322	NL34L	CL-22	XNS48	S34	LH020	LH030
MVVNN163D	VNMG33-	1.000	1.000	6.000	1.620	.500	IVSN322	NL34L	CL-22	XNS48	S34	LH020	LH030
MVVNN164D	VNMG43-	1.000	1.000	6.000	2.060	.500	IVSN433	NL46	CL30	XNS510	S46	LH3/32	LH030

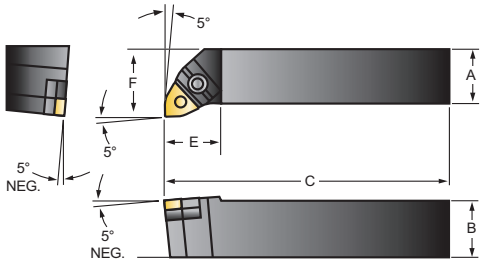
MWLN 95°



Catalog Number			A	B	C	D	F							
Right	Left	Applicable Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
MWLNR123B	MWLNL123B	WN_ _ 33	.750	.750	4.50	1.000	1.000	IWSN322	NL46	CL6	XNS-36	-	LH3/32	LH020
MWLNR163C	MWLNL163C	WN_ _ 33	1.000	1.000	5.00	1.000	1.250							
MWLNR163D	MWLNR163D	WN_ _ 33	1.000	1.000	6.00	1.000	1.250							
MWLNR243D	MWLNL243D	WN_ _ 33	1.500	1.500	6.00	1.000	2.000							
MWLNR124B	MWLNL124B	WN_ _ 43	1.000	1.000	5.00	1.070	1.250	IWSN433		CL20	XNS48	S46		LH030
MWLNL164C	MWLNL164C	WN_ _ 43	1.000	1.000	5.00	1.125	1.250							
MWLNR164D	MWLNL164D	WN_ _ 43	1.000	1.000	6.00	1.070	1.250							
MWLNR204D	MWLNL204D	WN_ _ 43	1.250	1.250	6.00	1.250	1.500							
MWLNR244D	MWLNL244D	WN_ _ 43	1.500	1.500	6.00	1.070	2.000							

WWL Series





Sumitomo Cat. No.			A	B	C	E	F							
Right Hand	Left Hand	Applicable Insert						Shim	Cam	Nut	Wedge Clamp	Clamp Screw	Ring	Wrench
WWLNR124B	WWLNL124B	WNMG43-	.750	.750	4.500	1.070	1.000	SWW-433	MP-416	CPM-43S	MWW-40	BHA-0625	ER05	LH030
WWLNR164D	WWLNL164D	WNMG43-	1.000	1.000	6.000	1.070	1.250	SWW-433	MP-420	CPM-43N	MWW-40	BHA-0625	ER05	LH040
WWLNR165D	WWLNL165D	WNMG54-	1.000	1.000	6.000	1.593	1.500	SWW-544	MP-531	CPM-54N	MWW-50	BHA-0834	ER07	LH040
WWLNR204D	WWLNL204D	WNMG43-	1.250	1.250	6.000	1.070	1.500	SWW-433	MP-420	CPM-43N	MWW-40	BHA-0625	ER05	LH040
WWLNR205D	WWLNL205D	WNMG54-	1.250	1.250	6.000	1.593	1.500	SWW-544	MP-534	CPM-54N	MWW-50	BHA-0834	ER07	LH060

Mini TOOLHOLDERS

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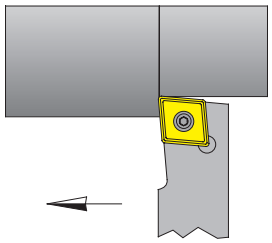
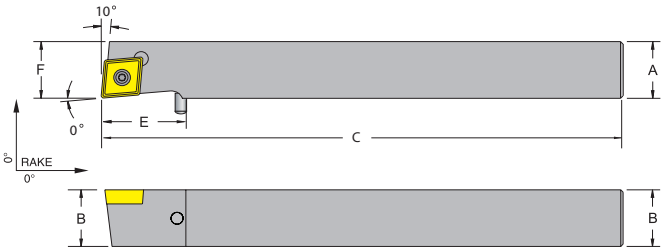
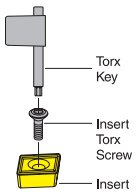
SCAC Series





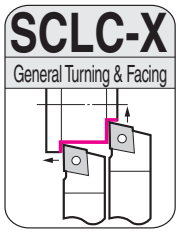


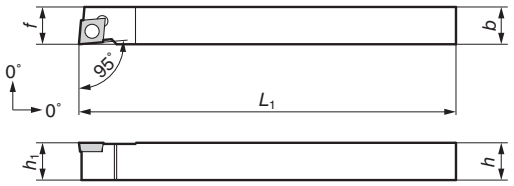
Right Hand Shown, Left Hand Opposite

Catalog Number		Applicable Insert	A	B	C	E (Tool Stop)	F	Insert Torx Screw	Wrench
Right Hand	Left Hand								
SCACR062B	SCACL062B	CC__21.51	0.375	0.375	4.500	1.000	0.375	TS25.45-6M2	TRX08
SCACR062D	SCACL062D		0.375	0.375	6.000	1.000	0.375		
SCACR083B	SCACL083B	CC__32.52	0.500	0.500	4.500	1.000	0.500	TS4.7-10M1	TRX15
SCACR083D	SCACL083D		0.500	0.500	6.000	1.000	0.500		
SCACR103B	SCACL103B		0.625	0.625	4.500	1.000	0.625		
SCACR103D	SCACL103D		0.625	0.625	6.000	1.000	0.625		

SCLC-X

General Turning & Facing





■ Holder

Above figures show right hand tools.

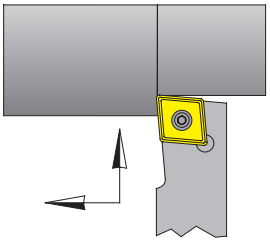
■ Parts

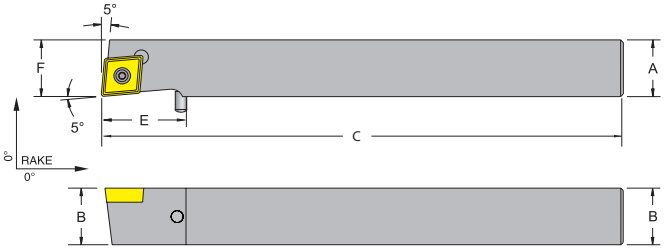
Catalog Number	Stock		Applicable Insert	Dimensions (mm)					Screw	Wrench
	R	L		h	b	L_1	f	h_1		
SCLCR/L1010-H06X	★	★	CC_T21.5	10	10	100	10	10	BFTX02506N	TRX08
SCLCR/L1215-K09X	★	★	CC_T32.5	12	15	125	15	12	BFTX0409N	TRX15
SCLCR/L1215-F09X	★	★	CC_T32.5	12	15	85	15	12		

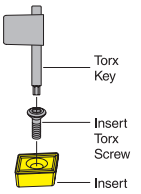
85mm Shank

★ = Worldwide Warehouse item

SCNC Series



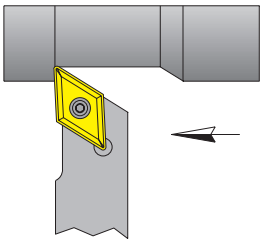


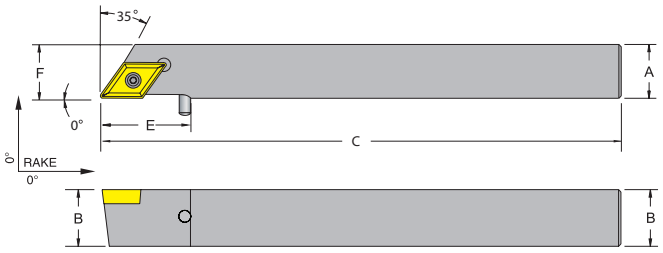


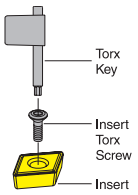
Right Hand Shown, Left Hand Opposite

Catalog Number		Applicable Insert	A	B	C	E (Tool Stop)	F	Insert Torx Screw	Wrench
Right Hand	Left Hand								
SCNCR062B	SCNCL062B	CC__21.51	0.375	0.375	4.500	1.000	0.375	TS25.456M2	TRX08
SCNCR062D	SCNCL062D		0.375	0.375	6.000	1.000	0.375		
SCNCR082B	SCNCL082B		0.500	0.500	4.500	1.000	0.500		
SCNCR083B	SCNCL083B	CC__32.52	0.500	0.500	4.500	1.000	0.500	TS4.710M1	TRX15
SCNCR083D	SCNCL083D		0.500	0.500	6.000	1.000	0.500		
SCNCR103B	SCNCL103B		0.625	0.625	4.500	1.000	0.625		
SCNCR103D	SCNCL103D		0.625	0.625	4.500	1.000	0.625		

SDAC Series







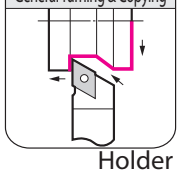
Right Hand Shown, Left Hand Opposite

Catalog Number		Applicable Insert	A	B	C	E (Tool Stop)	F	Insert Torx Screw	Wrench
Right Hand	Left Hand								
SDACR062B	SDACL062B	DC__21.51	0.375	0.375	4.500	1.000	0.375	TS25.456M2	TRX08
SDACR062D	SDACL062D		0.375	0.375	6.000	1.000	0.375		
SDACR082B	SDACL082B		0.500	0.500	4.500	1.000	0.500		
SDACR082D	SDACL082D		0.500	0.500	6.000	1.000	0.500		
SDACR083B	SDACL083B	DC__32.52	0.500	0.500	4.500	1.000	0.500	TS4.710M1	TRX15
SDACR083D	SDACL083D		0.500	0.500	6.000	.875	0.500		
SDACR103B	SDACL103B		0.625	0.625	4.500	1.000	0.500		
SDACR103D	SDACL103D		0.625	0.625	6.000	1.000	0.625		
SDACR123B	SDACL123B		0.750	0.750	4.500	1.000	0.750		
SDACR1010-H07X*	SDACL1010-H07X*	DC__21.51	*10*	*10*	*100*	*10*	*10*	BFTX02506N	TRX08
SDACR1215-K11X*	SDACL1215-K11X*	DC__32.52	*12*	*15*	*125*	*15*	*12*	BFTX0409N	TRX15
SDACR1215-F11X*	SDACL1215-F11X*	DC__32.52	*12*	*15*	*85*	*15*	*12*		

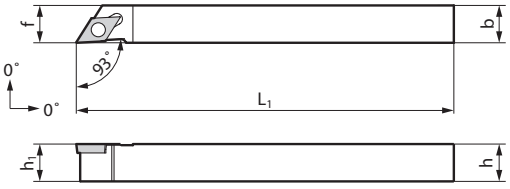
* = Worldwide Warehouse Stock

SDJC-X

General Turning & Copying



Holder

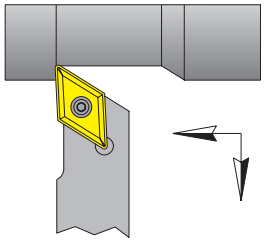


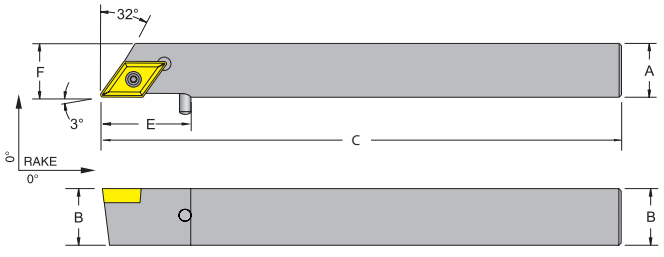
Above figures show right hand tools.

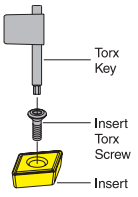
■ Parts

	Catalog Number	Stock		Applicable Insert	Dimensions (mm)					Screw	Wrench
		R	L		h	b	L_1	f	h_1		
85mm Shank	SDJC R/L1010-H07X	★	★	DC_T21.5	10	10	100	10	10	BFTX02506N	TRX08
	SDJC R/L1215-K11X	★	★	DC_T32.5	12	15	125	15	12	BFTX0409N	TRX15
	SDJC R/L1215-F11X	★	★	DC_T32.5	12	15	85	15	12		

SDNC Series





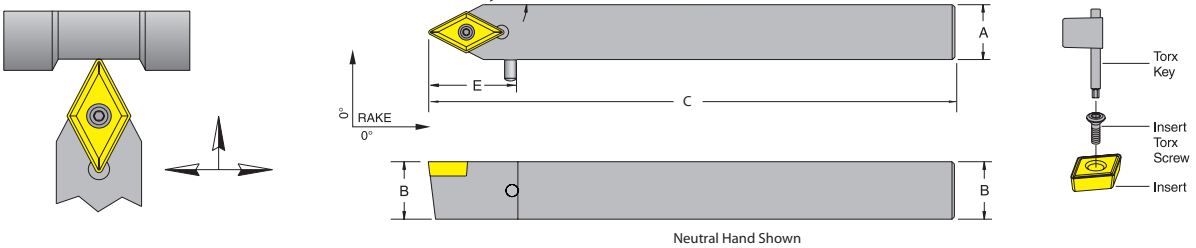


Right Hand Shown, Left Hand Opposite

Catalog Number		Applicable Insert	A	B	C	E (Tool Stop)	F	Insert Torx Screw	Wrench
Right Hand	Left Hand								
SDNCR062B	SDNCL062B	DC__21.51	0.375	0.375	4.500	1.000	0.375	TS25.456M2	TRX08
SDNCR082B	SDNCL082B		0.500	0.500	4.500	1.000	0.500		
SDNCR103B	SDNCL103B	DC__32.52	0.625	0.625	4.500	1.000	0.625	TS4.710M1	TRX15

Zero Offset Toolholders, Screw Lock

SDPC Series

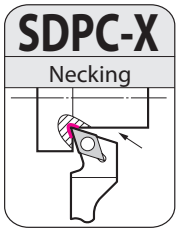


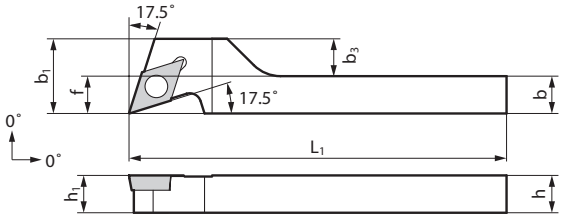
Neutral Hand Shown

Catalog Number Neutral	Applicable Insert	A	B	C	E (Tool Stop)	Insert Torx Screw	Wrench
SDPCN062B	DC__21.51	0.375	0.375	4.500	1.000	TS25.456M2	TRX08
SDPCN062D		0.375	0.375	6.000	1.000		
SDPCN082B		0.500	0.500	4.500	1.000		
SDPCN083B	DC__32.52	0.500	0.500	4.500	1.000	TS4.710M1	TRX15
SDPCN083D		0.500	0.500	6.000	1.000		
SDPCN103B		0.625	0.625	4.500	1.000		
SDPCN103D		0.625	0.625	6.000	1.000		

SDPC-X

Necking





■ Holder

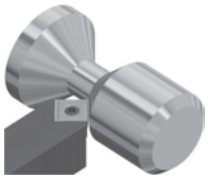
Above figures show right hand tools.

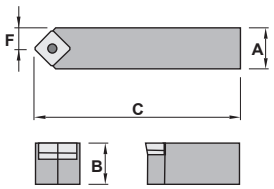
■ Parts


Catalog Number	Stock R	Stock L	Applicable Insert	Dimensions (mm) h	b	L_1	f	h_1	b_1	b_3	Screw	Wrench
SDPCR/L1010-H11X	★	★	DC_T32.5	10	10	100	10	10	20	10	BFTX0409N	TRX15

★ = Worldwide Warehouse item

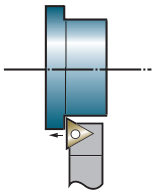
SSDC 45°

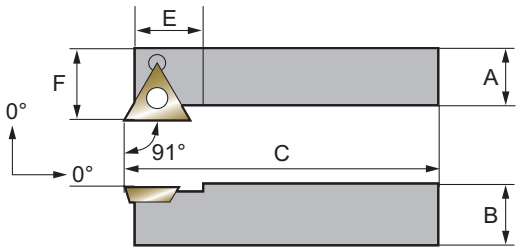




Catalog Number Neutral	Applicable Insert	A	B	C	F	Shim	Screw	Shim Screw	Wrench
SSDCN083	SC_ _ 32.5	.500	.500	3.5	.263	-	BFTX0407N	-	TRX15
SSDCN124B	SC_ _ 43	.750	.750	4.5	.388	SH-3514	ST-1540	TRX15040	BFTX0405

STAC R/L Series



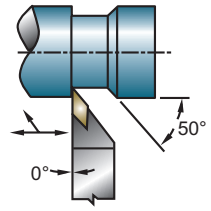


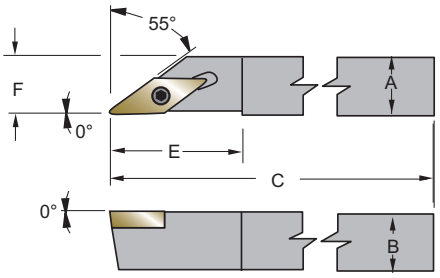
Catalog Number		7° Positive Applicable Insert	Stock	A	B	C	E	F	Insert Screw	Wrench
Right Hand	Left Hand									
STACR062B	STACL062B	TCMT21.51	•	.375	.375	4.500	0.625	0.375	ST-21.5	TRX08
STACR082B	STACL082B	TCMT21.51	•	.500	.500	4.500				
STACR103B	STACL103B	TCMT32.52	•	.625	.625	4.500	0.750	0.625	ST-32.5	TRX15
STACR062D	STACL062D	TCMT21.51	•	.375	.375	6.000	0.625	0.375	ST-21.5	TRX08
STACR082D	STACL082D	TCMT21.51	•	.500	.500	6.000				
STACR102D	STACL102D	TCMT21.51	•	.625	.625	6.000	.625	.625	BFTX02507	TRX15040
STACR103D	STACL103D	TCMT32.52	•	.625	.625	6.000	0.750	0.625	ST-32.5	TRX15
*STACR1010-11**	*STACL1010-11**	TCMT21.51	★	*10.0*	*10.0*	*100.0*	*16.0*	*12.0*	ST-21.5	TRX08
*STACR1212-11**	*STACL1212-11**	TCMT21.51	★	*12.0*	*12.0*	*100.0*	*16.0*	*16.0*	ST-21.5	
*STACR1616-16**	*STACL1616-16**	TCMT32.52	★	*16.0*	*16.0*	*100.0*	*16.0*	*20.0*	ST-32.5	TRX15

* Not zero offset

• = USA stocked item ★ = Worldwide Warehouse item

SVAB R/L Series

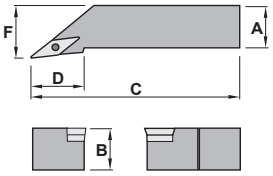




Catalog Number		5° Positive Applicable Insert	Stock	A	B	C	E	F	Insert Screw	Wrench
Right Hand	Left Hand									
SVABR103B	SVABL103B	VBMT332	•	.625	.625	4.500	1.375	0.625	ST-32.5	TRX15
SVABR062D	SVABL062D	VBMT221	•	.375	.375	6.000	0.875	0.375	TS-25.45-8M2	TRX08
SVABR082D	SVABL082D	VBMT221	•	.500	.500	6.000				
SVABR103D	SVABL103D	VBMT332	•	.625	.625	6.000	1.375	0.625	ST-32.5	TRX15
SVABR1010-11	*SVABL1010-11*	VBMT221		*10.0*	*10.0*	*150.0*	*22.0*	*10.0*	ST-21.5	TRX08
SVABR1212-11	*SVABL1212-11*	VBMT221		*12.0*	*12.0*	*150.0*				
SVABR1616-16	*SVABL1616-16*	VBMT332		*16.0*	*16.0*	*150.0*	*35.0*	*16.0*	ST-32.5	TRX15

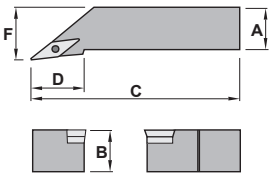
• = USA stocked item

SVJB 93°



Catalog Number			A	B	C	D	F				
Right	Left	Applicable Insert						Shim	Screw	Shim Screw	Wrench
SVJBR123B	SVJBL123B	VC_ _33	.750	.750	4.5	.940	.375	SH-3718	BFTX03515	ST-1750	TRX15
SVJBR163D	SVJBL163D	VC_ _33	1.000	1.000	6.0	1.614	1.500				

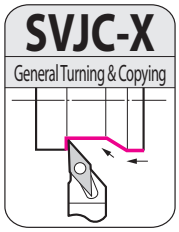
SVJC 93°

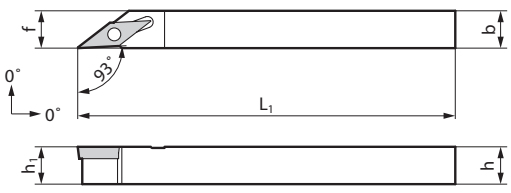


Catalog Number			A	B	C	D	F				
Right	Left	Applicable Insert						Shim	Screw	Shim Screw	Wrench
SVJCR062D	SVJCL062D	VC_ _22	.375	.375	6.0	.940	.375	-	BFTX02507	-	TRX15040
SVJCR082D	SVJCL082D	VC_ _22	.500	.500	6.0	.940	.500				
SVJCR083D	SVJCL083D	VC_ _33	.500	.500	6.0	1.100	.500				
SVJCR103D	SVJCL103D	VC_ _33	.625	.625	6.0	1.440	.625				
SVJCR123B	SVJCL123B	VC_ _33	.750	.750	4.5	1.614	1.000	SH-3718	BFTX03515	ST-1750	TRX15
SVJCR163D	SVJCL163D	VC_ _33	1.000	1.000	6.0	1.614	1.250				
SVJCR203D	SVJCL203D	VC_ _33	1.250	1.250	6.0	1.614	1.500				

SVJC-X

General Turning & Copying





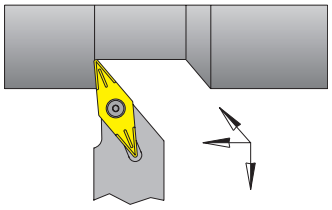
■ Holder

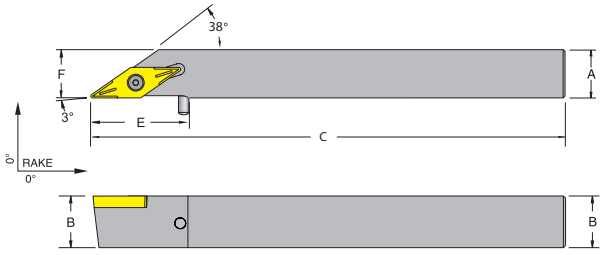
Above figures show right hand tools.

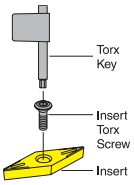
Catalog Number	Stock		Applicable Insert	Dimensions (mm)					Parts	
	R	L		*h*	*b*	*L1*	*f*	*h1*	Screw	Wrench
SVJCR/L1010-H11X	★	★	VC_T22	10	10	100	10	10	BFTX02506N	TRX08
SVJCR/L1212-K11X	★	★	VC_T22	12	12	125	12	12		
SVJCR/L1212-F11X	★	★	VC_T22	12	12	85	12	12		

★= Worldwide Warehouse item

SVNB Series



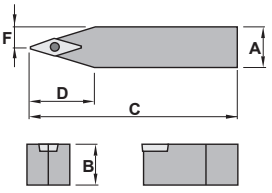




Right Hand Shown, Left Hand Opposite

Catalog Number		Applicable Insert	A	B	C	E (Tool Stop)	F	Insert Torx Screw	Wrench
Right Hand	Left Hand								
SVNBR062B	SVNBL062B	VB__22	0.375	0.375	4.500	1.000	0.375	TS25.456M2	TRX08
SVNBR062D	SVNBL062D		0.375	0.375	6.000	1.000	0.375		
SVNBR082B	SVNBL082B		0.500	0.500	4.500	1.000	0.500		
SVNBR082D	SVNBL082D		0.500	0.500	6.000	1.000	0.500		
SVNBR103B	SVNBL103B	VB__33	0.625	0.625	4.500	1.000	0.625	TS4.710M1	TRX15
SVNBR103D	SVNBL103D		0.625	0.625	6.000	1.000	0.625		

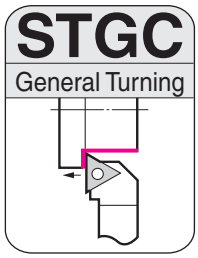
SVVC 72º 30'



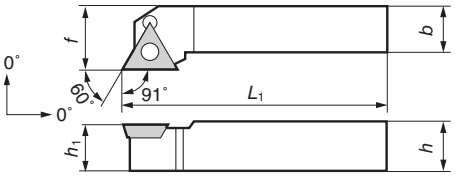
Catalog Number		A	B	C	D	F				
Nuetral	Applicable Insert						Shim	Screw	Shim Screw	Wrench
SVVCN123B	VC_ _ 33	.750	750	4.5	1.212	.398	SH-3718	BFTX03515	ST-1750	TRX15
SVVCN163D	VC_ _ 33	1.000	1.000	6.0	1.610	.523				

External Turning

STGC
General Turning



■ Holder



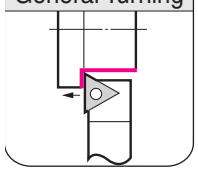
Above figures show right hand tools.

■ Parts

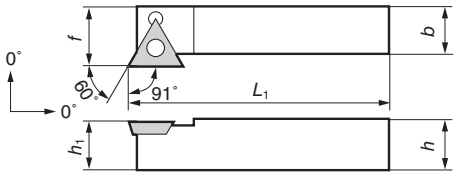

Cat. No.	Stock R	Stock L	Applicable Insert	Dimensions (mm) h	b	L1	f	h1	Screw	Recommended Tightening Torque (N•m)	Wrench
STGC R/L0808-09	★		TC□□1.81.5□	8	8	100	10	8	BFTX02205N	0.5	TRX06
STGC R/L1010-09	★	★		10	10	100	12	10			
STGC R/L1212-11	★	★	TC□□21.5□	12	12	100	16	12	BFTX02506N	1.5	TRX08
STGC R/L1616-11	★	★		16	16	100	20	16			
STGC R/L2020-11	★	★		20	20	125	25	20			

★= Worldwide Warehouse item

STAC
General Turning



■ Holder



Above figures show right hand tools.

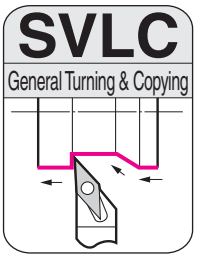
■ Parts

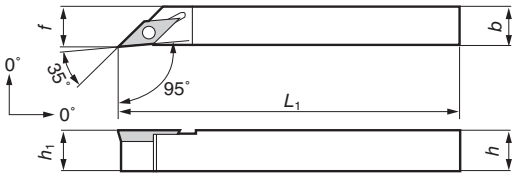

Cat. No.	Stock R	Stock L	Applicable Insert	Dimensions (mm) h	b	L1	f	h1	Screw	Recommended Tightening Torque (N•m)	Wrench
STAC R/L0808-09		★	TC□□1.81.5□	8	8	100	8.5	8	BFTX02205N	0.5	TRX06
STAC R/L1010-09	★			10	10	100	10.5	10			
STAC R/L1212-11	★	★	TC□□21.5□	12	12	100	12.5	12	BFTX02506N	1.5	TRX08
STAC R/L1616-11	★	★		16	16	100	16.5	16			
STAC R/L2020-11	★	★		20	20	125	20.5	20			

★= Worldwide Warehouse item

General Turning and Copying

SVLC
General Turning & Copying





■ **Parts**

For Torx Holes

■ **Holder**

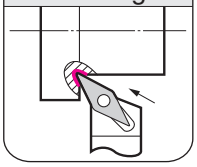
Above figures show right hand tools.

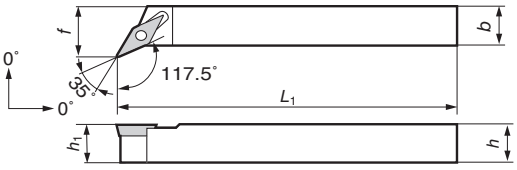
Cat. No.	Stock R	Stock L	Applicable Insert	Dimensions (mm) h	b	L1	f	h1	Screw	Recommended Tightening Torque (N•m)	Wrench
SVLC R/L1010-H11	★	★	VC□□22□	10	10	100	10.5	10	BFTX02508NV	1.5	TRX08
SVLC R/L1212-H11	★	★		12	12	100	12.5	12			
SVLC R/L1616-H11	★	★		16	16	100	16.5	16			
SVLC R/L2020-K11*	★	★		20	20	125	20.5	20			

★= Worldwide Warehouse item

* Previous Cat. No SVLCR/L2020-H11

SVPC
Necking





■ **Parts**

For Torx Holes

■ **Holder**

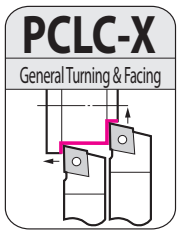
Above figures show right hand tools.

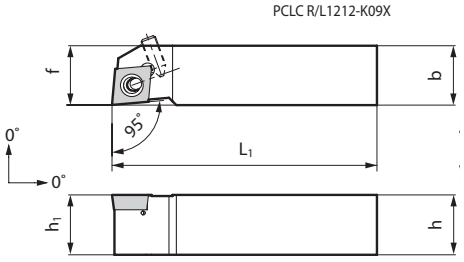
Cat. No.	Stock R	Stock L	Applicable Insert	Dimensions (mm) h	b	L1	f	h1	Screw	Recommended Tightening Torque (N•m)	Wrench
SVPC R/L1010-H11	★	★	VC□□22□	10	10	100	14.5	10	BFTX02508NV	1.5	TRX08
SVPC R/L1212-H11	★	★		12	12	100	16.5	12			
SVPC R/L1616-H11	★	★		16	16	100	20.5	16			
SVPC R/L2020-K11*	★	★		20	20	125	24.5	20			

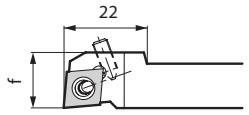
★= Worldwide Warehouse item

* Previous Cat. No SVLCR/L2020-H11

PCLC-X
General Turning & Facing





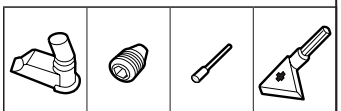


Side lever locking holders

■ Holder

Above figures show right hand tools.

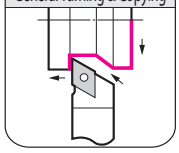
■ Parts

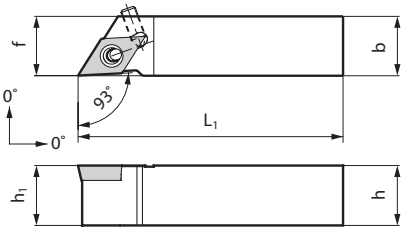


Catalog Number	Stock		Applicable Insert	Dimensions (mm)					Lever Pin	Set Screw	Pin	Wrench
	R	L		*h*	*b*	*L1*	*f*	*h1*				
PCLC R/L1010-K06X	★		CC_T21.5	10	10	125	10	10	LCL06	BTT0407	LP07	TH020
PCLC R/L1212-K09X	★		CC_T32.5	12	12	125	15	12	LCL09	BTT0411	LP06	
PCLC R/L1616-K09X	★		CC_T32.5	16	16	125	16	16				

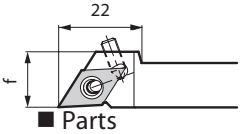
★= Worldwide Warehouse item

PDJC-X
General Turning & Copying





PDJC R/L1212-K11X

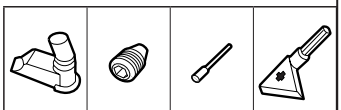


Side lever locking holders

■ Holder

Above figures show right hand tools.

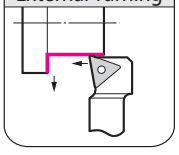
■ Parts

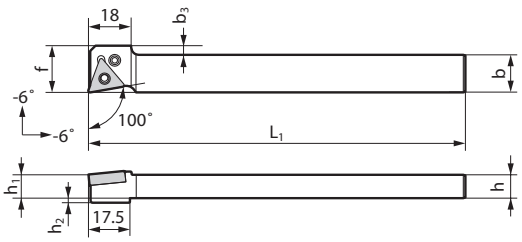


Catalog Number	Stock		Applicable Insert	Dimensions (mm)					Lever Pin	Set Screw	Pin	Wrench
	R	L		*h*	*b*	*L1*	*f*	*h1*				
PDJC R/L1010-K07X	★		DC_T21.5	10	10	125	10	10	LCL06	BTT0407	LP04	TH020
PDJC R/L1212-K11X	★		DC_T32.5	12	12	125	15	12	LCL09	BTT0411	LP07	
PDJC R/L1616-K11X	★		DC_T32.5	16	16	125	16	16				

★= Worldwide Warehouse item

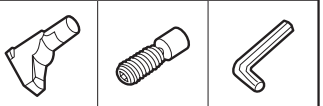
PTXN-X
External Turning





■ Holder

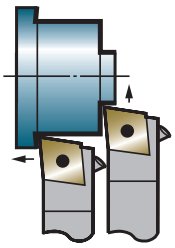
■ Parts



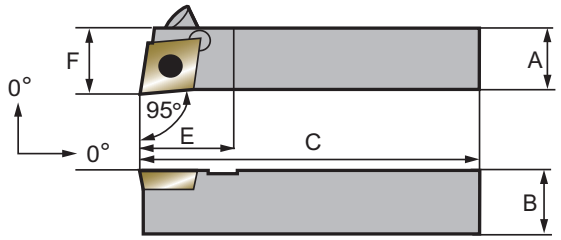
Catalog Number	Stock	Applicable Insert	Dimensions (mm)							Lever Pin	Screw	Wrench
			h	*b*	*L1*	*f*	*h1*	*h2*	*b3*			
PTXN R1016-X16X	★	TN□□33	10	16	120	20	10	2	4	LCL33NT	LCS33NT	LH020NT
PTXN R1216-X16X	★	TN□□33	12	16	120	20	12	0	4			
PTXN R1616-X16X	★	TN□□33	16	16	120	20	16	0	4			
PTXN R2020-X16X	★	TN□□33	20	20	120	20	20	0	0			

★= Worldwide Warehouse item

PCLC R/LSeries



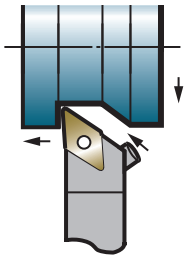
Side lever locking holders



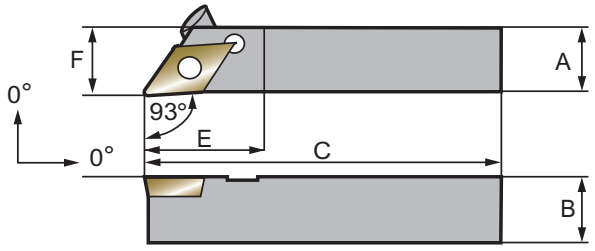
Sumitomo Cat. No.			Dimensions (inch/*mm*)									
Right Hand	Left Hand	7° Positive Applicable Insert	Stock	A	B	C	E	F	Lever Pin	Clamp Bolt	Pin	Wrench
PCLCR062D	PCLCL062D	CCMT21.51	●	.375	.375	6.000	.472	.395	LCL06	BTT0407	LP07	TH020
PCLCR083D	PCLCL083D	CCMT32.52	●	.500	.500	6.000	.591	.520	LCL09	BTT0407	LP06	TH020
PCLCR103D	PCLCL103D	CCMT32.52	●	.625	.625	6.000	.630	.645	LCL09	BTT0411	LP06	TH020
PCLCR1010-K06	*PCLCL1010-K06*	CCMT21.51	★	*10.0*	*10.0*	*125.0*	*12.0*	*10.5*	LCL06	BTT0407	LP07	TH020
PCLCR1212-K09	*PCLCL1212-K09*	CCMT32.52	★	*12.0*	*12.0*	*150.0*	*16.0*	*12.5*	LCL09	BTT0407	LP06	TH020
PCLCR1616-M09	*PCLCL1616-M09*	CCMT32.52	★	*16.0*	*16.0*	*150.0*	*16.0*	*16.5*	LCL09	BTT0411	LP06	TH020

● = USA stocked item ★ = Worldwide Warehouse item

PDJC R/LSeries



Side lever locking holders

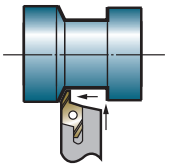


Sumitomo Cat. No.			Dimensions (Inch/*mm*)									
Right Hand	Left Hand	7° Positive Applicable Insert	Stock	A	B	C	E	F	Lever Pin	Clamp Bolt	Pin	Wrench
PDJCR062D	PDJCL062D	DCMT21.51	●	.375	.375	6.000	.472	.395	LCL06	BTT0407	LP04	TH020
PDJCR083D	PDJCL083D	DCMT32.52	●	.500	.500	6.000	.787	.520	LCL09	BTT0407	LP07	TH020
PDJCR103D	PDJCL103D	DCMT32.52	●	.625	.625	6.000	.787	.645	LCL09	BTT0411	LP07	TH020
PDJCR1010-K07	*PDJCL1010-K07*	DCMT21.51	★	*10.0*	*10.0*	*125.0*	*15.0*	*10.5*	LCL06	BTT0407	LP04	TH020
PDJCR1212-M11	*PDJCL1212-M11*	DCMT32.52	★	*12.0*	*12.0*	*150.0*	*20.0*	*12.5*	LCL09	BTT0407	LP07	TH020
PDJCR1616-M11	*PDJCL1616-M11*	DCMT32.52	★	*16.0*	*16.0*	*150.0*	*20.0*	*16.5*	LCL09	BTT0411	LP07	TH020

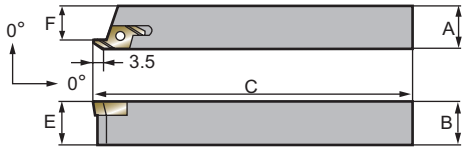
● = USA stocked item ★ = Worldwide Warehouse item

Back Turning Toolholders

SBT R Series



Back Turning Holders



See page for inserts

Sumitomo Cat. No.			Dimensions (Inch*mm*)							
Right Hand	Left Hand	Applicable Insert	Stock	A	B	C	E	F	Insert Screw	Torx Wrench
SBTR3506		BTR35	●	.375	.375	6.000	.375	.295	BFTX0307N	TRX10
SBTR3508		BTR35	●	.500	.500	6.000	.500	.394	BFTX0307N	TRX10
SBTR3510		BTR35	●	.625	.625	6.000	.625	.492	BFTX0307N	TRX10
SBT35R1010		BTR35	★	*10.0*	*10.0*	*120.0*	*10.0*	*7.5*	BFTX0307N	TRX10
SBT35R1212		BTR35	★	*12.0*	*12.0*	*120.0*	*12.0*	*9.5*	BFTX0307N	TRX10
SBT35R1616		BTR35	★	*16.0*	*16.0*	*120.0*	*16.0*	*13.5*	BFTX0307N	TRX10
SBT35R2020		BTR35	★	*20.0*	*20.0*	*120.0*	*20.0*	*17.5*	BFTX0307N	TRX10

● = USA stocked item ★ = Worldwide Warehouse item

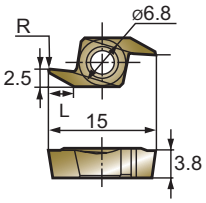
Swiss Tooling Inserts

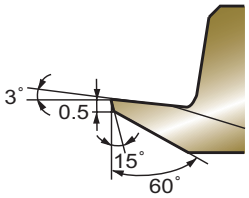
for precision turning applications:
- *Cut-off*
- *Back Turn*
- *BoringRoughing*
- *Boring Finishing*

P Steel
M Stainless Steel
K Cast Iron
N Non-ferrous
S Exotic Materials
H Hardened Steel

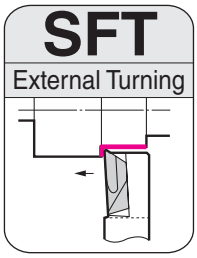
● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item

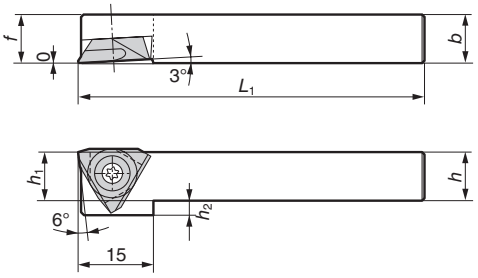
BTR
for SBT Type Holder





Sumitomo Catalog #	ISO Catalog #	I.C.	T	L	r	Coated: AC530U	Cermet: T1500A	Cermet: T1200A
BTR3505	BTR3505	6.8	3.8	3.5	0.05	●	★	★
BTR3515	BTR3515			3.5	0.15	●	★	★
BTR5505	BTR5505			5.5	0.05	★		
BTR5515	BTR5515			5.5	0.15	★		
BTR8005	BTR8005			8.0	0.05	★		
BTR8015	BTR8015			8.0	0.15	★		





■ **Parts**

(For Torx Holes)

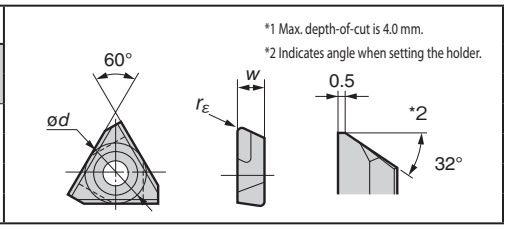
■ **Holder**

Cat. No.	Stock	Applicable Insert	Dimensions (mm)						Screw	Wrench
			h	*b*	*L1*	*f*	*h1*	*h2*		
SFT R1010	★	TFR33○○	10	10	120	10	10	3	BFTX0410NSW	RT08
SFT R1212	★		12	12	120	12	12	1		
SFT R1616	★		16	16	120	16	16	-		
SFT R2020	★		20	20	120	20	20	-		

★= Worldwide Warehouse item

■ **Insert**

Cat. No.	Stock	Dimensions (mm)			Holder
	ACZ150	ød	w	rε	
TF R3300	★	9.525	4.76	-	SFT R○○○○
TF R3305	★	9.525	4.76	0.05	
TF R3315	★	9.525	4.76	0.15	
TF R3320	★	9.525	4.76	0.20	

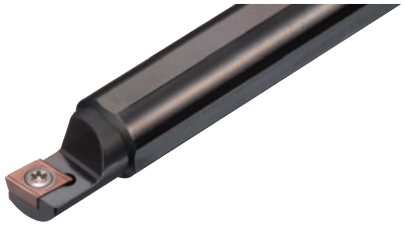


★= Worldwide Warehouse item

Round Shank Toolholders

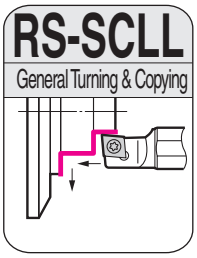
■ Characteristics

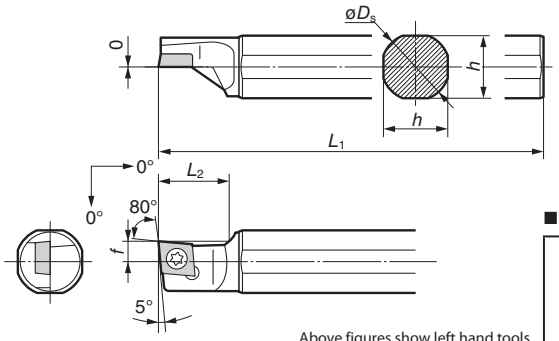
- Shank diameters from ø14 to ø25 are stocked. Holders can be fitted on machines of different makes.
- Bars can be mounted from the rear of the sleeve to increase the tooling range.



General Turning

RS-SCLL
General Turning & Copying





Above figures show left hand tools.

■ Parts

■ Holder

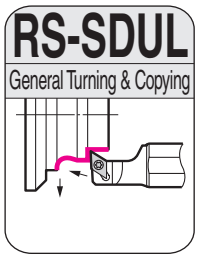
Cat. No.	Stock	Applicable Insert	Dimensions (mm)					Screw	Wrench
			øDs	h	L1	f	L2		
RS15H-SCLL06	★	CC□□21.5	15.875	15	100	6.0	20	BFTX02507NT	RT08
RS19X-SCLL06	★		19.05	18	120	6.0	20		
RS20X-SCLL06X	★		20	19	95	6.0	20		
RS20X-SCLL06	★		20	19	120	6.0	20		
RS22X-SCLL06	★		22	21	120	6.0	20		
RS25X-SCLL06	★		25	24	120	6.0	20		
RS25M-SCLL06	★		25.4	24	150	6.0	20		
RS15H-SCLL09	★	CC□□32.5	15.875	15	100	6.0	20	BFTX0408NT	LT25NT
RS19X-SCLL09	★		19.05	18	120	6.0	20		
RS20X-SCLL09S	★		20	19	95	6.0	20		
RS20X-SCLL09	★		20	19	120	6.0	20		
RS22X-SCLL09	★		22	21	120	6.0	20		
RS25X-SCLL09	★		25	24	120	6.0	20		
RS25M-SCLL09	★		25.4	24	150	6.0	20		

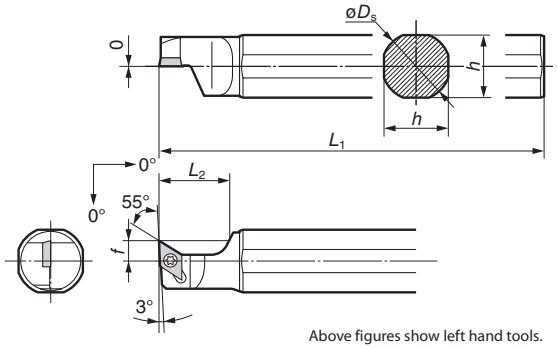
★ = Worldwide Warehouse item

* Right handed or neutral handed inserts are applicable.

General Turning

RS-SDUL
General Turning & Copying





Above figures show left hand tools.

■ **Parts**

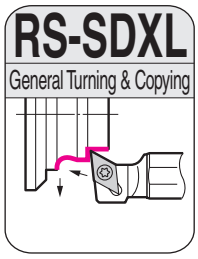
(For Torx Holes)

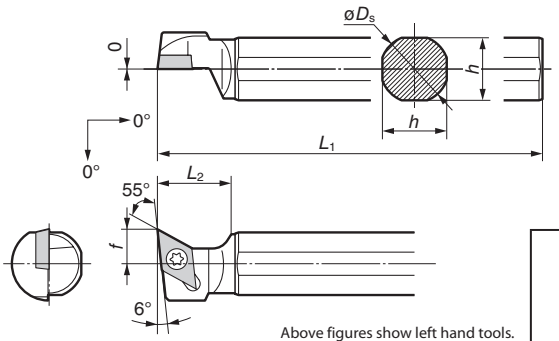
■ **Holder**

Cat. No.	Stock	Applicable Insert	Dimensions (mm)					Screw	Wrench
			øDs	h	L1	f	L2		
RS14F-SDUL07	★	DC□□21.5□	14	13	80	6.0	20	BFTX02507NT	RT08
RS15H-SDUL07	★		15.875	15	100	6.0	20		
RS16F-SDUL07	★		16	15	80	6.0	20		
RS16X-SDUL07	★		16	15	120	6.0	20		
RS19X-SDUL07	★		19.05	18	120	6.0	20		
RS20X-SDUL07S	★		20	19	95	6.0	20		
RS20X-SDUL07	★		20	19	120	6.0	20		
RS22X-SDUL07	★		22	21	120	6.0	20		
RS19X-SDUL11	★	DC□□32.5□	19.05	18	120	10.0	20	BFTX0410NT	LT25NT
RS20X-SDUL11S	★		20	19	95	10.0	20		
RS20X-SDUL11	★		20	19	120	10.0	20		
RS22X-SDUL11	★		22	21	120	10.0	20		
RS25X-SDUL11	★		25	24	120	10.0	20		
RS25M-SDUL11	★		25.4	24	150	10.0	20		

★ = Worldwide Warehouse item * Right handed or neutral handed inserts are applicable.

RS-SDXL
General Turning & Copying





Above figures show left hand tools.

■ **Parts**

(For Torx Holes)

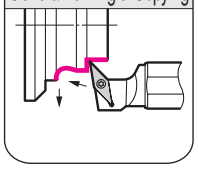
■ **Holder**

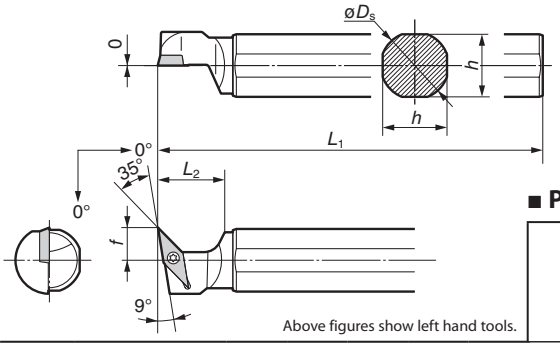
Cat. No.	Stock	Applicable Insert	Dimensions (mm)					Screw	Wrench
			øDs	h	L1	f	L2		
RS19X-SDXL11	★	DC□□32.5□	19.05	18	120	10.0	20	BFTX0410NT	LT25NT
RS20X-SDXL11S	★		20	19	95	10.0	20		
RS20X-SDXL11	★		20	19	120	10.0	20		
RS25X-SDXL11	★		25	24	120	10.0	20		

★ = Worldwide Warehouse item * Right handed or neutral handed inserts are applicable.

General Turning

RS-SVXL
General Turning & Copying





Above figures show left hand tools.

■ Holder

■ Parts

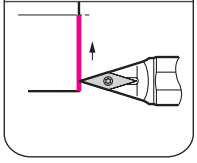
(For Torx Holes)

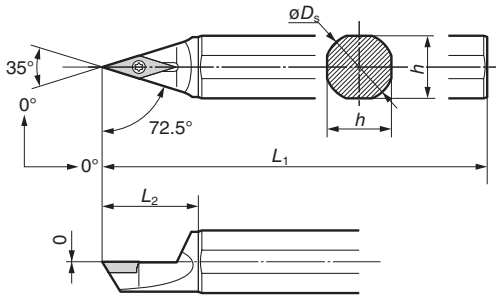
Cat. No.	Stock	Applicable Insert	Dimensions (mm)					Screw	Wrench
			øDs	h	L1	f	L2		
RS15H-SVXL11	★	VC□□22□	15.875	15	100	10.0	20	BFTX02507NT	RT08
RS19X-SVXL11	★		19.05	18	120	10.0	20		
RS20X-SVXL11S	★		20	19	95	10.0	20		
RS20X-SVXL11	★		20	19	120	10.0	20		
RS22X-SVXL11	★		22	21	120	10.0	20		
RS25X-SVXL11	★		25.4	24	150	10.0	20		

★= Worldwide Warehouse item

* Right handed or neutral handed inserts are applicable.

RS-SVVP
Facing





■ Holder

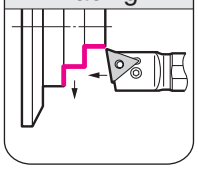
■ Parts

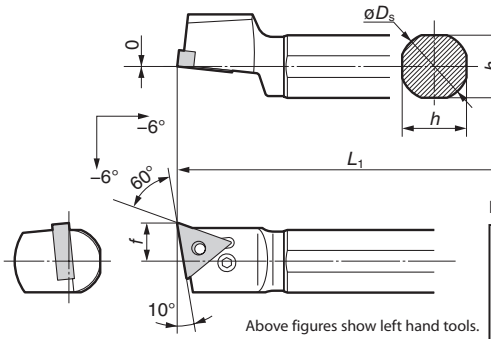
(For Torx Holes)

Cat. No.	Stock	Applicable Insert	Dimensions (mm)					Screw	Wrench
			øDs	h	L1	f	L2		
RS19X-SVVPN11	★	VP□□22□	19.05	18	120	9.0	27	BFTX02507NT	RT08
RS22X-SVVPN11	★		22	21	120	10.5	27		

★= Worldwide Warehouse item

RS-PTXN
Facing





Above figures show left hand tools.

■ Holder

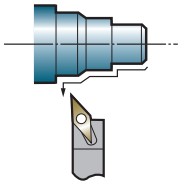
■ Parts

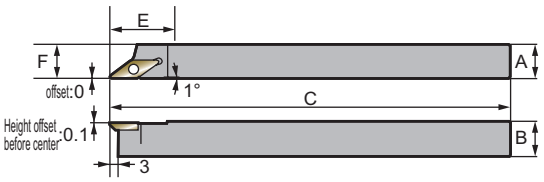
(For Hexagonal Holes)

Cat. No.	Stock	Applicable Insert	Dimensions (mm)				Lever Pin	Screw	Wrench
			øDs	h	L1	f			
RS19X-PTXNL16	★	TN□□33	19.05	18	120	11.0	LCL33NT	LCS33NT	LH020NT
RS20X-PTXNL16	★		20	19	120	11.0			
RS25M-PTXNL16	★		25.4	24	150	13.0			

★= Worldwide Warehouse item

SPB R/L Series





Sumitomo Cat. No.			Dimensions (Inch/*mm*)							
Right Hand	Left Hand	Applicable Insert	Stock	A	B	C	E	F	Insert Screw	Torx Wrench
SPBR063D	SPBL063D	PBV1102	•	.375	.375	6.000	.669	.375	BFTX02505N	LT08-06
SPBR083D	SPBL083D	PBV1102	•	.500	.500	6.000	.669	.500	BFTX02505N	LT08-06
SPBR1010-60	*SPBL1010-60*	PBV1102	★	*10.0*	*10.0*	*150.0*	*17.0*	*10.5*	BFTX02505N	LT08-06
SPBR1212-60	*SPBL1212-60*	PBV1102	★	*12.0*	*12.0*	*150.0*	*17.0*	*12.5*	BFTX02505N	LT08-06

• = USA stocked item ★ = Worldwide Warehouse item

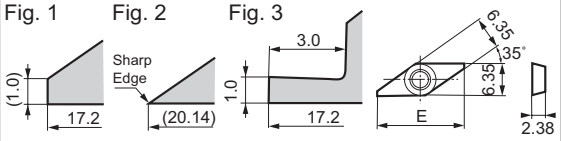
Swiss Tooling Inserts
for precision turning applications:
• *Cut-off* • *Back Turn*
• *Boring Roughing* • *Boring Finishing*

P Steel
M Stainless Steel
K Cast Iron
N Non-ferrous
S Exotic Materials
H Hardened Steel

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item

Blank Inserts *for SPB Type holder (See above)*

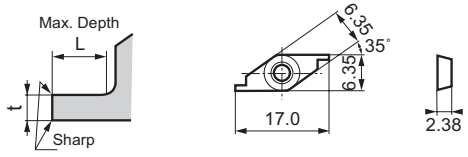
Uncoated



Sumitomo Catalog #	Dim. E (mm)	Application	Fig.	BL130		
PBVX1102R-NB	17.20	General	1	★		
PBVX1102R-SB	20.14	Sharp Edge	2	★		
PBVX1102R-BB	14.20	Special	3	★		

Grooving Inserts *for SPB Type holder (See above)*

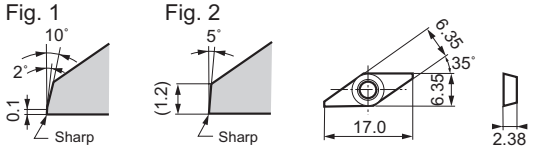
Uncoated



Sumitomo Catalog #	Dimensions (mm)		BL130		
	Groove Depth	t			
PBVG1102R-030	0.5	0.3	★		
PBVG1102R-050	1.0	0.5	★		
PBVG1102R-100	2.0	1.0	★		

Turning Inserts *for SPB Type holder (See above)*

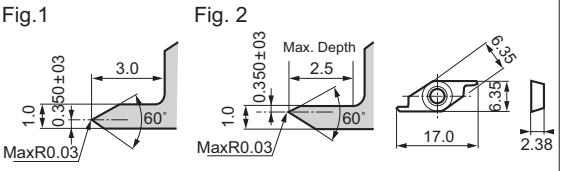
Uncoated



Sumitomo Catalog #	Cutting Edge Width (mm)	Wiper Edge	Fig.	BL130		
PBVFW1102R	1.0	Yes	1	★		
PBVFN1102R	1.0	No	2	★		

Threading Inserts *for SPB Type holder (See above)*

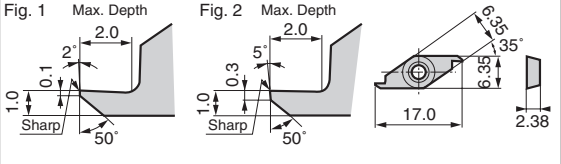
Uncoated



Sumitomo Catalog #	Pitch (mm)	Fig.	BL130		
PBVTF1102R	0.2 ~ 0.5	1	★		
PBVTB1102R	0.2 ~ 0.5	2	★		

Back Turning Inserts *for SPB Type holder (See above)*

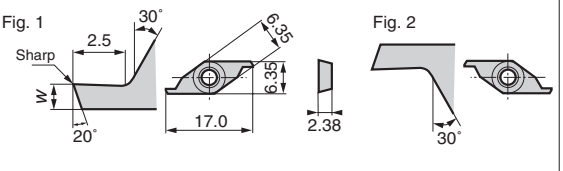
Uncoated



Sumitomo Catalog #	Cutting Edge Width (mm)	Wiper Edge	Fig.	BL130		
PBVBN1102R	1.0	Yes	1	★		
PBVBW1102R	1.0	No	2	★		

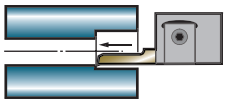
Cut-off Inserts *for SPB Type holder (See above)*

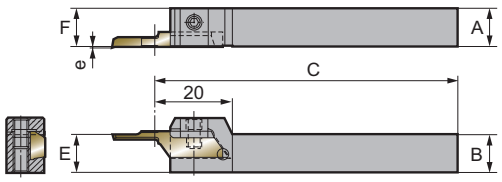
Uncoated



Sumitomo Catalog #	Cutting Edge Width (mm)	Maximum Cut-off diameter	Fig.	BL130		
PBVC1102L-50	1.0	5.0	1	★		
PBVC1102R-50	1.0	5.0	2	★		

CKBR Series





Sumitomo Cat. No.		Applicable Insert	Stock	Dimensions (Inch/*mm*) A	B	C	E	F	Clamp	Clamp Screw	Wrench
CKBR062D		KBMXR	•	.375	.375	6.000	.375	.375	CKBW16	WB4-8	LH020
CKBR082D		KBMXR	•	.500	.500	6.000	.500	.500	CKBW16	WB4-8	LH020
CKBR102D		KBMXR	•	.625	.625	6.000	.625	.625	CKBW16	WB4-8	LH020
CKBR1010-16		KBMXR	★	*10.0*	*10.0*	*150.0*	*10.0*	*10.0*	CKBW16	WB4-8	LH020
CKBR1212-16		KBMXR	★	*12.0*	*12.0*	*150.0*	*12.0*	*12.0*	CKBW16	WB4-8	LH020
CKBR1616-16		KBMXR	★	*16.0*	*16.0*	*150.0*	*16.0*	*16.0*	CKBW16	WB4-8	LH020

• = USA stocked item ★ = Worldwide Warehouse item

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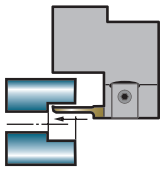
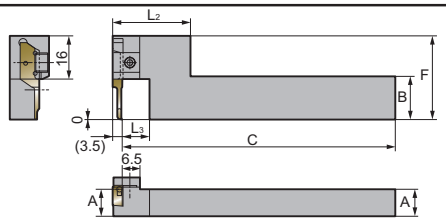
CKBSR Series



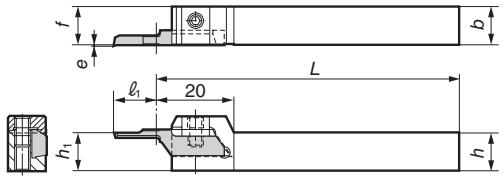


Sumitomo Cat. No. Right Hand		Applicable Insert	Stock	Dimensions (Inch/*mm*) A	B	C	F	L_2	L_3	Clamp	Clamp Screw	Wrench
CKBSR102D		KBMXL	•	.625	.625	6.000	1.220	1.125	.393	CKBW16	WB4-8	LH020
CKBSR1010-16-11		KBMXL	★	*10.0*	*16.0*	*150.0*	*31.0*	*28.5*	*10.0*	CKBW16	WB4-8	LH020
CKBSR1212-16-11		KBMXL	★	*12.0*	*16.0*	*150.0*	*31.0*	*28.5*	*10.0*	CKBW16	WB4-8	LH020
CKBSR1616-16-11		KBMXL	★	*16.0*	*16.0*	*150.0*	*31.0*	*28.5*	*16.0*	CKBW16	WB4-8	LH020

• = USA stocked item ★ = Worldwide Warehouse item

KB Turning Insert pg. 238

Square Shank



■ Holder

Please refer to facing page E15 for e, ℓ_1 dimensions.

■ Spare Parts




(For Hexagonal Holes)

Cat. No.	Stock	Dimensions (mm)					Clamp	Double Screw	Wrench
		h	*b*	*L*	*f*	*h1*			
CKB R1010-16	★	10	10	100	10	10	CKBW16	WB4-8	LH020
CKB R1212-16	★	12	12	125	12	12			
CKB R1616-16	★	16	16	125	16	16			
CKB R2020-16	★	20	20	125	20	20			
CKB R2525-16		25	25	150	25	25			

★= Worldwide Warehouse item

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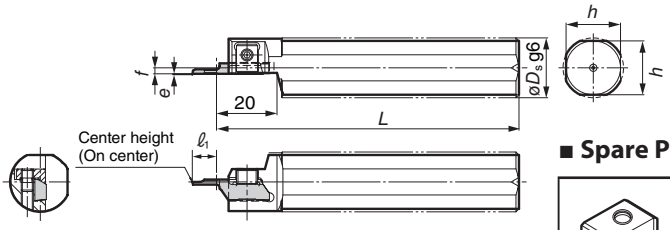
Round Shank (Offset Small)



■ Holder

Please refer to facing page E15 for e, ℓ_1 dimensions.

■ Spare Parts



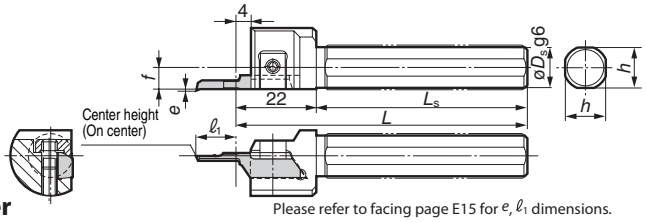

(For Hexagonal Holes)

Cat. No.	Stock	Dimensions (mm)				Clamp	Double Screw	Wrench
		øDs	*h*	*L*	*f*			
S1905H-CKB RS-16	★	19.05	17	100	2	CKBW16	WB4-8	LH020
S20H-CKB RS-16	★	20	18	100	2			
S22K-CKB RS-16	★	22	19	125	2			
S25K-CKB RS-16	★	25	23	125	2			
S254K-CKB RS-16	★	25.4	23	125	2			

★= Worldwide Warehouse item

KB Turning Insert pg. 238

Round Shank



■ Holder

Please refer to facing page E15 for e, ℓ_1 dimensions.

■ Spare Parts




(For Hexagonal Holes)

Cat. No.	Stock	Dimensions (mm)					Clamp	Double Screw	Wrench
		øDs	*h*	*L*	*Ls*	*f*			
S10F-CKB R-16	★	10	9	80	58	5	CKBW16	WB4-8	LH020
S12F-CKB R-16	★	12	11	80	58	6			
S16H-CKB R-16	★	16	15	100	78	8			
S19K-CKB R-16	★	19.05	17	125	103	8			
S20K-CKB R-16	★	20	18	125	103	10			

★= Worldwide Warehouse item

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Twin Head Toolholders

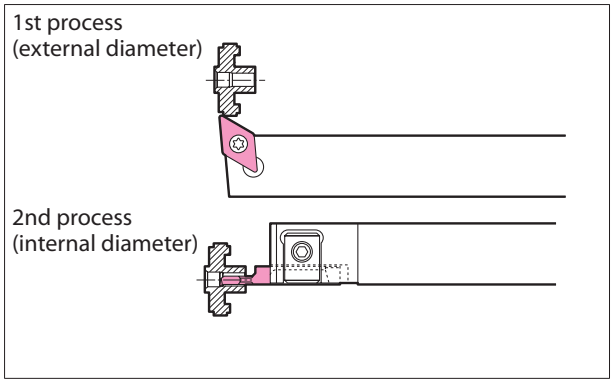
TWIN HEAD

■ Characteristics

- 1 holder that performs 2 operations is equivalent to mounting an additional tool on the machine.
- External turning possible with the aid of a drill sleeve.
- 2 holder configurations, internal+external and internal +internal, are standard stocked items.
- Height difference of the 2 cutting edges is below 40µm which is good for high precision machining.

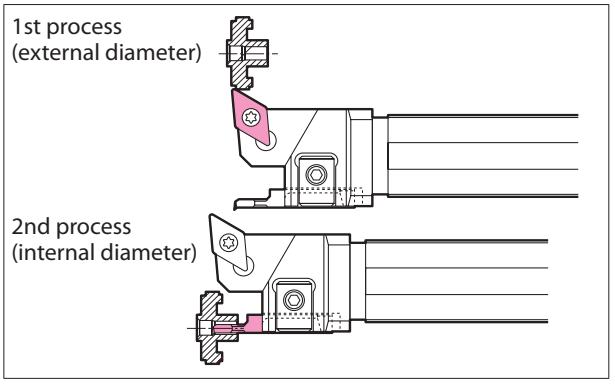
■ Advantage of twin-head holder

- Conventional tool



• 2 different operations requiring 2 separate tools.

- Twin head holder

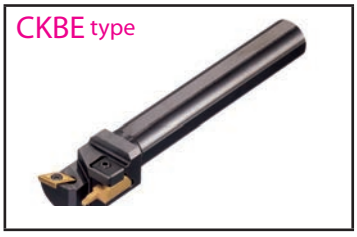


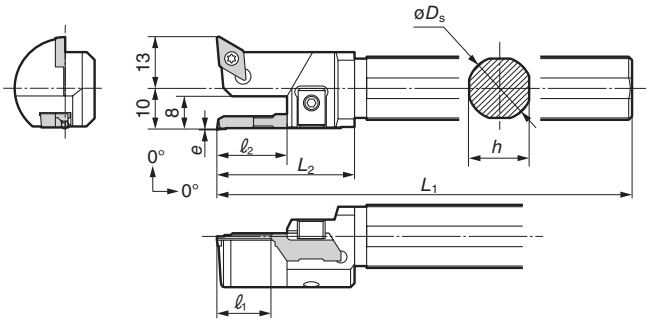
• A single tool performing 2 different operations.

• Cycle time can be reduced.

Boring External Tool Holder

CKBE type





Please refer to page E13 for *e*.

■ **Holder** (ID boring depth 6.0mm type)

Cat. No.	Stock	Dimensions (mm)						*Maximum workpiece diameter	ID Boring Insert	OD Turning Insert
		øDs	h	L1	L2	ℓ1	ℓ2			
S1588X-CKBE-06	★	15.875	15	130	27	6	10	**12.0**	KBMX R○○06-○○ KBMX R○○06-○○T	DC□□21.5□
S16X-CKBE-06	★	16	15	130	27	6	10	**12.0**		
S1905X-CKBE-06	★	19.05	17	130	27	6	10	**12.0**		
S20X-CKBE-06	★	20	18	130	27	6	10	**12.0**		
S22X-CKBE-06	★	22	20	130	27	6	10	**12.0**		

★= Worldwide Warehouse item * When machining internal diameter

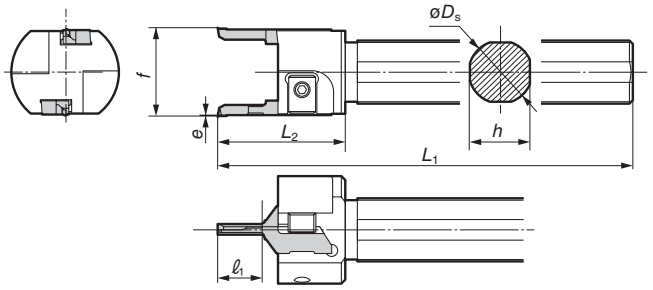
■ **Holder** (ID boring depth 11.0mm type)

Cat. No.	Stock	Dimensions (mm)						*Maximum workpiece diameter	ID Boring Insert	OD Turning Insert
		øDs	h	L1	L2	ℓ1	ℓ2			
S1588X-CKBE-11	★	15.875	15	130	32	11	15	**12.0**	KBMX R○○11-○○ KBMX R○○11-○○T	DC□□21.5□
S16X-CKBE-11	★	16	15	130	32	11	15	**12.0**		
S1905X-CKBE-11	★	19.05	17	130	32	11	15	**12.0**		
S20X-CKBE-11	★	20	18	130	32	11	15	**12.0**		
S22X-CKBE-11	★	22	20	130	32	11	15	**12.0**		

★= Worldwide Warehouse item * When machining internal diameter

KB Turning Insert pg. 238

Boring + Face Grooving



■ Holder

Please refer to facing page E15 for e, ℓ_1 dimensions.

Cat. No.	Stock	Dimensions (mm)						ID Boring Insert	OD Turning Insert
		$øD_S$	h	L_1	L_2	f	N		
S1588X-CKBB-F	★	15.875	15	130	32	22.0	11	KBMX R○○○○-○○ KBMX R○○○○-○○T	KBMF R○○○○-05
S16X-CKBB-F	★	16	15	130	32	22.0	11		
S1905X-CKBB-F	★	19.05	17	130	32	22.0	11		
S20X-CKBB-F	★	20	18	130	32	22.0	11		
S22X-CKBB-F	★	22	20	130	32	22.0	11		

* Reference for L_1, f, and ℓ_1 are taken with KBMXR0311-OO(T) mounted.

★= Worldwide Warehouse item

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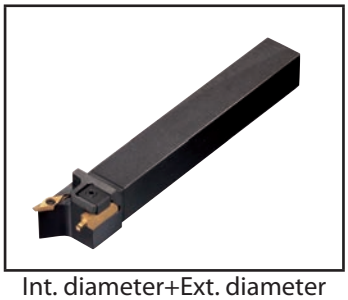
■ Spare Parts

For use with KBM □ R insert			For use with DC □□ insert		
	 (For Hexagonal Holes)			 (For Torx Holes)	
Clamp	**Double Screw**	**Wrench**	**Screw**	**Recommended Tightening Torque (N•m)**	**Wrench**
CKBW16	WB4-8	LH020	BFTX02506N	**1.5**	TRX08

■ Special Holder Configurations



Int. diameter+Ext. diameter
(Square shank holder)

Inner diameter + Center drill

Int. diameter + Int. diameter
(Parallel boring holder)

Holder configurations for different workpieces or various machining requirements, such as guide holes, chamfering and external necking, can be custom-made.

KBM Inserts

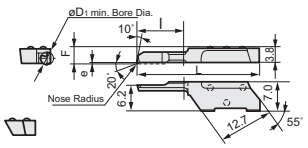
Swiss Tooling Inserts

for precision turning applications:
- *Cut-off*
- *Back Turn*
- *Boring Rough*
- *Boring Finishing*

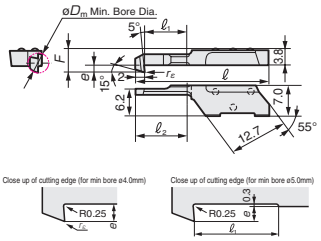
P Steel
M Stainless Steel
K Cast Iron
N Non-ferrous
S Exotic Materials
H Hardened Steel

● USA Stocked Item
★ Worldwide Warehouse Item
▲ USA Limited Availability Item

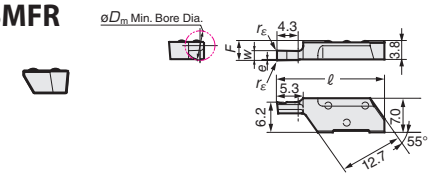
KBMXR



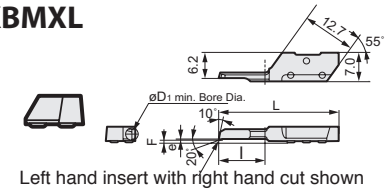
KBMZ



KBMFR

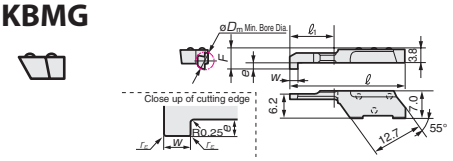


KBMXL



Left hand insert with right hand cut shown

KBMG



Boring Rough Inserts *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)						ACZ310	DA2200
	Min. Bore Dia.	F	e	Nose Radius	L	ℓ		
KBMXR0103-05	1.0	4.00	0.20	0.05	20.5	3	▲	
KBMXR0103-20	1.0	4.00	0.20	0.20	20.5	3	★	
KBMXR01506-05	1.5	4.05	0.25	0.05	23.5	6	★	
KBMXR01506-20	1.5	4.05	0.25	0.20	23.5	6	★	
KBMXR0206-05	2.0	4.05	0.25	0.05	23.5	6	▲	
KBMXR0206-20	2.0	4.05	0.25	0.20	23.5	6	★	
KBMXR0311-05	3.0	4.10	0.30	0.05	28.5	11	★	
KBMXR0311-10	3.0	4.10	0.30	0.10	28.5	11		★
KBMXR0311-20	3.0	4.10	0.30	0.20	28.5	11	★	
KBMXR0411-05	4.0	4.30	0.50	0.05	28.5	11	▲	
KBMXR0411-10	4.0	4.30	0.50	0.10	28.5	11		★
KBMXR0411-20	4.0	4.30	0.50	0.20	28.5	11	▲	
KBMXR0420-05	4.0	4.30	0.50	0.05	37.5	20		
KBMXR0420-20	4.0	4.30	0.50	0.20	37.5	20		
KBMXR0511-05	5.0	4.50	0.70	0.05	28.5	11	▲	
KBMXR0511-10	5.0	4.50	0.70	0.10	28.5	11		★
KBMXR0511-20	5.0	4.50	0.70	0.20	28.5	11	▲	
KBMXR0520-05	5.0	4.50	0.70	0.05	37.5	20	★	
KBMXR0520-20	5.0	4.50	0.70	0.20	37.5	20	★	

Boring Rough Inserts Right Hand Cut *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)						ACZ310
	Min. Bore Dia.	F	e	Nose Radius	L	ℓ	
KBMXL0206-05R	2.0	0.50	0.25	0.05	23.5	6	▲
KBMXL0206-20R	2.0	0.50	0.25	0.20	23.5	6	★
KBMXL0311-05R	3.0	0.50	0.30	0.05	28.5	11	★
KBMXL0311-20R	3.0	0.50	0.30	0.20	28.5	11	★
KBMXL0411-05R	4.0	0.50	0.50	0.05	28.5	11	▲
KBMXL0411-20R	4.0	0.50	0.50	0.20	28.5	11	▲
KBMXL0511-05R	5.0	0.50	0.50	0.05	28.5	11	★
KBMXL0511-20R	5.0	0.50	0.50	0.20	28.5	11	★
KBMXL0520-05R	5.0	0.50	0.50	0.05	37.5	20	★
KBMXL0520-20R	5.0	0.50	0.50	0.20	37.5	20	★

Back Boring *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)							ACZ310
	Min. Bore Dia.	F	e	Nose Radius	L	ℓ1	ℓ2	
KBMZR0411-05	4.0	5.10	1.10	0.05	28.5	9	11	★
KBMZR0411-20				0.20				★
KBMZR0511-05	5.0	5.10	1.30	0.05	28.5	9	11	★
KBMZR0511-20				0.20				★

Boring Finishing Inserts *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)						ACZ310	ACZ150
	Min. Bore Dia.	F	e	Nose Radius	L	ℓ		
KBMXR0103-05T	1.0	4.00	0.20	0.05	20.5	3	▲	
KBMXR0103-20T	1.0	4.00	0.20	0.20	20.5	3		★
KBMXR01506-05T	1.5	4.05	0.25	0.05	23.5	6		★
KBMXR01506-20T	1.5	4.05	0.25	0.20	23.5	6		★
KBMXR0206-05T	2.0	4.05	0.25	0.05	23.5	6	▲	
KBMXR0206-20T	2.0	4.05	0.25	0.20	23.5	6		★
KBMXR0311-05T	3.0	4.10	0.30	0.05	28.5	11		★
KBMXR0311-20T	3.0	4.10	0.30	0.20	28.5	11		★
KBMXR0411-05T	4.0	4.30	0.50	0.05	28.5	11	▲	
KBMXR0411-20T	4.0	4.30	0.50	0.20	28.5	11	▲	
KBMXR0511-05T	5.0	4.50	0.70	0.05	28.5	11	▲	
KBMXR0511-20T	5.0	4.50	0.70	0.20	28.5	11	▲	

T = Free cutting

Face Grooving *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)							ACZ150
	Min. Bore Dia.	W	F	e	Corner Radius	L	Maximum groove depth	
KBMFR0615-05	6.0	1.5	4.00	0.20	0.05	21.8	4.0	★
KBMFR0620-05	6.0	2.0	4.00	0.20	0.05	21.8	4.0	★
KBMFR0630-05	6.0	3.0	4.00	0.20	0.05	21.8	4.0	★

Internal Grooving *(p. 234-235 for holder)*

Sumitomo Catalog #	Dimensions (mm)							ACZ310
	Min. Bore Dia.	W	F	e	Corner Radius	L	ℓ	
KBMGR0411-05	4.0	1.0	4.90	1.10	0.05	28.5	11	★
KBMGR0411-10		2.0			0.10			★
KBMGR0511-05	5.0	1.0	5.10	1.30	0.05	28.5	11	★
KBMGR0511-10		2.0			0.10			★

Boring Bars

Pages 239-275

BORING BARS **PAGES**

Boring Bar Nomenclature

A
Boring Bar Type

A 
Solid Steel Bar with Coolant Hole

B 
Solid Steel Bar with Anti-Vibration Device

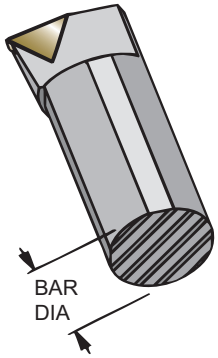
C 
Solid Carbide Bar

D 
Solid Steel Bar with Anti-Vibration Device and coolant hole

E 
Carbide Bar with Fixed Steel Head & Coolant Hole

S 
Solid Steel Bar

16-
Boring Bar Diameter



This indicates D dimensions in sixteenths (1/16).

examples:

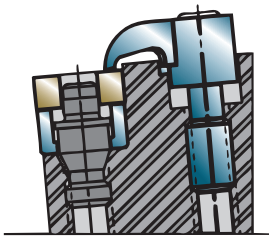
08 = 8/16 = 1/2" Diameter

16 = 16/16 = 1.0" Diameter

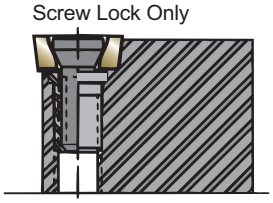
24 = 24/16 = 1-1/2" Diameter

M
Insert Holding

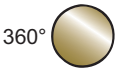
M
Clamp and Lock Pin



S
Screw Lock Only

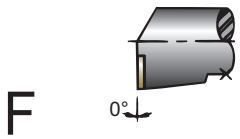


C
Insert Shape

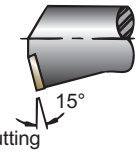
C	Diamond	
D	Diamond	
R	Round	
S	Square	
T	Triangle	
V	Diamond	
W	Trigon	

L

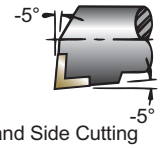
Boring Bar Style



F
0° End Cutting

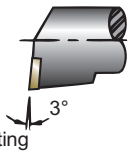


K
15° End Cutting

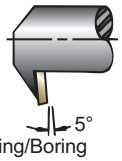


L
-5° End and Side Cutting

Q
-17.5° End Cutting



U
-3° End Cutting



X
-5° Back Facing/Boring

C

Insert Relief Angle

B

C

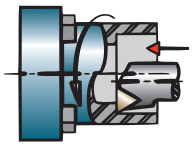
N

P

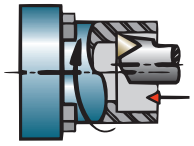
R

Hand

R
Right Hand

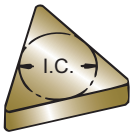


L
Left Hand



2

Insert Size



For equal sided inserts this indicates the inscribed circle (I.C.) in eighths (1/8).

examples,

6 = 6/8 = 3/4" I.C.

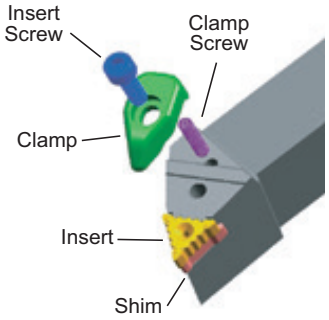
4 = 4/8 = 1/2" I.C.

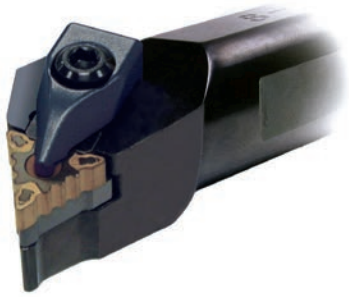
2.5 = 2.5/8 = 5/16" I.C.

Overview – Insert Holding Methods

T-Rex Boring Bars

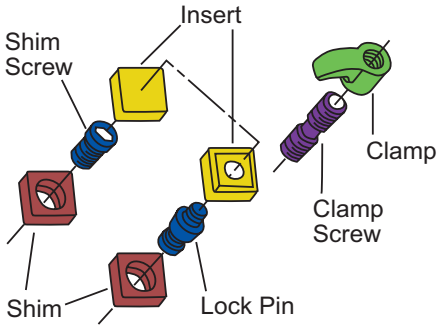
- Available in the -LU, -GU and -SU chipbreakers with grades T2000Z, AC700G, AC2000, AC820P, AC830P, AC610M, and AC630M
- Rigid clamping system ensures accurate insert indexing
- Up to 2.5mm (0.100″) depth of cut
- **Six** 55° cutting edges versus the standard **four** edges of a DNMG insert





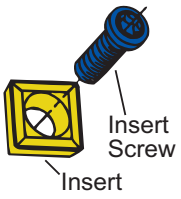
ANSI Standard Combination Boring Bars with through coolant

- Proven lock pin for negative rake geometry inserts
- Ideal for unground, negative rake inserts or utility and precision ground inserts
- Available with integral coolant delivery



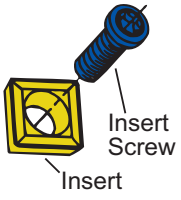
ANSI/ISO "Screw-On" Boring Bars

- Available with steel, carbide, or heavy metal shanks, ranging in size from 3/8″ to 1″ and coolant through the tool
- Designed to ISO-ANSI standards
- Uses TORX* insert holding screws
- Available with Anti-Vibration steel shanks



X-BAR Boring Bars

- Special dampener mechanism eliminates chatter
- Up to 6X L/D overhang (depth / bar diameter)
- Cost effective solution to carbide bars when deep hole boring
- Available in both coolant-through and non-coolant-through
- Effectively rough bores deep holes
- Bars available with CCMT, TCMT and TPMT style inserts



Sumitomo Design Boring Bars

- Styles available using negative inserts and 5°, 7°, 11° and 15° positive inserts
- For bores as small as .228″ using the BSWJO design
- Available in steel or carbide shanks
- Various locking methods / unique Sumitomo designs

Features & Benefits

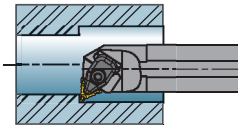
- Available in the -LU, -GU and -SU chipbreakers with grades T2000Z, AC700G, AC820P, AC830P, AC610M, and AC630M

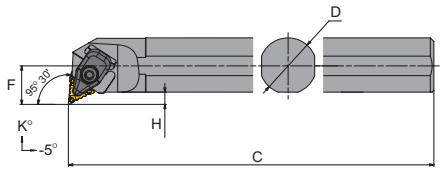
- Rigid clamping system ensures accurate insert indexing
- Up to 2.5mm (0.100") depth of cut

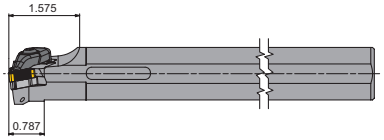
- **Six** 55° cutting edges versus the standard **four** edges of a DNMG insert

T-REX Boring Bar

A-DTR Series

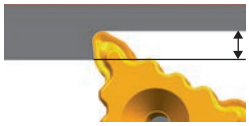




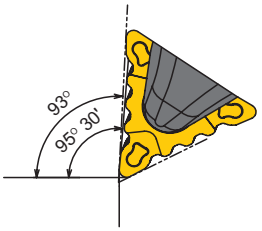


Sumitomo Cat. No.		Dimensions (Inch)					
Right Hand	Left Hand	D	C	F	H	K	Min. Bore
A20DTR55CR3	A20DTR55CL3	1.250"	10.000"	0.875"	0.309"	-12°	1.750"
-	A24DTR55CL3	1.500"	12.000"	1.000"	0.309"	-10°	2.000"

T-REX Inserts



2.5mm (0.100")
Maximum
Depth of cut



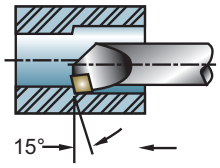
Please refer to page 70 for T-REX Inserts

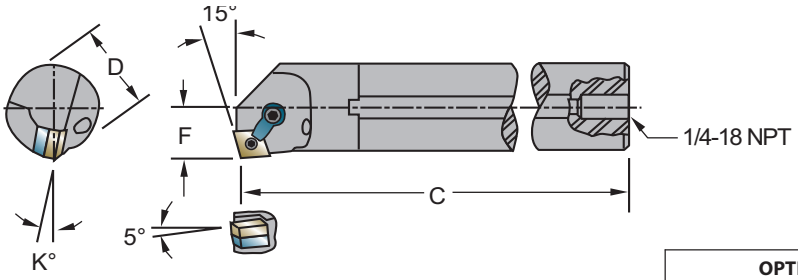
Hardware

						
Clamp	Spring	Clamp Screw	Shim	Shim Screw	Wrench	Torx Wrench
TRCP3	SSP420	BX0520	TRW5505	BFTX0307N	TSW040	TRX10

Torque specifications for BX0520 clamp screw = 31-39 inch/lbs.

A-MCK

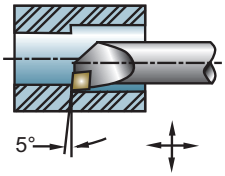


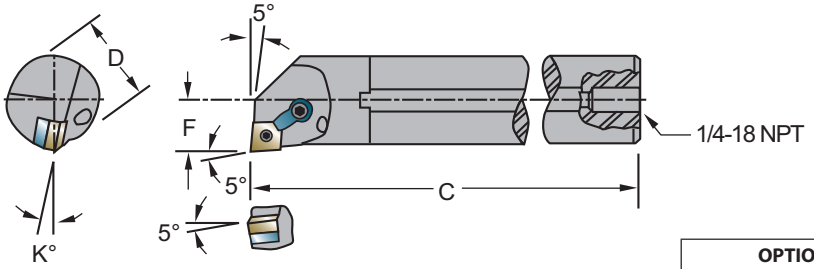


Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore	Shim	Lock Pin	Clamp	Clamp Screw	OPTIONAL HARDWARE Shim Screw	Wrench	Wrench
Right Hand	Left Hand	Gage Insert												
A20MCKNR4	A20MCKNL4	CNMG432	1.250	14.000	.765	14°	1.470	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
A24MCKNR5	A24MCKNL5	CNMG543	1.500	14.000	.890	12°	1.760	ICSN-533	NL58	CL12	XNS510	S58	LH3/32	LH030

A-MCL



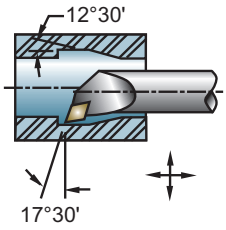


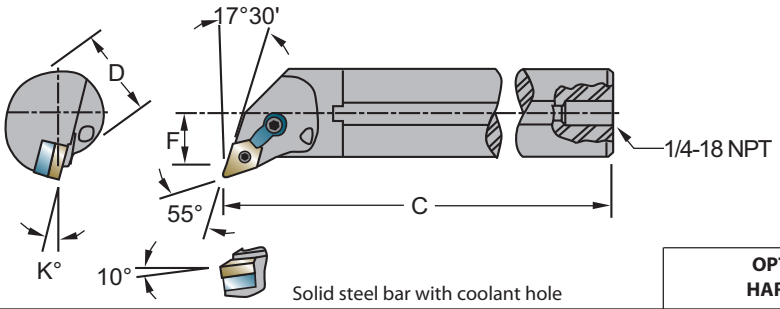
Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore	Shim	Lock Pin	Clamp	Clamp Screw	OPTIONAL HARDWARE Shim Screw	Wrench	Wrench
Right Hand	Left Hand	Gage Insert												
A16MCLNR3	A16MCLNL3	CNMG322	1.000	12.000	.640	14°	1.200	N/A	NL-33	CL-7	XNS-36	–	–	–
A16MCLNR4	A16MCLNL4	CNMG432	1.000	12.000	.640	14°	1.200	N/A	NL-44	CL20	XNS48	–	LH3/32	LH030
A20MCLNR4	A20MCLNL4	CNMG432	1.250	12.000	.765	14°	1.470	ICSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
A24MCLNR4	A24MCLNL4	CNMG432	1.500	14.000	.890	14°	1.760	ICSN433	NL-46	CL20	XNS47	S46	LH3/32	LH030
A28MCLNR4	A28MCLNL4	CNMG432	1.750	14.000	1.015	12°	2.010	ICSN433	NL-44	CL20	XNS48	S46	LH3/32	LH030
A32MCLNR4	A32MCLNL4	CNMG432	2.000	14.000	1.281	12°	2.400	ICSN433	NL-44	CL20	XNS48	S46	LH3/32	LH030
A32MCLNR5	A32MCLNL5	CNMG543	2.000	16.000	1.281	12°	2.400	ICSN533	NL58	CL12	XNS510	S58	LH030	LH040
A40MCLNR4	A40MCLNL4	CNMG432	2.500	16.000	1.531	10°	3.030	ICSN433	NL-44	CL20	XNS48	S46	LH3/32	LH030

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

A-MDQ

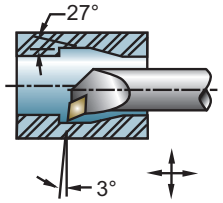


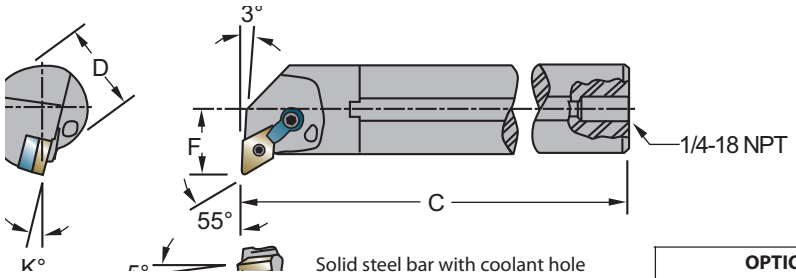


Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore								OPTIONAL HARDWARE		
Right Hand	Left Hand	Gage Insert						Shim	Lock Pin	Clamp	Clamp Srew		Shim Screw	Wrench	Wrench
A20MDQNR4	A20MDQNL4	DNMG432	1.250	14.000	1.000	12°	1.705	IDSN433	NL46	CL20	XNS48		S46	LH3/32	LH030
A24MDQNR4	A24MDQNL4	DNMG432	1.500	14.000	1.125	8°	2.000	IDSN433	NL46	CL20	XNS48		S46	LH3/32	LH030

A-MDU



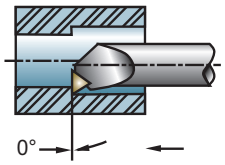


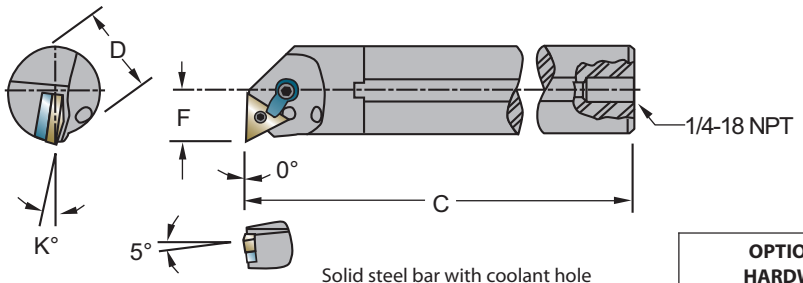
Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore								OPTIONAL HARDWARE		
Right Hand	Left Hand	Gage Insert						Shim	Lock Pin	Clamp	Clamp Screw		Shim Screw	Wrench	Wrench
A16MDUNR3	A16MDUNL3	DNMG332	1.000	12.000	.750	12°	1.300	N/A	NL-33	CL-7	XNS-36		S-34	N/A	N/A
A20MDUNR4	A20MDUNL4	DNMG432	1.250	14.000	1.000	10°	1.705	IDSN433	NL46	CL20	XNS48		S46	LH3/32	LH030
A24MDUNR4	A24MDUNL4	DNMG432	1.500	14.000	1.250	10°	2.000	IDSN433	NL46	CL20	XNS48		S46	LH3/32	LH030
A28MDUNR4	A28MDUNL4	DNMG432	1.750	14.000	1.250	10°	2.250	IDSN433	NL46	CL20	XNS48		S46	LH3/32	LH030
A32MDUNR4	A32MDUNL4	DNMG432	2.000	16.000	1.375	10°	2.500	IDSN533	NL58	CL12	XNS510		S58	LH030	LH040

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

A-MTF

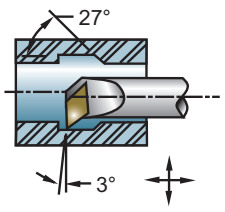


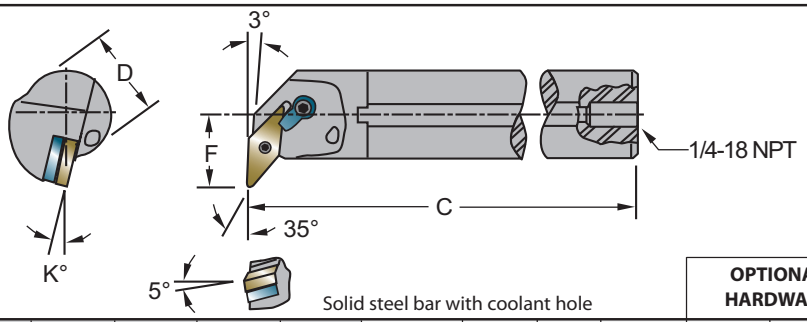


Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore					OPTIONAL HARDWARE		
Right Hand	Left Hand	Gage Insert						Shim	Lock Pin	Clamp	Clamp Screw	Shim Screw	Wrench	Wrench
A16MTFNR3	A16MTFNL3	TNMG332	1.000	12.000	.640	15°	1.200	N/A	NL-33L	CL20	XNS47	-	LH020	LH030
A20MTFNR3	A20MTFNL3	TNMG332	1.250	12.000	.765	12°	1.470	ITSN323	NL34L	CL20	XNS48	-	LH3/32	LH030
A24MTFNR3	A24MTFNL3	TNMG332	1.500	14.000	.890	10°	1.760	ITSN323	NL34L	CL20	XNS48	-	LH3/32	LH030
A24MTFNR4	A24MTFNL4	TNMG432	1.500	14.000	1.030	10°	1.900	ITSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
A32MTFNR4	A32MTFNL4	TNMG432	2.000	14.000	1.281	8°	2.400	ITSN433	NL46	CL20	XNS48	S46	LH3/32	LH030

A-MVU





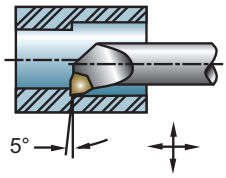
Solid steel bar with coolant hole

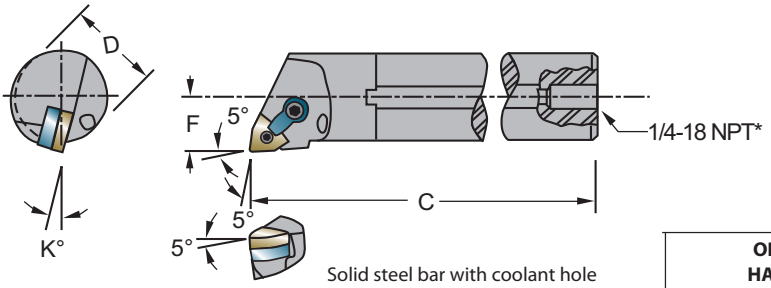
Sumitomo Cat. No.			D	C	F	K°	Min. Bore					OPTIONAL HARDWARE	
Right Hand	Left Hand	Gage Insert						Shim	Lock Pin	Clamp	Clamp Screw	Wrench	Wrench
A20MVUNR3	A20MVUNL3	VNMG332	1.250	14.000	1.125	12°	1.705	IVSN322	NL34L	CL-22	XNS47	LH020	LH030
A24MVUNR3	A24MVUNL3	VNMG332	1.500	14.000	1.250	12°	2.250	IVSN322	NL34L	CL-22	XNS47	LH020	LH030

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

ANSI Standard Combination
Boring Bars
Series: A-MWL

A-MWL





Solid steel bar with coolant hole

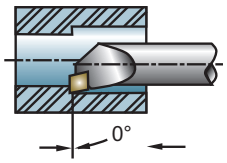
Sumitomo Cat. No.			D	C	F	K°	Min. Bore	Shim	Lock Pin	Clamp	Clamp Screw	OPTIONAL HARDWARE Shim Screw	Wrench	Wrench
Right Hand	Left Hand	Gage Insert												
A12MWLNR3*	A12MWLNL3	WNMG332	.750	10.000	.500	14°	1.000	IWSN322	NL46	CL6	XNS36	N/A	LH3/32	LH020
A16MWLNR3	A16MWLNL3	WNMG332	1.000	12.000	.640	14°	1.200	IWSN322	NL46	CL6	XNS36	N/A	LH3/32	LH020
A16MWLNR4	A16MWLNL4	WNMG432	1.000	12.000	.640	14°	1.200	N/A	NL-44	CL20	XNS47	S46	LH3/32	LH030
A20MWLNR4	A20MWLNL4	WNMG432	1.250	12.000	.765	14°	1.470	IWSN433	NL46	CL20	XNS48	S46	LH3/32	LH030
A24MWLNR4	A24MWLNL4	WNMG432	1.500	14.000	.890	14°	1.760	IWSN433	NL46	CL20	XNS48	S46	LH3/32	LH030

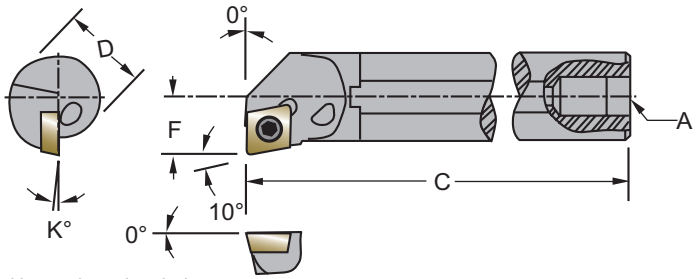
*A=1/27-NPT for A12MWLNR3

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

ANSI-ISO Boring Bars
with through coolant

A-SCFP



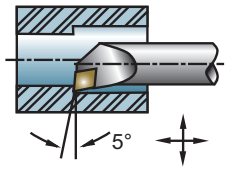


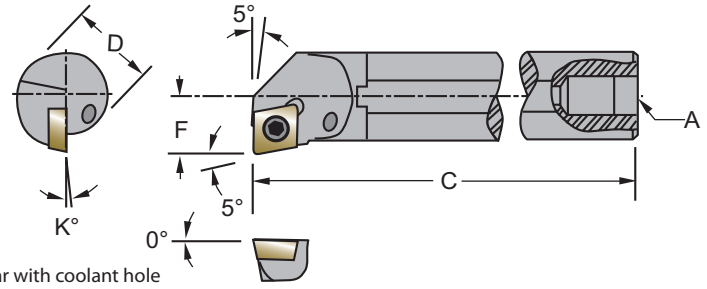
Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	11° Positive Gage Insert							Insert Screw	Wrench
A06SCFPR2	–	CPMT21.51	.375	6.000	.250	4°	.480	1/8*	BFTY0205	TRX07
A08SCFPR2	A08SCFPL2	CPMT21.51	.500	8.000	.312	2°	.600	1/16-27 NPT	BFTY0205	TRX07
A10SCFPR2	A10SCFPL2	CPMT21.51	.625	10.000	.406	0°	.770	1/8-27 NPT	BFTY0205	TRX07
A12SCFPR3	–	CPMT32.52	.750	10.000	.500	0°	.930	1/8-27 NPT	BFTX0407N	TRX15
A16SCFPR3	–	CPMT32.52	1.000	12.000	.640	0°	1.200	1/4-18 NPT	BFTX0407N	TRX15

*Through hole only. No threads.

A-SCLC





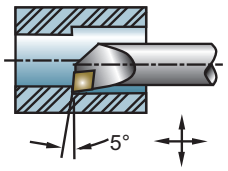
Solid steel bar with coolant hole

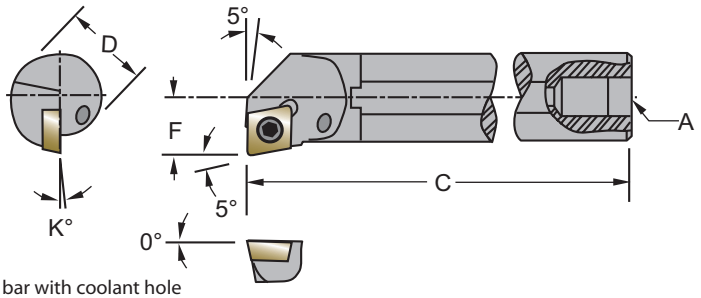
Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	7° Positive Gage Insert							Insert Screw	Wrench
A06SCLCR2	A06SCLCL2	CCMT21.51	.375	6.000	.250	-15°	.480	1/8*	BFTY0205	TRX07
A08SCLCR2	A08SCLCL2	CCMT21.51	.500	6.000	.312	-13°	.600	1/16-27 NPT	BFTY0205	TRX07
A10SCLCR2	A10SCLCL2	CCMT21.51	.625	10.000	.406	-10°	.770	1/8-27 NPT	BFTY0205	TRX07
A10SCLCR3	A10SCLCL3	CCMT32.52	.625	10.000	.406	-10°	.770	1/8-27 NPT	BFTX0407N	TRX15
A12SCLCR3	A12SCLCL3	CCMT32.52	.750	10.000	.500	-8°	.930	1/8-27 NPT	BFTX0407N	TRX15
A16SCLCR3	A16SCLCL3	CCMT32.52	1.000	12.000	.640	-7°	1.200	1/4-18 NPT	BFTX0407N	TRX15

*Through hole only. No threads.

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

A-SCLP



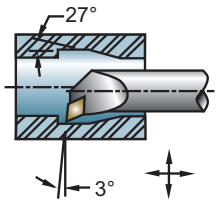


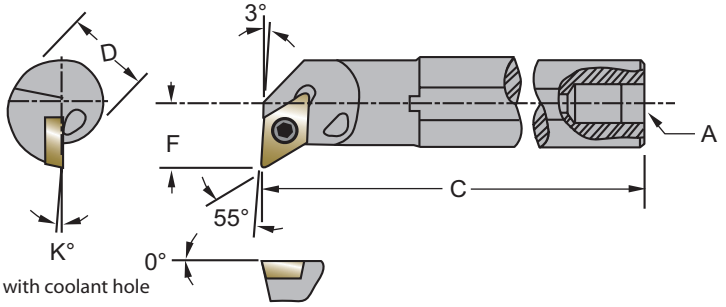
Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	11° Positive Gage Insert							Insert Screw	Wrench
A06SCLPR2	A06SCLPL2	CPMT21.51	.375	6.000	.250	-6°	.480	1/8*	BFTY0205	TRX07
A08SCLPR2	A08SCLPL2	CPMT21.51	.500	8.000	.312	-3°	.600	1/16-27 NPT	BFTY0205	TRX07
A10SCLPR2	A10SCLPL2	CPMT21.51	.625	10.000	.406	-2°	.770	1/8-27 NPT	BFTY0205	TRX07
A10SCLPR3	A10SCLPL3	CPMT32.52	.625	10.000	.406	-2°	.770	1/8-27 NPT	BFTX0407N	TRX15
A12SCLPR3	A12SCLPL3	CPMT32.52	.750	10.000	.500	-2°	.930	1/8-27 NPT	BFTX0407N	TRX15
A16SCLPR3	A16SCLPL3	CPMT32.52	1.000	12.000	.640	0°	1.200	1/4-18 NPT	BFTX0407N	TRX15

*Through hole only. No threads.

A-SDUC





Solid steel bar with coolant hole

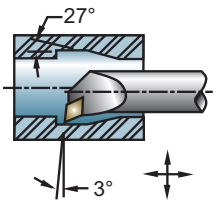
Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	7° Positive Gage Insert							Insert Screw	Wrench
A06SDUCR2	A06SDUCL2	DCMT21.51	.375	6.000	.375	-7°	.600	1/8*	BFTY0205	TRX07
A08SDUCR2	A08SDUCL2	DCMT21.51	.500	6.000	.437	-7°	.730	1/16-27 NPT	BFTX02507	TRX07
A10SDUCR2	A10SDUCL2	DCMT21.51	.625	8.000	.500	-7°	.850	1/8-27 NPT	BFTX02507	TRX07
A12SDUCR3	A12SDUCL3	DCMT32.52	.750	10.000	.562	-7°	.980	1/8-27 NPT	BFTX0407N	TRX15
A16SDUCR3	A16SDUCL3	DCMT32.52	1.000	12.000	.750	-5°	1.300	1/4-18 NPT	BFTX0407N	TRX15

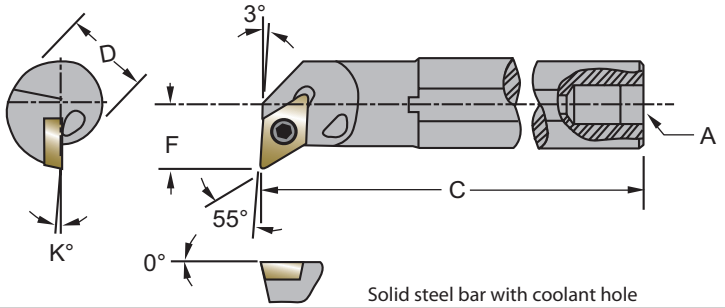
*Through hole only. No threads.

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

ANSI-ISO Boring Bars
with through coolant

A-SDUP



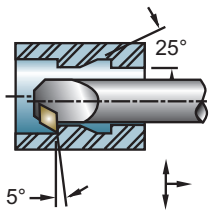


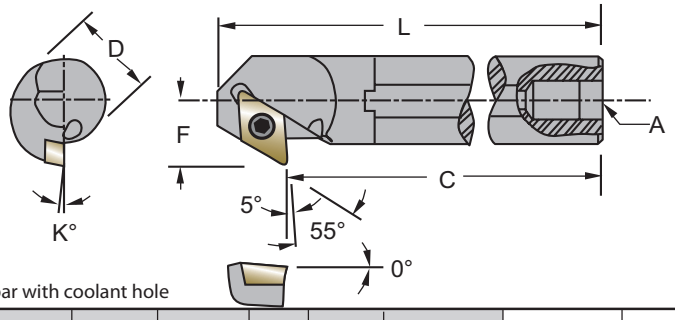
Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right hand	Left Hand	11° Positive Gage Insert							Insert Screw	Wrench
A06SDUPR2	A06SDUPL2	DPMT21.51	.375	6.000	.375	-3°	.600	1/8*	BFTY0205	TRX07
A08SDUPR2	A08SDUPL2	DPMT21.51	.500	8.000	.437	-2°	.730	1/16-27NPT	BFTX02507	TRX07
A10SDUPR2	-	DPMT21.51	.625	10.000	.500	0°	.850	1/8-27NPT	BFTX02507	TRX07
A12SDUPR3	A12SDUPL3	DPMT32.52	.750	10.000	.562	0°	.980	1/8-27NPT	BFTX0407N	TRX15
A16SDUPR3	A16SDUPL3	DPMT32.52	1.000	12.000	.750	0°	1.300	1/4-18NPT	BFTX0407N	TRX15

*Through hole only. No threads.

A-SDXP



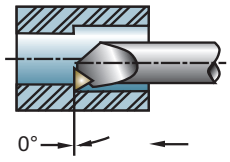


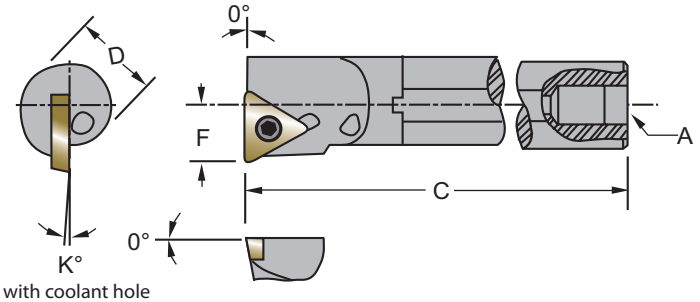
Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	L	K°	Min. Bore	A		
Right Hand	Left Hand	11° Positive Gage Insert								Insert Screw	Wrench
A08SDXPR2	A08SDXPL2	DPMT21.51	.500	8.000	.437	8-1/2	0°	.730	1/16-27 NPT	BFTX02507	TRX07
A10SDXPR2	A10SDXPL2	DPMT21.51	.625	10.000	.500	10-1/2	0°	.850	1/8-27 NPT	BFTX02507	TRX07
A12SDXPR3	A12SDXPL3	DPMT32.52	.750	10.000	.562	10-3/4	-2°	.980	1/8-27 NPT	BFTX0407N	TRX15
A16SDXPR3	A16SDXPL3	DPMT32.52	1.000	12.000	.750	12-3/4	0°	1.300	1/4-18 NPT	BFTX0407N	TRX15

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

A-STFC

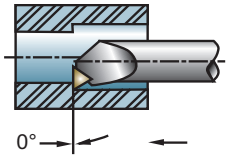


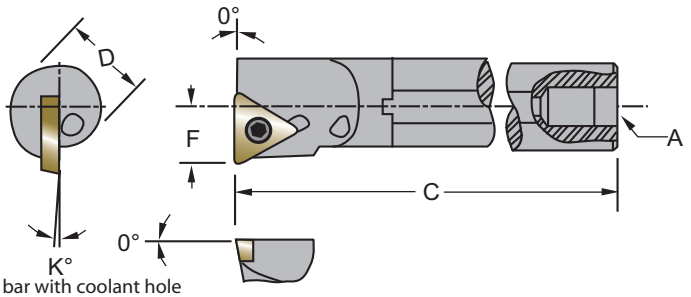


Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	7° Positive Gage Insert							Insert Screw	Wrench
A08STFCR2	A08STFCL2	TCMT21.51	.500	6.000	.312	-13°	.600	1/16-27 NPT	BFTY0205	TRX07
A10STFCR2	A10STFCL2	TCMT21.51	.625	8.000	.406	-10°	.770	1/8-27 NPT	BFTX02507	TRX07
A12STFCR3	A12STFCL3	TCMT32.52	.750	10.000	.500	-8°	.930	1/8-27 NPT	BFTX0407N	TRX15
A16STFCR3	A16STFCL3	TCMT32.52	1.000	12.000	.640	-7°	1.200	1/4-18 NPT	BFTX0407N	TRX15

A-STFP





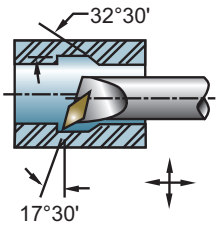
Solid steel bar with coolant hole

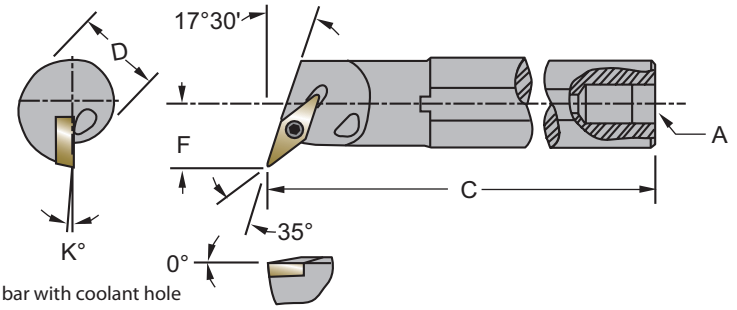
Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	11° Positive Gage Insert							Insert Screw	Wrench
A05STFPR1.8	A05STFPL1.8	TPMT1.81.51	.3125	5.000	.219	-8°	.415	3/32*	ST21.5	TRX08
A06STFPR2	A06STFPL2	TPMT21.51	.375	6.000	.250	-4°	.480	1/8*	BFTY0205	TRX07
A08STFPR2	A08STFPL2	TPMT21.51	.500	8.000	.312	-2°	.600	1/16-27 NPT	BFTY0205	TRX07
A10STFPR2	A10STFPL2	TPMT21.51	.625	10.000	.406	0°	.770	1/8-27 NPT	BFTX02507	TRX07
A12STFPR3	A12STFPL3	TPMT32.52	.750	10.000	.500	-2°	.930	1/8-27 NPT	BFTX0407N	TRX15
A16STFPR3	A16STFPL3	TPMT32.52	1.000	12.000	.640	0°	1.200	1/4-18 NPT	BFTX0407N	TRX15

*Through hole only. No threads.

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

A-SVQB

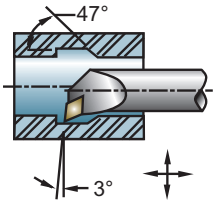


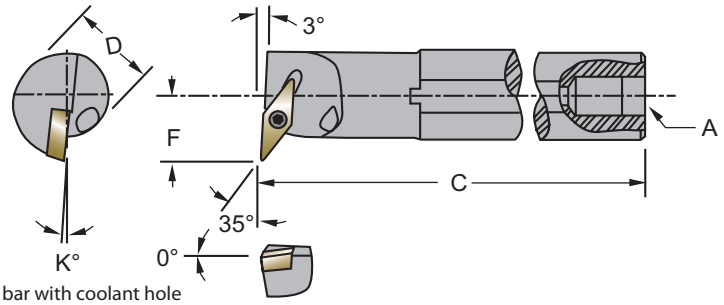


Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	5° Positive Gage Insert							Insert Screw	Wrench
A10SVQBR2	A10SVQBL2	VBMT221	.625	10.000	.500	-6°	.850	1/8-27 NPT	-	-
A12SVQBR2	A12SVQBL2	VBMT221	.750	10.000	.562	-5°	.980	1/8-27 NPT	BFTX02507	TRX07
A16SVQBR3	–	VBMT332	1.000	12.000	.750	-5°	1.300	1/4-18 NPT	BFTX0407N	TRX15

A-SVUB



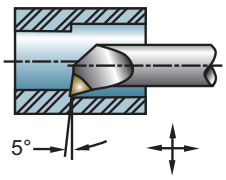


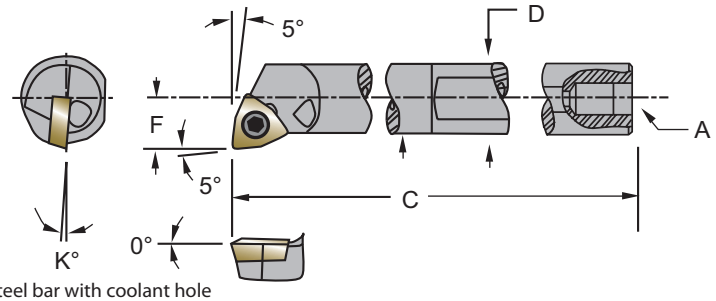
Solid steel bar with coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	5° Positive Gage Insert							Insert Screw	Wrench
A12SVUBR2	A12SVUBL2	VBMT221	.750	10.000	.562	-6°	.980	1/8-27 NPT	BFTX02507	TRX07
A16SVUBR3	A16SVUBL3	VBMT332	1.000	12.000	.750	-6°	1.300	1/4-18 NPT	BFTX0407N	TRX15
A20SVUBR3	A20SVUBL3	VBMT332	1.250	14.000	1.000	-6°	2.000	1/4-18 NPT	ST32.5	TRX15
A24SVUBR3	A24SVUBL3	VBMT332	1.500	14.000	1.250	-6°	2.250	1/4-18 NPT	ST32.5	TRX15

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

A-SWLP





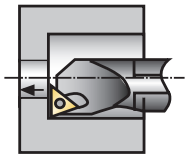
Solid steel bar with coolant hole

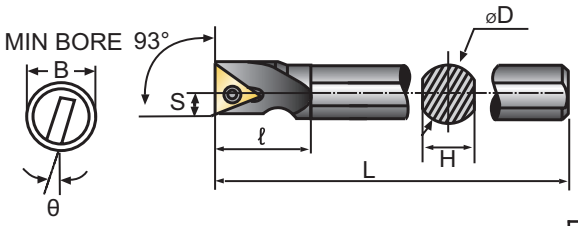
Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	11° Positive Gage Insert							Insert Screw	Wrench
A06SWLPR2	A06SWLPL2	WPMT1104	.375	6.000	.250	-5°	.480	1/8*	BFTY0205	TRX07
A08SWLPR2	A08SWLPL2	WPMT1104	.500	8.000	.312	-2°	.600	1/16-27 NPT	BFTY0205	TRX07
A10SWLPR2	–	WPMT1104	.625	10.000	.406	-3°	.770	1/8-27 NPT	BFTY0205	TRX07

*Through hole only. No threads.

S-STUP Series

For Internal Boring





Steel shank bar

GAGE INSERT
TPGT□□□

These figures show right hand tools.

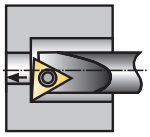
Sumitomo Cat. No.	STKD.		Dimensions							Insert		Screw	Wrench
	R	L	Min. Bore B	D	L	H	S	ℓ	θ°	Shape	Size		
S06K-STUPR/L6	•	•	.375	.375	5.000	.336	.1875	1.250	-10°	TPG□	63□	BFTY02205	TRX06
S06M-STUPR/L8	•		.500	.375	6.000	.336	.250	—	-8°	TPG□	21.5□	BFTX02507	
S08M-STUPR/L8	•		.625	.500	6.000	.461	.3125	—	-6°	TPG□	21.5□	BFTX02507	
S10Q-STUPR/L8	•	•	.750	.625	7.000	.591	.625	—	-2°	TPG□	21.5□	BFTX02507	TRX08
S12S-STUPR/L8	•	•	1.000	.750	10.000	.669	.500	—	-4°	TPG□	21.5□	BFTX02507	
S16T-STUPR/L8	•		1.125	1.000	12.000	.832	.5625	—	-2°	TPG□	21.5□	BFTX02507	

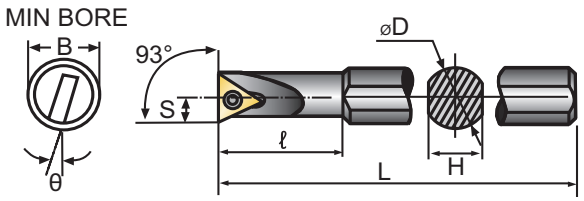
Maximum overhang = 5 x D

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

S-STUB Series

For Internal Boring





Steel shank bar

GAGE INSERT

TBGT52□

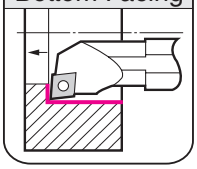
These figures show right hand tools.

Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions: Min. Bore B	D	L	H	S	ℓ	θ°	Insert: Shape	Insert: Size	Screw	Wrench
S06K-STUBR/L5	•	•	.313	.375	5.000	.336	.156	1.0	-12°	TBG□	52□	BFTX0204A	TRX06

Maximum overhang = 5 x D

Finish-Medium Cut

S-SCLC
Bottom Facing



Steel

Fig. 1

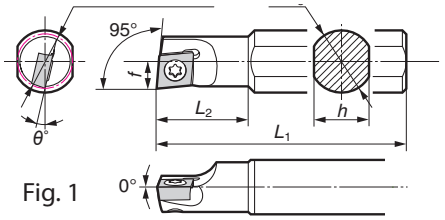
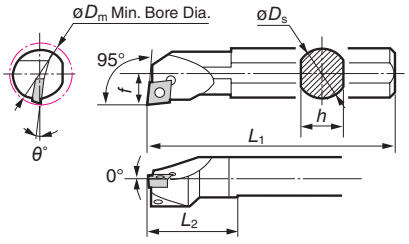


Fig. 2



■ Spare Parts

(For Torx Holes)

■ Holder

Right handed toolholders are applicable with left handed or neutral inserts.
Left handed toolholders are applicable with right handed or neutral inserts.

Above figures show right hand tools.

Shank	Cat. No.	Stock R	Stock L	Min. Bore Dia. øDm	Dimensions (mm) øDs	h	L1	f	L2	rε	Fig.	Gage Insert	Screw	Recommended Tightening Torque (N•m)	Wrench
Steel	S08H-SCLC R/L03X1-05			5	8	7	100	2.5	24	-5	1	CC□□ 03X1○○	BFTX016033	0.2	TRX06
	S08H-SCLC R/L03X1-06			6	8	7	100	3.0	28	-13					
	S08H-SCLC R/L04X1-07			7	8	7	100	3.5	32	-13	1	CC□□04X1○○	BFTX0203N	0.5	
	S08H-SCLC R/L04X1-08			8	8	7	100	4.0	37	-11					
	S08H-SCLC R/L0602-10	★	★	10	8	7	100	5.5	19	-13	2	CC□□21.5 □	BFTX02505N	1.1	TRX08
	S10K-SCLC R/L0602-12	★	★	12	10	9	125	6.0	21	-12			BFTX02506N	1.5	
	S12M-SCLC R/L0602-14	★	★	14	12	11	150	7.0	25	-10					
	S16R-SCLC R/L0602-18	★	★	18	16	15	200	9.0	27	-8					
	S16R-SCLC R/L09T3-18	★	★	18	16	15	200	9.0	30	-10	2	CC□□32.5 □	BFTX0407N	3.0	TRX15
	S20S-SCLC R/L09T3-22	★	★	22	20	18	250	11.0	30	-8			BFTX0409N	3.4	TRX15
	S25T-SCLC R/L09T3-27	★	★	27	25	23	300	13.5	35	-6					

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

Small Hole Finishing

S-SWUB Stop Boring — **Steel**

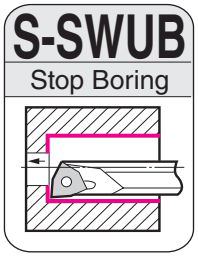


Fig. 1

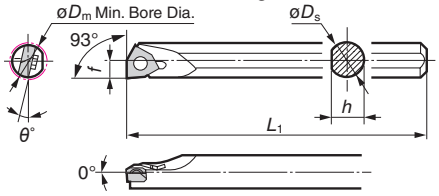
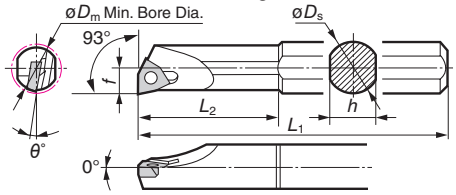


Fig. 2



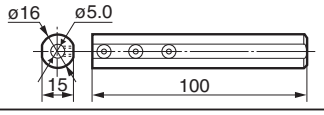
■ Spare Parts

■ **Holder** Right handed toolholders are applicable with left handed or neutral inserts.
Left handed toolholders are applicable with right handed or neutral inserts.

Above figures show right hand tools.

Shank	Cat. No.	Stock R	Stock L	Min. Bore Dia. øDm	Dimensions (mm) øDs	h	L1	f	L2	θ°	Fig.	Gage Insert	Screw	Recommended Tightening Torque (N•m)	Wrench
Steel	S05H-SWUB R/L0601-06K	★	★	5.5	5	4.7	100	2.75	-	-12	1	WB□□52 □	BFTX0203N	0.5	TRX06
	S08H-SWUB R/L0601-06	★	★	5.5	8	7.0	100	2.75	18	-12	2				
	S08H-SWUB R/L0601-08	★	★	8.0	8	7.0	100	4	30	-10					
	S08H-SWUB R/L0802-10	★	★	10.0	8	7.0	100	5	18	-13		WB□□63 □	BFTX02205N	0.5	TRX06
	S10K-SWUB R/L0802-12	★	★	12.0	10	9.0	125	6	20	-10					

S05H-SWUB R/L0601-06K needs adaptor sleeve (HBB516)
* Product will be marked with ISO Cat. No.

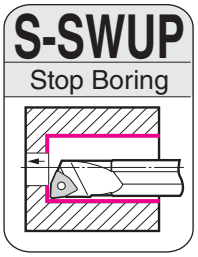


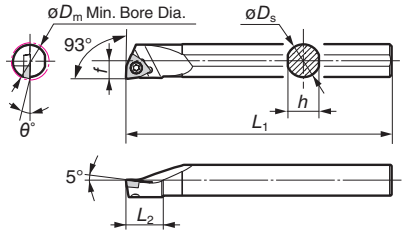
Sleeve	Stock
HBX5016	★

Adaptor sleeve is optional

Small Hole Finishing

S-SWUP Stop Boring — **Steel**





■ Spare Parts

■ **Holder** Right handed toolholders are applicable with left handed or neutral inserts.
Left handed toolholders are applicable with right handed or neutral inserts.

Above figures show right hand tools.

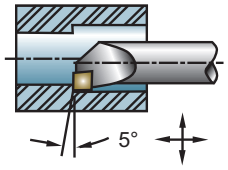
Shank	Cat. No.	Stock R	Stock L	Min. Bore Dia. øDm	Dimensions (mm) øDs	h	L1	f	L2	rε	Gage Insert	Screw	Recommended Tightening Torque (N•m)	Wrench
Steel	S12M-SWUP R/L1102-14	★		14	12	11	150	7	17	-6	WP□□1102○○	BFTX02505N	1.1	TRX08
	S16Q-SWUP R/L1102-18	★		18	16	15	180	9	18	-3				
	S16Q-SWUP R/L1603-18	★		18	16	15	180	9	18	-3	WP□□1603○○	BFTX0407N	3.4	TRX15
	S20R-SWUP R/L1603-22	★		22	20	18	200	11	18	-2				

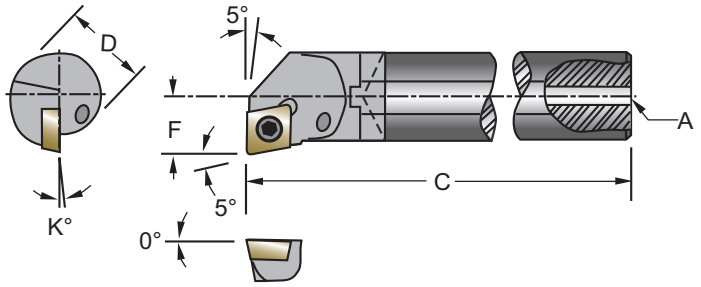
■ **Insert** Coated: Cermet:
-11° Relief M-Class

WPMT LB	Stock AC820P	AC830P	AC6030M	AC6040M	T1500Z	T3000Z	T1500A	Dimensions (mm) Inscribed circle	Thickness	Nose Radius
Cat. No.										
WPMT 110204N-LB	★	★	★	★	★	★	★	6.35	2.38	0.4
WPMT 160308N-LB	★	★	★	★	★	★	★	9.525	3.18	0.8

ISO-ANSI CARBIDE SHANK BORING BARS

E-SCLC - Inch



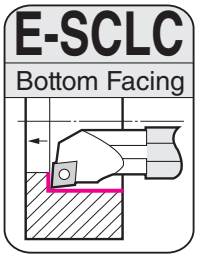


Solid carbide bar with fixed steel head and coolant hole

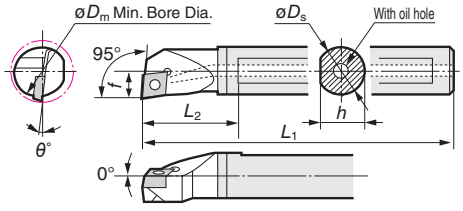
Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	7° Positive Gage Insert							Insert Screw	Torx Wrench
E06MSCLCR2	E06MSCLCL2	CCMT21.51	.375	6.000	.250	-15°	.480	.093*	ST21.5	TRX08
E08RSCLCR2	E08RSCLCL2	CCMT21.51	.500	6.000	.312	-13°	.600	.093*	ST21.5	TRX08
E10SCLCR3	E10SCLCL3	CCMT32.52	.625	10.000	.406	-10°	.770	.125*	ST32.5	TRX15
E12SCLCR3	E12SCLCL3	CCMT32.52	.750	10.000	.500	-8°	.930	.142*	ST32.5	TRX15
E16TSCLCR3	E16SCLCL3	CCMT32.52	1.000	12.000	.640	-7°	1.200	.193*	ST32.5	TRX15

*Through hole only. No threads.

E-SCLC - Metric



Carbide
Oil Hole



Right handed toolholders are applicable with left handed or neutral inserts.

■ **Holders**

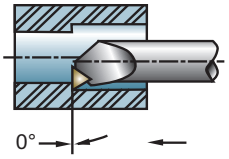
Shank	Cat. No.	Stock	Min. Bore Dia.	Dimensions (mm)						Gage Insert	Screw	Recommended Tightening Torque (N•m)	Wrench
		R	øDm	øDs	h	L1	f	L2	rε				
Carbide with oil hole	E08H-SCLC R0602-10	★	10	8	7.5	100	5.5	18	-13	CC□□21.5 □	BFTX02505N	1.1	TRX08
	E10K-SCLC R0602-13	★	13	10	9.5	125	7.0	19	-12		BFTX02506N	1.5	
	E12M-SCLC R0602-16	★	16	12	11.5	150	9.0	25	-10				
	E16R-SCLC R09T3-20	★	20	16	15.5	200	11.0	30	-8	CC□□32.5 □	BFTX0407N	3.4	TRX15

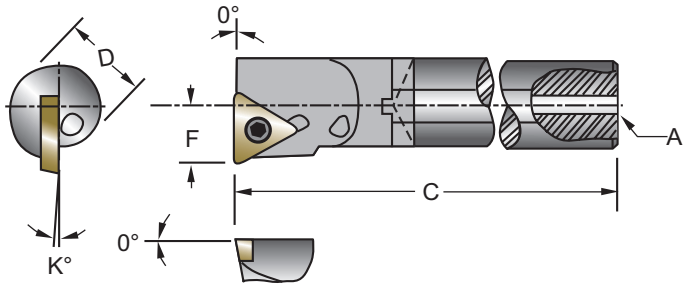
■ **Spare Parts**

(For Torx Holes)

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

E-STFC



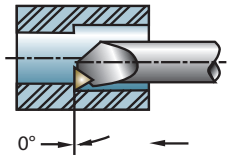


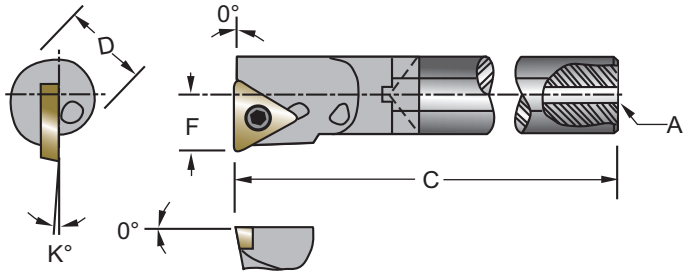
Solid carbide bar with fixed steel head and coolant hole

Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	7° Positive Gage Insert							Insert Screw	Torx Wrench
E06STFCR2	E06STFCL2	TCMT21.51	.375	6.000	.250	-15°	.480	.093*	ST21.5	TRX08
E08STFCR2	E08STFCL2	TCMT21.51	.500	6.000	.312	-13°	.600	.093*	ST21.5	TRX08
E10STFCR2	E10STFCL2	TCMT21.51	.625	8.000	.406	-10°	.770	.125*	ST21.5	TRX08
E12STFCR3	–	TCMT32.52	.750	10.000	.500	-8°	.930	.142*	ST32.5	TRX15
E16STFCR3	–	TCMT32.52	1.000	12.000	.640	-7°	1.200	.193*	ST32.5	TRX15

*Through hole only. No threads.

E-STFP





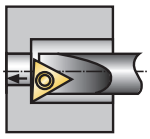
Solid carbide bar with fixed steel head and coolant hole

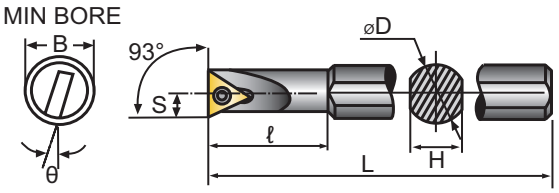
Sumitomo Cat. No.			D	C	F	K°	Min. Bore	A		
Right Hand	Left Hand	11° Positive Gage Insert							Insert Screw	Torx Wrench
E05STFPR1.8	E05STFPL1.8	TPMT1.81.51	.3125	5.000	.219	-8°	.415	.039	ST21.5	TRX08

*Through hole only. No threads.

C-STUB Series

For Internal Boring





Solid carbide bar with fixed steel head

GAGE INSERT
TBGT52☐

These figures show right hand tools.

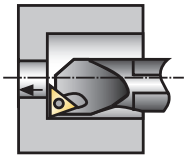
Sumitomo Cat. No.	STKD.		Dimensions							Insert		Screw	Wrench	Replacement Head
	R	L	Min. Bore B	D	L	H	S	ℓ	θ°	Shape	Size			
C06K-STUBR/L5	•		.313	.375	5.00	.336	.156	1.800	-12°	TBG☐	52☐	BFTX0204A	TRX06	RH06STUR/L5

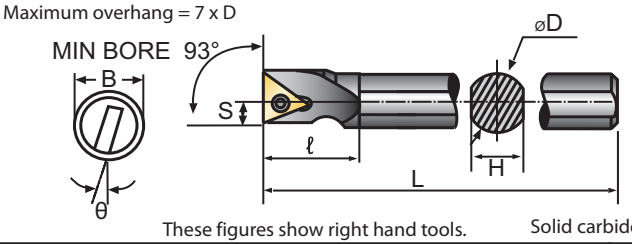
Maximum overhang = 7 x D

ANSI-ISO Carbide Shank Boring Bars with through coolant

C-STUP Series

For Internal Boring





These figures show right hand tools.

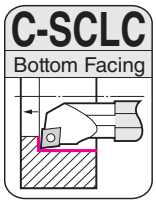
GAGE INSERT
TPGT□□□

Solid carbide bar with fixed steel head

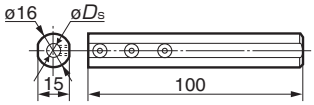
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	H	S	ℓ	θ°	Insert Shape	Insert Size	Screw	Wrench	Replacement Head
C06K-STUPR/L6	•	•	.375	.375	5.000	.336	.188	1.800	-10°	TPG□	63□	BFTX0204A	TRX06	RH06STUPR/L6
C06Q-STUPR/L8	•	•	.500	.375	7.000	.336	.250	—	-8°	TPG□	21.5□	BFTX02507	TRX08	RH06STUPR/L8
C08R-STUPR/L8	•	•	.625	.500	8.000	.461	.313	—	-6°	TPG□	21.5□	BFTX02507		RH08STUPR/L8
C10S-STUPR/L8	•	•	.750	.625	10.000	.591	.375	—	-2°	TPG□	21.5□	BFTX02507		RH10STUPR/L8
C12S-STUPR/L8	•		1.000	.750	10.000	.669	.500	—	-4°	TPG□	21.5□	BFTX02507		RH12STUPR/L8

C-SCLC

Bottom Facing



Carbide



Sleeve	Stock	øDs	Applicable Holder
HBX4016	★	4	C04G-SCLC R03X1-05*
HBX5016	★	5	C05H-SCLC R03X1-06*
HBX6016	★	6	C06J-SCLC R04X1-07*
HBB 716	★	7	C07K-SCLC R04X1-08*

* Requires the separately sold sleeve.

Fig. 1

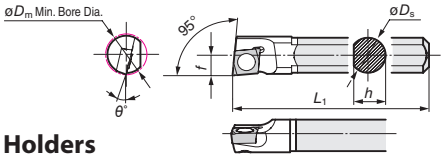
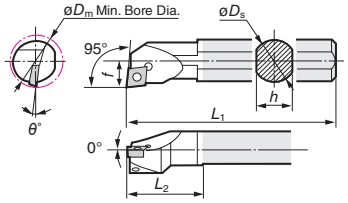


Fig. 2



■ Holders

Right handed toolholders are applicable with left handed or neutral inserts.

■ Spare Parts

(For Torx Holes)

Shank	Cat. No.	Stock R	Min. Bore Dia. øDm	Dimensions (mm) øDs	h	L1	f	L2	rε	Fig.	Gage Insert	Screw	Recommended Tightening Torque (N•m)	Wrench
Carbide	C04G-SCLC R03X1-05*	★	5	4	3.8	90	2.5	Q	-15	1	CC□□03X1○○	BFTX016033	0.2	TRX06
	C05H-SCLC R03X1-06*	★	6	5	4.4	100	3.0	Q	-13					
	C06J-SCLC R04X1-07*	★	7	6	5.4	110	3.5	Q	-13	1	CC□□04X1○○	BFTX0203N	0.5	TRX06
	C07K-SCLC R04X1-08*	★	8	7	6.4	125	4.0	Q	-11					
	C08H-SCLC R0602-10	★	10	8	7.0	100	5.5	19	-13	2	CC21.5 □	BFTX02505N	1.1	TRX08
	C10K-SCLC R0602-12	★	12	10	9.0	125	6.0	21	-12			BFTX02506N	1.5	
	C10K-SCLC R0602-13	★	13	10	9.0	125	7.0	21	-12					
	C12M-SCLC R0602-14	★	14	12	11.0	150	7.0	25	-10					
	C12M-SCLC R0602-16	★	16	12	11.0	150	9.0	25	-10					
	C16R-SCLC R09T3-20	★	20	16	15.0	200	11.0	30	-8	2	CC□□32.5 □	BFTX0407N	3.4	TRX15
	C20S-SCLC R09T3-25	★	25	20	18.0	250	13.0	35	-7			BFTX0409N	3.4	

C-SWUB

Stop Boring

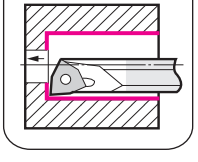
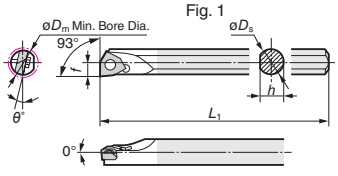
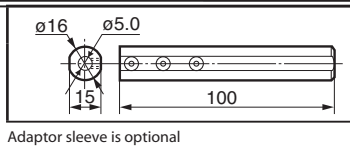


Fig. 1





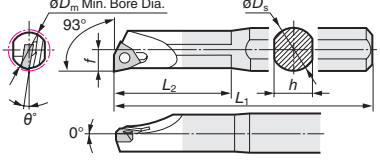
Sleeve	Stock
HBX5016	★

Adaptor sleeve is optional

C05H-SWUB R/L0601-06K needs adaptor sleeve (HBB516)

* Product will be marked with ISO Cat. No.

Fig. 2



Above figures show right hand tools.

■ Holders

Right handed toolholders are applicable with left handed or neutral inserts.
Left handed toolholders are applicable with right handed or neutral inserts.

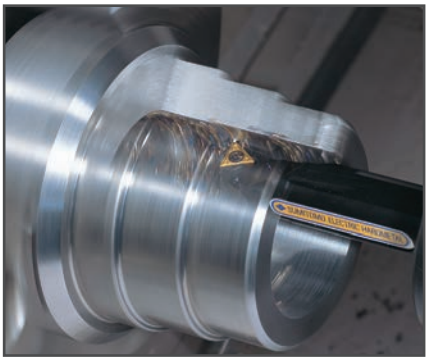
■ Spare Parts

(For Torx Holes)

Shank	Cat. No.	Stock R	Stock L	Min. Bore Dia. øDm	Dimensions (mm) øDs	h	L1	f	L2	θ°	Fig.	Gage Insert	Screw	Recommended Tightening Torque (N•m)	Wrench
Carbide	C05H-SWUB R/L0601-06K	★	★	5.5	5	4.7	100	2.75	-	-12	1	WB□□52 □	BFTX0203N	0.5	TRX06
	C08K-SWUB R/L0601-06	★	★	5.5	8	7.0	125	2.75	30	-12	2				

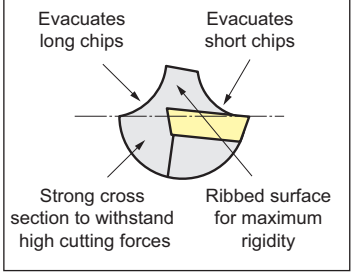
■ Features & Benefits

- Special dampener mechanism eliminates chatter.
- Up to 6X L/D overhang (depth / bar diameter).
- Cost effective solution to carbide bars when deep hole boring.
- Available in both coolant-through and non-coolant-through
- Effectively rough bores deep holes.
- ***NEW*** negative X-Bars now available.
- Positive X-Bar expansion now includes bars for CC--, CP--, DC--, TC--, TP--, and VB-- style inserts.



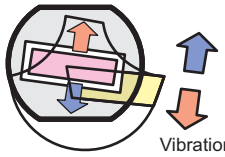
■ X-BAR Technical Information

Good Chip Evacuation from new head design



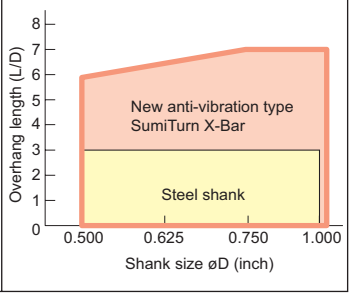
Anti-Chatter System - Eliminates Vibration

Unique structure of the X-Bar



The dampener resists vibration (Patent pending)

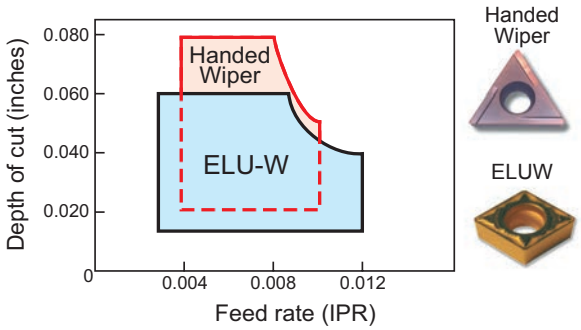
Application Range



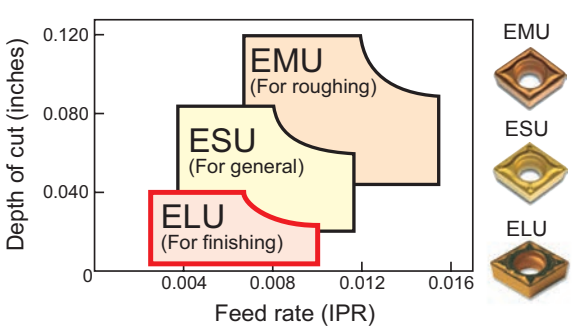
■ Recommended Overhang Length / Shank Diameter (L/D)

Chipbreakers	Type of Boring Bar	Overhang Length (L/D) 1 2 3 4 5 6 7
ELU, ESU, EMU (M class inserts) 	Steel shank	
	SumiTurn X-Bar	
ELUW, Handed Wiper ("Wiper" style inserts) 	Steel shank	
	SumiTurn X-Bar	

● "Wiper" Style Positive Inserts



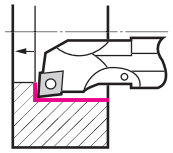
● M Class Positive Inserts

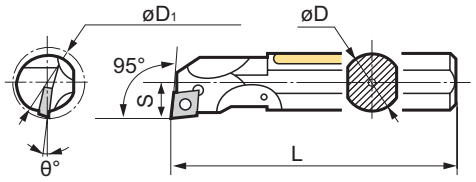


SumiTurn X-Bar

■ SumiTurn X-Bar Availability-POSITIVE

D-SCLC

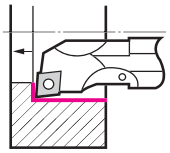


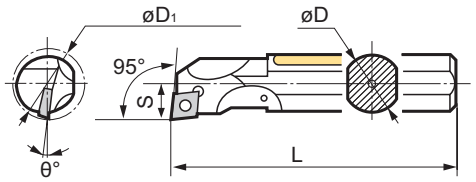


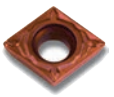
GAGE INSERT
CC□□

Sumitomo Cat. No.		Dimensions					Gage Insert	Hardware	
Right Hand	Left Hand	Min. Bore	D	L	S	θ°		Screw	Wrench
D08RSCLCR2	D08RSCLCL2	0.600”	0.500”	8”	0.300”	-10°	CC-21.5	BFTX02506N	TRX08
D10SSCLCR3	D10SSCLCL3	0.770”	0.625”	10”	0.385”	-8°	CC-32.5	BFTX0407N	TRX15
D12SSCLCR3	D12SSCLCL3	0.930”	0.750”	10”	0.465”	-7°	CC-32.5	BFTX0409N	TRX15
D16TSCLCR3	D16TSCLCL3	1.200”	1.000”	12”	0.600”	-6°	CC-32.5	BFTX0409N	TRX15

D-SCLP



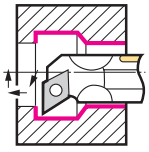


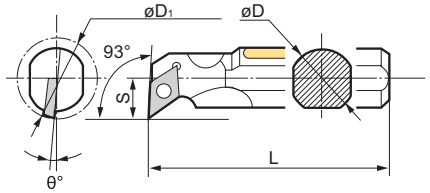


GAGE INSERT
CP□□

Sumitomo Cat. No.		Dimensions					Gage Insert	Hardware	
Right Hand	Left Hand	Min. Bore	D	L	S	θ°		Screw	Wrench
D10SSCLPR2		0.770"	0.625”	10”	0.355"	-5°	CP-21.5	BFTX0256N	TRX08
D12SSCLPR3	D12SSCLPL3	0.930"	0.750”	10”	0.450"	-4°	CP-32.5	BFTX0409N	TRX15
D16TSCLPR3	D16TSCLPL3	1.200"	1.000”	12”	0.550"	-2°	CP-32.5	BFTX0409N	TRX15

D/B-SDUC





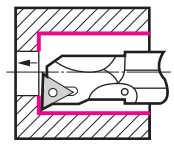
GAGE INSERT
DC□□

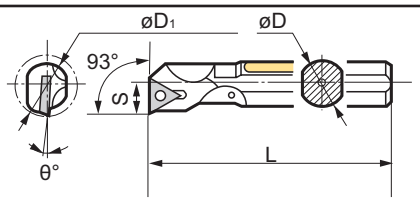
Sumitomo Cat. No.		Dimensions					Gage Insert	Hardware	
Right Hand	Left Hand	Min. Bore	D	L	S	θ°		Screw	Wrench
*B06RSDUCR2		0.600"	0.375"	8"	0.276"	-8°	DC-21.5	BFTX02506N	TRX08
D08RSDUCR2		0.730"	0.500”	8”	0.360"	-8°	DC-21.5	BFTX02506N	TRX08
D10SSDUCR2		0.850"	0.625”	10”	0.430"	-6°	DC-21.5	BFTX02506N	TRX08
D12SSDUCR3		0.980"	0.750”	10”	0.510"	-6°	DC-32.5	BFTX0409N	TRX15
D16TSDUCR3		1.300"	1.000”	12”	0.670"	-6°	DC-32.5	BFTX0409N	TRX15

*Non-coolant through

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

D-STUC

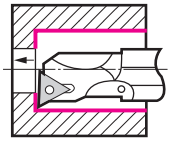


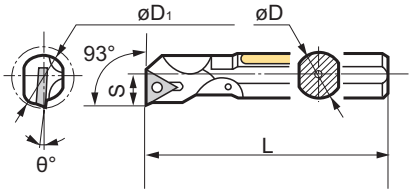


GAGE INSERT
TC□□

Sumitomo Cat. No.		Dimensions					Gage Insert	Hardware	
Right Hand	Left Hand	Min. Bore	D	L	S	θ°		Screw	Wrench
D08RSTUCR2	D08RSTUCL2	0.600"	0.500"	8"	0.300"	-10°	TC-21.5	BFTX02506N	TRX08
D10SSTUCR2	D10SSTUCL2	0.770"	0.625"	10"	0.385"	-8°	TC-21.5	BFTX02506N	TRX08
D12SSTUCR3	D12SSTUCL3	0.930"	0.750"	10"	0.465"	-7°	TC-32.5	BFTX0409N	TRX15
D16TSTUCR3	D16TSTUCL3	1.200"	1.000"	12"	0.600"	-6°	TC-32.5	BFTX0409N	TRX15

D-STUP

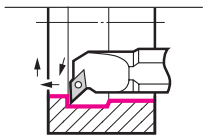


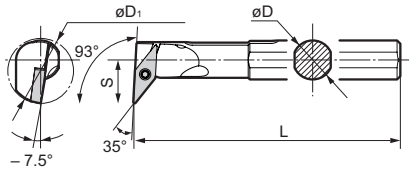


GAGE INSERT
TP□□

Sumitomo Cat. No.		Dimensions					Gage Insert	Hardware	
Right Hand	Left Hand	Min. Bore	D	L	S	θ°		Screw	Wrench
D08RSTUPR2	D08RSTUPL2	0.600"	0.500"	8"	0.300"	-7°	TP-22	BFTX0306A	TRX10
D10SSTUPR2	D10SSTUPL2	0.770"	0.625"	10"	0.385"	-4°	TP-22	BFTX0306A	TRX10
D12SSTUPR2	D12SSTUPL2	0.930"	0.750"	10"	0.465"	-2°	TP-22	BFTX0307A	TRX10
D16TSTUPR3	D16TSTUPL3	1.200"	1.000"	12"	0.600"	-2°	TP-33	BFTX0410A	TRX15

D-SVUB

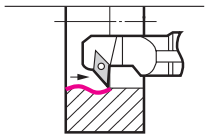


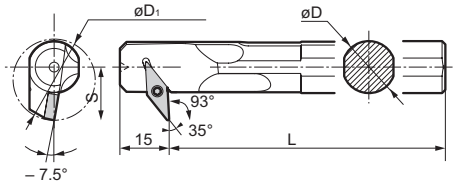


GAGE INSERT
VB□□

Sumitomo Cat. No.		Dimensions					Gage Insert	Hardware	
Right Hand	Left Hand	Min. Bore	D	L	S	θ°		Screw	Wrench
D10SSVUBR2	D10SSVUBL2	0.850"	0.625"	10"	0.500"	-7.5°	VB-22	BFTX02506N	TRX08
D12SSVUBR2	D12SSVUBL2	0.980"	0.750"	10"	0.562"	-7.5°	VB-22	BFTX02506N	TRX08

D-SVZB





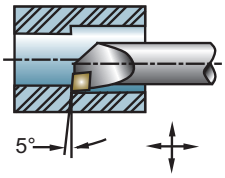
GAGE INSERT
VB□□

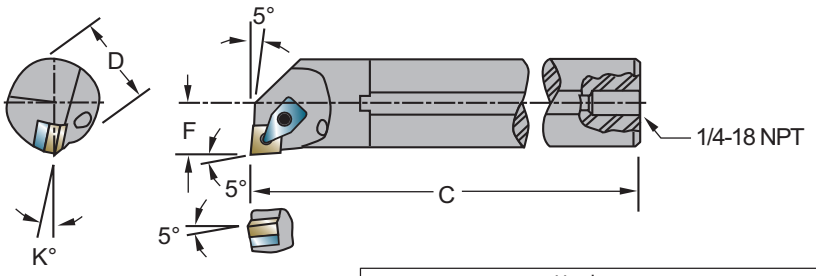
Sumitomo Cat. No.		Dimensions					Gage Insert	Hardware	
Right Hand	Left Hand	Min. Bore	D	L	S	θ°		Screw	Wrench
D08RSVZBR2	-	0.800"	0.500"	8"	0.532"	-7.5°	VB-22	BFTX02506N	TRX08
D10SSVZBR2	-	1.000"	0.625"	10"	0.650"	-7.5°	VB-22	BFTX02506N	TRX08

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

■ SumiTurn X-Bar Availability-NEGATIVE

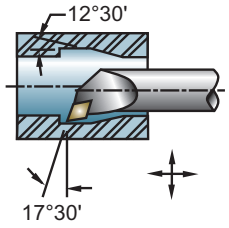
D-DCLN

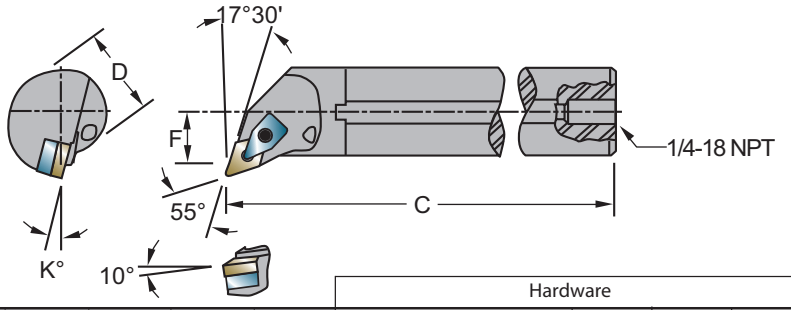




Sumitomo Cat. No.			D	C	F	K°	Min. Bore	Hardware			
Right Hand	Left Hand	Gage Insert						Clamp Set	Wrench	Shim	Screw
D16TDCLNR4	D16TDCLNL4	CNMG432	1.000	12"	0.640	14°	1.250"	SCP-2	LH040 LH025	CNS1203B	BFTX0309N
D20TDCLNR4	D20TDCLNL4	CNMG432	1.250	12"	0.765	14°	1.470"			CNS1204B	BFTX0409N
D24UDCLNR4	D24UDCLNL4	CNMG432	1.500	12"	0.890	14°	1.760"			CNS1204B	BFTX0409N

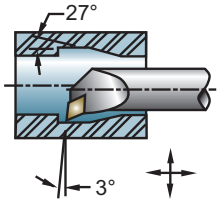
D-DDQN

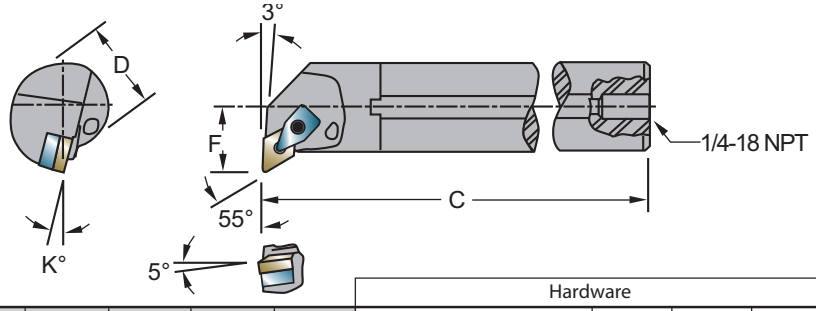




Sumitomo Cat. No.			D	C	F	K°	Min. Bore	Hardware			
Right Hand	Left Hand	Gage Insert						Clamp Set	Wrench	Shim	Screw
D20TDDQNR4	–	DNMG432	1.250	12"	1.000	12°	1.705"	SCP-2	LH040 LH025	DNS1506B	BFTX0409N
D24UDDQNR4	–	DNMG432	1.500	12"	1.125	8°	2.000"				

D-DDUN

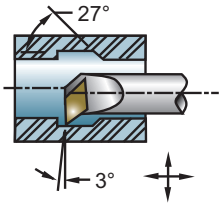


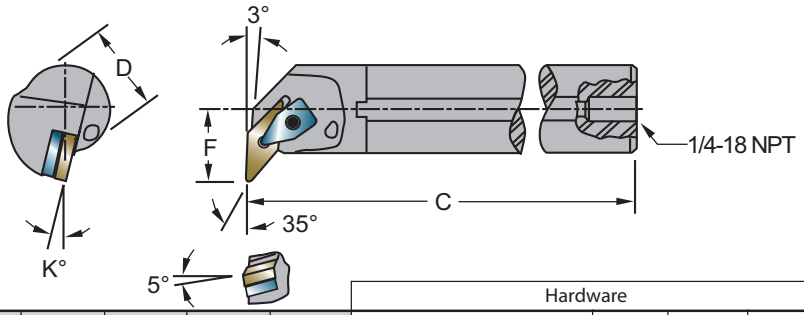


Sumitomo Cat. No.			D	C	F	K°	Min. Bore	Hardware			
Right Hand	Left Hand	Gage Insert						Clamp Set	Wrench	Shim	Screw
D20TDDUNR4	–	DNMG432	1.250	12"	1.000	10°	1.705"	SCP-2	LH040 LH025	DNS1506B	BFTX0409N
D24UDDUNR4	–	DNMG432	1.500	12"	1.250	10°	2.000"				

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

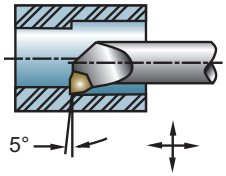
D-DVUN

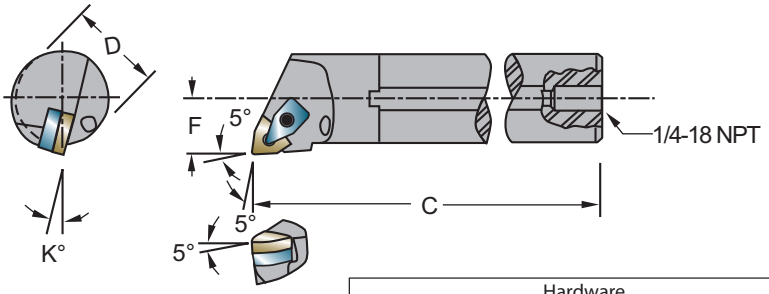




Sumitomo Cat. No.			D	C	F	K°	Min. Bore	Hardware			
Right Hand	Left Hand	Gage Insert						Clamp Set	Wrench	Shim	Screw
D20TDVUNR3	–	VNMG332	1.250	12"	1.125	12°	2.000"	SCP-2	LH040 LH025	VNS1604	BFTX0307N
D24UDVUNR3	–	VNMG332	1.500	12"	1.250	12°	2.350"				

D-DWLN





Sumitomo Cat. No.			D	C	F	K°	Min. Bore	Hardware			
Right Hand	Left Hand	Gage Insert						Clamp Set	Wrench	Shim	Screw
D16TDWLNR4	–	WNMG432	1.000	12"	0.640	14°	1.325"	SCP-2	LH040	WNS0804B	BFTX0409N
D20TDWLNR4	–	WNMG432	1.250	12"	0.765	14°	1.470"	SCP-2	LH025		
D24UDWLNR4	–	WNMG432	1.500	12"	0.890	14°	1.760"	SCP-2			

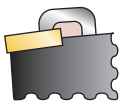
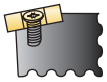
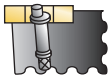
Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

SUMITOMO BORING BAR NOMENCLATURE

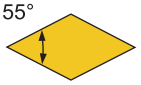
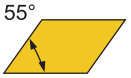
1 Type of Bar

Solid Steel	Solid Carbide
B	C

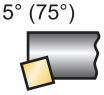
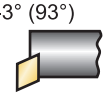
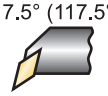
2 Clamping System

 C Clamp Lock	 M Multiple Lock
 S Screw Clamp	
 P Pin Lock	

3 Insert Shape

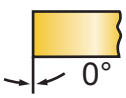
 S	 60° T
 80° C	 55° D
 55° K	 35° V
 80° W	

4 Bar Style

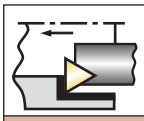
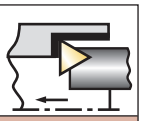
 -5° (95°) L	 15° (75°) K
 0° (90°) F	 -3° (93°) J
 -17.5° (117.5°) Q	 H

B	M	T	F	N	R	-	16	4
1	2	3	4	5	6		7	8

5 Rake Angle

 0° N	 11° P

6 Hand of Tool

 R	 L

7 Bar Diameter

The two-digit number represents the Bar Diameter in 1/16 of an inch increments.

06 = 3/8	24 = 1 1/2	42 = 2 5/8
08 = 1/2	26 = 1 5/8	44 = 1 3/4
10 = 5/8	28 = 1 3/4	46 = 1 7/8
12 = 3/4	30 = 1 7/8	48 = 3
14 = 7/8	32 = 2	
16 = 1	34 = 2 1/8	
18 = 1 1/8	36 = 2 1/4	
20 = 1 1/4	38 = 2 3/8	
22 = 1 3/8	40 = 2 1/2	

8 Insert I.C. Size

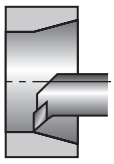
I.C. Size in 1/8 inch increments.

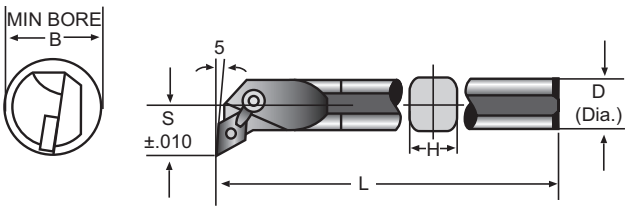
Under 1/4 I.C.	Over 1/4 I.C.
2 = 5/16	2 = 1/4
5 = 5/32	3 = 3/8
6 = 3/16	4 = 1/2
	5 = 5/8
	6 = 3/4
	7 = 7/8
	8 = 1

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

BMDLN Series

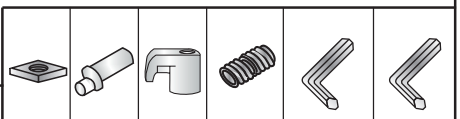
For Internal Boring





GAGE INSERT
DNMG432

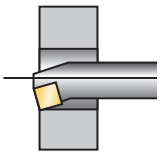
These figures show right hand tools.

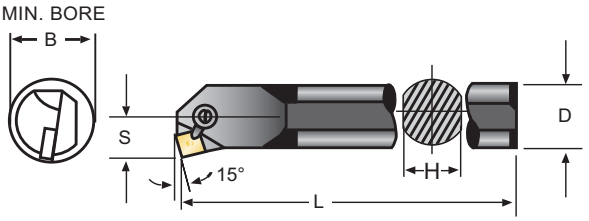


Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	Insert Shape	Insert Size	Shim	Cam	Clamp	Clamp Screw	Wrench	Wrench
BMDLNR/L 204	•	•	2.000	1.250	14.000	1.000	1.280	DN□□	43□	SDW423	CPB43	CCM8F-L	WB8F-20	LH030	LH040

BMSKN Series

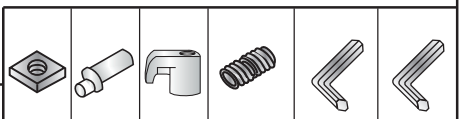
For Internal Boring





GAGE INSERTS
SNMG432

These figures show right hand tools.

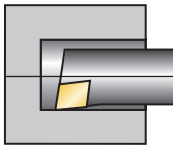


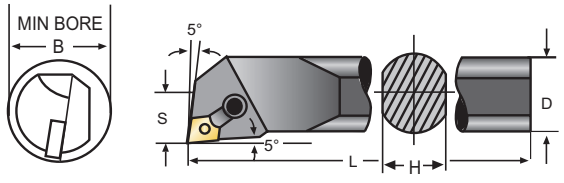
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	Insert Shape	Insert Size	Shim	Cam	Clamp	Clamp Screw	Wrench	Wrench
BMSKNR/L 244	•	•	1.781	1.500	14.000	.890	1.480	SN□□	43□	SSW423	CPB43S / CPB43	CCM8F	WB8F-30	LH030	LH040
BMSKNR/L 324	•		2.563	2.000	16.000	1.281	1.815								

Maximum overhang=3 x D

BMCLN Series

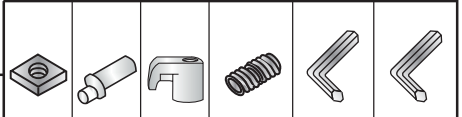
For Internal Boring





GAGE INSERT
CNMA432

These figures show right hand tools.



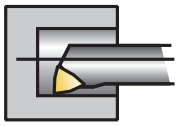
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	Insert Shape	Insert Size	Shim	Cam	Clamp	Clamp Screw	Wrench	Wrench
BMCLNR/L 244	•		1.781	1.500	14.000	.890	1.350	CN□□	43□	SCW423	CPB43S / CPB43	CCM8F	WB8F-30	LH030	LH040
BMCLNR/L 284	•		2.031	1.750	14.000	1.015	1.615								
BMCLNR/L 324	•	•	2.563	2.000	16.000	1.281	1.850								

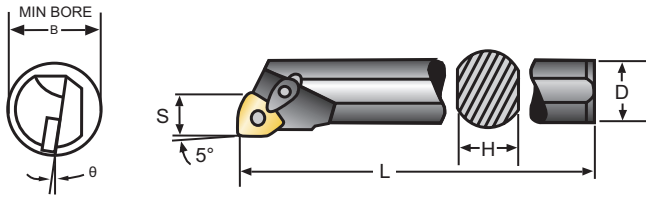
Maximum overhang=3 x D

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

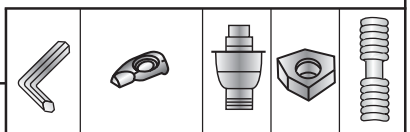
BMWLN Series

For Internal Boring





GAGE INSERT
WNMG432



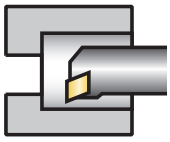
These figures show right hand tools.

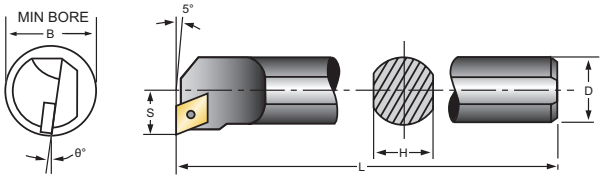
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	θ°	Insert Shape	Insert Shape	Wrench	Clamp	Pin	Shim	Screw
BMWLNR/L 164	•	•	1.25	1.000	12.000	.625	.875	–15°	WN☐☐	43☐	LH030 LH025	BCH05RM6L	BWP46	SWB422	WB6-16
BMWLNR/L 204	•	•	1.53	1.250	14.000	.765	1.132	–14°							
BMWLNR/L 244	•	•	1.78	1.500	14.000	.890	1.382	–12°							

Maximum overhang=3 x D

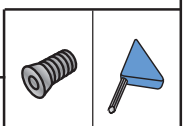
BSCLO Series

For Internal Boring





GAGE INSERT
CPGM☐☐☐



These figures show right hand tools.

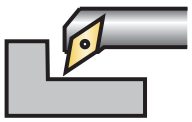
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	θ°	Insert Shape	Insert Size	Screw	Wrench
BSCLOR/L 062	•	•	.500	.375	6.000	.250	.336	–5°	CP☐☐	2.51.5☐	BFTX0305A	TRX10
BSCLOR/L 082	•	•	.625	.500	6.000	.313	.462	–2°				
BSCLOR/L 103	•	•	.750	.625	6.500	.375	.586	–2°	CP☐☐	32☐	BFTX0407A	TRX15
BSCLOR/L 123	•	•	1.000	.750	10.000	.500	.672	0°				
BSCLOR/L 164	•	•	1.125	1.000	12.000	.563	.882	–1°	CP☐☐	43☐	BFTX0509A	TRX20

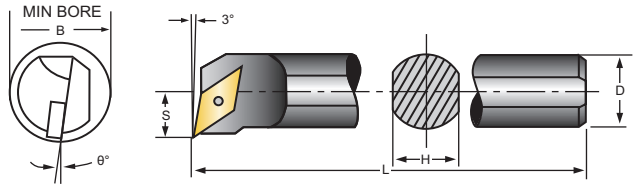
Maximum overhang = 3 x D

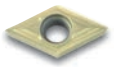
Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

BSDJO Series

For Internal Boring







GAGE INSERT
DCGT□□□

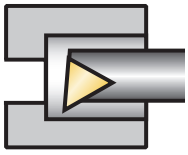
These figures show right hand tools.

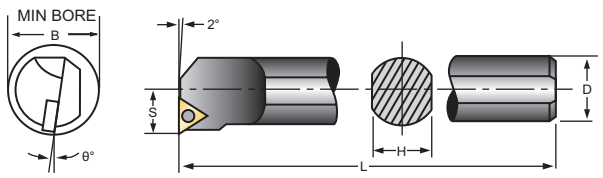
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	θ°	Insert Shape	Insert Size	Screw	Wrench
BSDJOR/L 062	•	•	.516	.375	5.000	.306	.336	–6°	DC□□	21.5□	BFTX02506	TRX08
BSDJOR/L 082	•		.687	.500	6.000	.368	.461	–6°				
BSDJOR/L 102	•	•	.813	.625	8.000	.431	.586	–6°				
BSDJOR/L 123	•	•	1.000	.750	10.000	.493	.671	–6°	DC□□	32.5□	BFS0410T	TRX10

Maximum overhang = 3 x D

BSTJO Series

For Internal Boring





GAGE INSERT
T□GT□□□

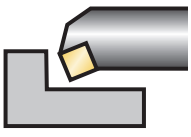
These figures show right hand tools.

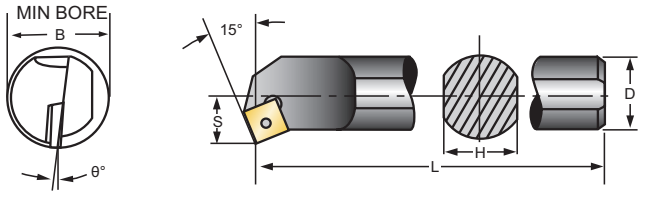
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	θ°	Insert Shape	Insert Size	Screw	Wrench
BSTJOR/L 065	•	•	.313	.375	5.000	.156	.336	–12°	TBG□	52□	BFTX0204A	TRX06
BSTJOR/L 066	•	•	.375	.375	5.000	.188	.336	–8°		63□		
BSTJOR/L 062	•	•	.500	.375	6.000	.250	.336	–5°	TPG□	22□	BFTX0306A	TRX10
BSTJOR/L 082	•	•	.625	.500	6.000	.312	.462	–4°			BFTX0307A	
BSTJOR/L 102	•	•	.750	.625	6.500	.375	.586	–2°				
BSTJOR/L 123	•	•	1.000	.750	10.000	.500	.672	–2°		33□	BFTX0410A	TRX15
BSTJOR/L 163	•	•	1.125	1.000	12.000	.563	.882	0°				

Maximum overhang = 3 x D

BSSKO Series

For Internal Boring





GAGE INSERT
SPGG322L

These figures show right hand tools.

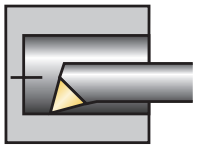
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	θ°	Insert Shape	Insert Size	Screw	Wrench
BSSKOR/L 083	•		.625	.500	6.000	.312	.462	–4°	SP□□	32□	BFTX0307A	TRX10
BSSKOR/L 103	•	•	.750	.625	6.500	.375	.586	–2°				
BSSKOR/L 123	•		1.000	.750	10.000	.500	.672	0°				
BSSKOR/L 163	•		1.125	1.000	12.000	.563	.882	0°				

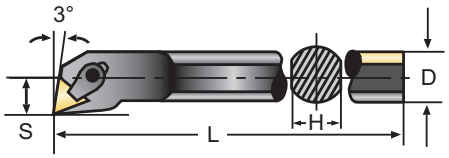
Maximum overhang = 3 x D

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

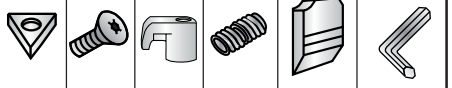
BCTJP Series

For Internal Boring





GAGE INSERT
TPG□□□



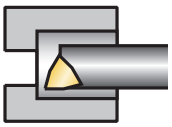
These figures show right hand tools.

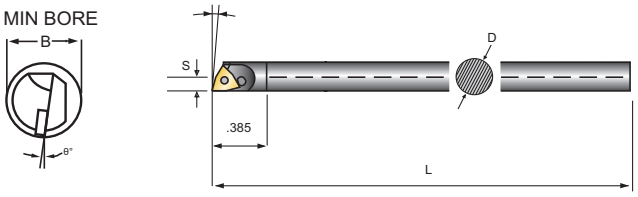
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	Insert Shape	Insert Size	Seat	Seat Screw	Clamp	Clamp Bolt	Chip Breaker Piece	Wrench
BCTJPR 123	•		1.000	.750	12.000	.500	.770	TPG	32□	—	—	CCM6BR/L	WB6-13	CBT23	LH030
BCTJPR/L 163	•		1.156	1.000	12.000	.578	.980						WB6-16		
BCTJPR/L 203	•	•	1.531	1.250	14.000	.765	1.100			STPD322	BF0308			CBT43	
BCTJPR/L 243	•		1.781	1.500	14.000	.890	1.315								
BCTJPR 283	•		2.031	1.750	14.000	1.015	1.570					CCM8F	WB8F-30		LH040
BCTJPR 404	•		3.063	2.500	16.000	1.531	2.315	TPG	43□	STPD422				CBT44	

Maximum overhang = 3 x D

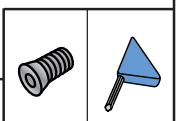
BSWJO Series

For Internal Boring





GAGE INSERT
WBGT521L



These figures show right hand tools.

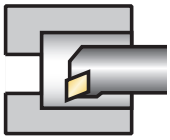
Sumitomo Cat. No.	STKD.	Dimensions Min. Bore B	D	H	L	S	θ°	ℓ	Insert	Screw	Wrench
BSWJOR 035	•	.228	.187	–	2.500	.062	–12°	–	WBGT 52□L	BFTX0203A	TRX06

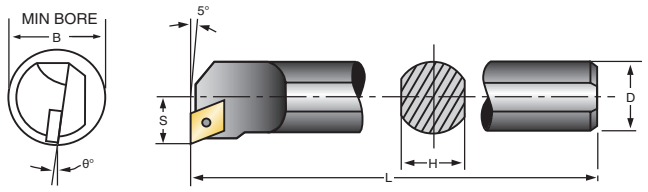
Maximum overhang = 5 x D

Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts

CSCLO Series

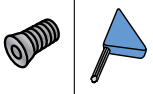
For Internal Boring





Solid carbide bar with fixed steel head

GAGE INSERT
CPGT□□□



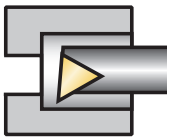
These figures show right hand tools.

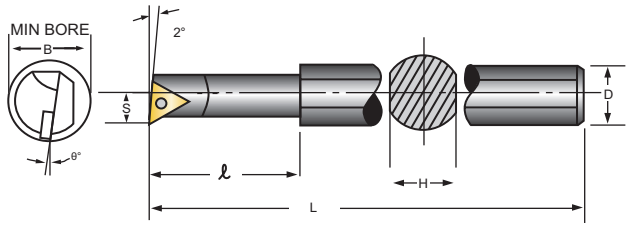
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	θ°	Insert Shape	Insert Size	Screw	Wrench
CSCLOR/L 062	•	•	.500	.375	6.000	.250	.336	–5°	CP□T	2.51.5□	BFTX0305A	TRX10
CSCLOR/L 082	•	•	.625	.500	6.000	.313	.462	–2°				
CSCLOR/L 103	•	•	.750	.625	6.500	.375	.586	–2°	CP□T	32□	BFTX0407A	TRX15

Maximum overhang = 5 x D

CSTJO Series

For Internal Boring





Solid carbide bar with fixed steel head

GAGE INSERT
TB□T□□□

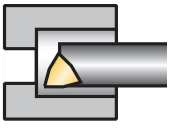
These figures show right hand tools.

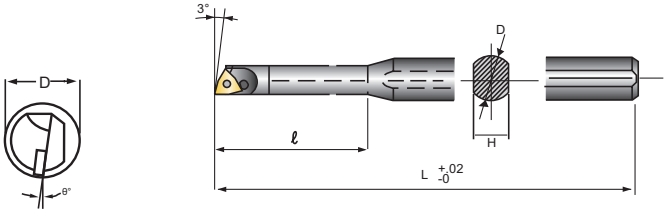
Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions Min. Bore B	D	L	S	H	ℓ	θ°	Insert Shape	Insert Size	Screw	Wrench
CSTJOR/L 065	•	•	.313	.375	5.000	.1560	.336	1.781	–12°	TB□T	52□	BFTX0204A	TRX06
CSTJOR/L 066	•	•	.375	.375	5.000	.1880	.336	1.781	–8°				
CSTJOR/L 062	•	•	.500	.375	7.000	.2500	.336	–	–5°	TPG□	63□		
CSTJOR/L 082	•	•	.625	.500	8.000	.3125	.462	–	–2°		22□	BFTX0306A	
CSTJOR/L 102	•		.750	.625	10.000	.3750	.586	–	–2°		22□	BFTX0307A	TRX10
CSTJOR/L 123	•	•	1.000	.750	10.000	.5000	.672	–	–2°		33□	BFTX0410A	TRX15

Maximum overhang = 5 x D

CSWJO Series

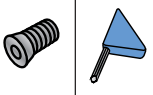
For Internal Boring





Solid carbide bar with fixed steel head

GAGE INSERT
WB□T52□

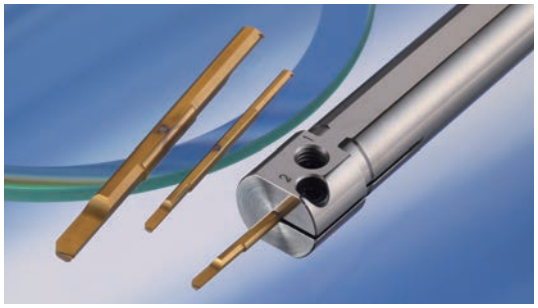


These figures show right hand tools.

Sumitomo Cat. No.	STKD.	Dimensions Min. Bore B	D	H	L	S	θ°	ℓ	Insert	Screw	Wrench
CSWJOR 055	•	.234	.375	.276	5.000	.117	–12°	1.18	WBG□ 52□L	BFTX0203A	TRX06
CSWJOL 055	•	.234							WBG□ 52□R		

Maximum overhang = 5 x D

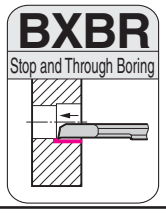
Note: For right-handed boring bars, please use left-handed or neutral inserts. For left-handed boring bars, please use right-handed or neutral inserts



■ Characteristics

- Economical, two-cornered insert.
- Maximum boring depth 5D (5 times the shank diameter)
- Usable at any desired overhang.
- Shank size = min. bore diameter for easy selection. (Available from ø2 mm to ø5 mm in 0.5 mm increments.)
- KBMX Type cutting edge used, no breaker versions also available in stock.

Small Hole Finishing



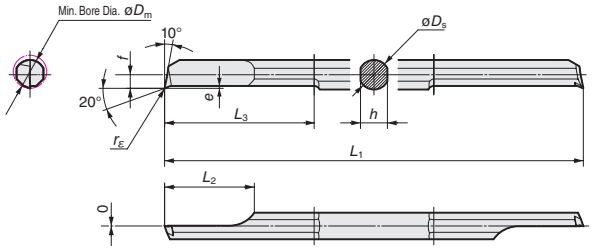
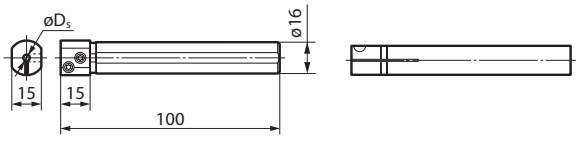


Figure shows tool with breaker.

■ Brazed Boring Bar

	Catalog Number	Stock	*Min. Bore Dia.	Dimensions (mm)								Applicable Sleeve
		ACZ150	øDm	øDs	h	L1	f	L2	L3	e	rε	
With Breaker	BXBR 02005R	★	2.0	2.0	1.8	50	0.80	6.0	10.0	0.20	0.05	HBX 2016
	BXBR 02020R	★	2.0	2.0	1.8	50	0.80	6.0	10.0	0.20	0.20	HBX 2016
	BXBR 02505R	★	2.5	2.5	2.2	50	1.05	7.5	12.5	0.20	0.05	HBX 2516
	BXBR 02520R	★	2.5	2.5	2.2	50	1.05	7.5	12.5	0.20	0.20	HBX 2516
	BXBR 03005R	★	3.0	3.0	2.7	50	1.30	9.0	15.0	0.25	0.05	HBX 3016
	BXBR 03020R	★	3.0	3.0	2.7	50	1.30	9.0	15.0	0.25	0.20	HBX 3016
	BXBR 03505R	★	3.5	3.5	3.1	60	1.55	10.5	17.5	0.25	0.05	HBX 3516
	BXBR 03520R	★	3.5	3.5	3.1	60	1.55	10.5	17.5	0.25	0.20	HBX 3516
	BXBR 04005R	★	4.0	4.0	3.6	60	1.80	12.0	20.0	0.35	0.05	HBX 4016
	BXBR 04020R	★	4.0	4.0	3.6	60	1.80	12.0	20.0	0.35	0.20	HBX 4016
	BXBR 04505R	★	4.5	4.5	4.1	70	2.05	13.5	22.5	0.35	0.05	HBX 4516
	BXBR 04520R	★	4.5	4.5	4.1	70	2.05	13.5	22.5	0.35	0.20	HBX 4516
	BXBR 05005R	★	5.0	5.0	4.5	70	2.30	15.0	25.0	0.40	0.05	HBX 5016
	BXBR 05020R	★	5.0	5.0	4.5	70	2.30	15.0	25.0	0.40	0.20	HBX 5016
No Breaker	BXBR 02005R-NB	★	2.0	2.0	1.8	50	0.80	6.0	10.0	0.20	0.05	HBX 2016
	BXBR 02020R-NB	★	2.0	2.0	1.8	50	0.80	6.0	10.0	0.20	0.20	HBX 2016
	BXBR 02505R-NB	★	2.5	2.5	2.2	50	1.05	7.5	12.5	0.20	0.05	HBX 2516
	BXBR 02520R-NB	★	2.5	2.5	2.2	50	1.05	7.5	12.5	0.20	0.20	HBX 2516
	BXBR 03005R-NB	★	3.0	3.0	2.7	50	1.30	9.0	15.0	0.25	0.05	HBX 3016
	BXBR 03020R-NB	★	3.0	3.0	2.7	50	1.30	9.0	15.0	0.25	0.20	HBX 3016
	BXBR 03505R-NB	★	3.5	3.5	3.1	60	1.55	10.5	17.5	0.25	0.05	HBX 3516
	BXBR 03520R-NB	★	3.5	3.5	3.1	60	1.55	10.5	17.5	0.25	0.20	HBX 3516
	BXBR 04005R-NB	★	4.0	4.0	3.6	60	1.80	12.0	20.0	0.35	0.05	HBX 4016
	BXBR 04020R-NB	★	4.0	4.0	3.6	60	1.80	12.0	20.0	0.35	0.20	HBX 4016
	BXBR 04505R-NB	★	4.5	4.5	4.1	70	2.05	13.5	22.5	0.35	0.05	HBX 4516
	BXBR 04520R-NB	★	4.5	4.5	4.1	70	2.05	13.5	22.5	0.35	0.20	HBX 4516
	BXBR 05005R-NB	★	5.0	5.0	4.5	70	2.30	15.0	25.0	0.40	0.05	HBX 5016
	BXBR 05020R-NB	★	5.0	5.0	4.5	70	2.30	15.0	25.0	0.40	0.20	HBX 5016

* Boring depth L_3 or less.

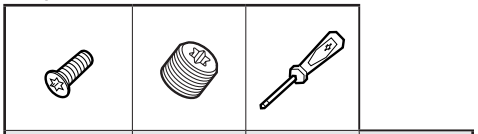


■ Adaptor Sleeve

Cat. No.	Stock	Dimensions (mm) øDs	Applicable Bar
HBX 2016	★	2.0	BXBR 020SSR(-NB)
HBX 2516	★	2.5	BXBR 025SSR(-NB)
HBX 3016	★	3.0	BXBR 030SSR(-NB)
HBX 3516	★	3.5	BXBR 035SSR(-NB)
HBX 4016	★	4.0	BXBR 040SSR(-NB)
HBX 4516	★	4.5	BXBR 045SSR(-NB)
HBX 5016	★	5.0	BXBR 050SSR(-NB)

* BXBR bars can be used with HBB type sleeves. Commercially available sleeves may also be used.

■ Spare Parts (For sleeve)

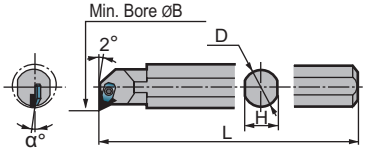


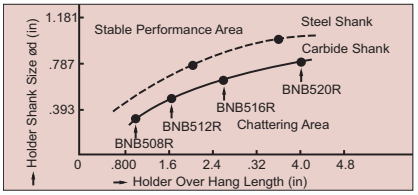
Screw	Setting Screw	Wrench	Applicable Sleeve
BFTX0409N	BT06035T	TRD15	HBX____

* Adaptor sleeve is optional

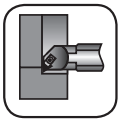
CBN Boring Series

- Solid carbide shank and head adds rigidity.
- Max. overhang, L = 5 x D
- Minimal bar deformation produces excellent boring accuracy.
- Minimal vibration produces a superior surface finish.





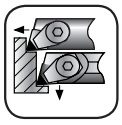
BNB-Type
For Blind Hole Through Hole



Sumitomo Cat. No.	Dimensions					Hardware				Insert		
Right Hand	Min. Bore øB	D	L	H	α°	Clamp	Clamp Screw	Wrench	Nut	I.C.	Thick	Cat. No.
BNB508R	.394" (10mm)	.315" (8mm)	5.5" (140mm)	.275" (7mm)	–9°	BNBC	BH0306	TH020	BNB W2	.156	.125	TBGE52-
BNB512R	.591" (15)	.472" (12)	6.3" (160)	.433" (11)	–6°				BNB W4			
BNB516R	.787" (20)	.630" (16)	7" (180)	.551" (14)	–5°		BH0308		BNB W7			
BNB520R	.984" (25)	.787" (20)	7" (180)	.709" (18)	–4°							

* BNB boring bars are 100% solid carbide (head and shank).

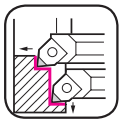
BNC-Type
For Boring and Facing



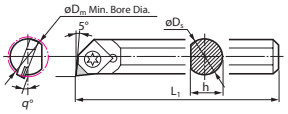
Sumitomo Cat. No.	Dimensions					Hardware				Insert		
Right Hand	Min. Bore øB	D	L	H	α°	Clamp	Clamp Screw	Wrench	Nut	I.C.	Thick	Cat. No.
BNC508R	.394" (10mm)	.315" (8mm)	5.5" (140mm)	.275" (7mm)	–9°	BNBC	BH0306	TH020	BNB W2	.1875	.125	NU-CCGE62-
BNC510R	.472" (12)	.394" (10)	5.5" (140)	.35" (9)	–8°				BNB W4			
BNC512R	.591" (15)	.472" (12)	6.3" (160)	.43" (11)	–6°		BH0308		BNB W7			
BNC516R	.787" (20)	.630" (16)	7" (180)	.551" (14)	–5°							
BNC520R	.984" (25)	.787" (20)	7" (180)	.709" (18)	–4°							

* BNC boring bars are 100% solid carbide (head and shank).

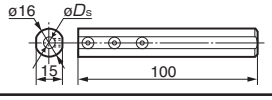
BNZ-Type
For General Facing



Sumitomo Cat. No.	Dimensions (mm)						
Cat. Number	Stock	Min. Bore øDm	øDs	h	L1	θ°	
BNZ606R	●	7.0	6.0	5.5	80	-14	
BNZ608R	●	9.0	8.0	7.5	100	-12	
BNZ610R	●	11.0	10.0	9.5	125	-10	
BNZ612R	●	13.0	12.0	11.0	130	-8	
BNZ616R	●	17.0	16.0	15.0	145	-6	
BNZ620R	●	21.0	20.0	19.0	160	-5	



Adapter Sleeve *for BNZ type*

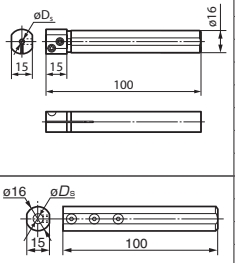


Sleeve	Stock	$øD_s$	Applicable Holder
HBB 616	○	6	BNZ 606R
HBB 816	○	8	BNZ 608R

★ = Worldwide Warehouse item • = USA stocked item

BNBX Small Hole Brazed Boring Bar

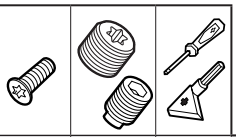
Catalog No.	BN250	BN700	BN2000	BN7000	Min. Boring Dia.	Dimensions (mm) øD	H	L	R	Applicable Adapter Sleeve	ød (mm)
BNBX020R	★	★	★	★	2.5	2.0	1.7	40	0.2	HBX2016	2.0
BNBX025R	★	★	★	★	3.0	2.5	2.2	40	0.2	HBX2516	2.5
BNBX030R	★	★	★	★	3.5	3.0	2.7	40	0.2	HBX3016	3.0
BNBX035R	★	★	★	★	4.0	3.5	3.2	40	0.2	HBX3516	3.5
BNBX040R	★	★	★	★	4.5	4.0	3.7	40	0.2	HBX4016	4.0
BNBX045R	★	★	★	★	5.0	4.5	4.2	40	0.2	HBX4516	4.5
BNBX050R	★	★	★	★	5.5	5.0	4.7	60	0.2	HBX5016	5.0
BNBX055R	★	★	★	★	6.0	5.5	5.2	60	0.2	HBX5516	5.5
BNBX060R	★	★	★	★	6.5	6.0	5.7	60	0.2	HBX6016	6.0
BNBX065R	★		★		7.0	6.5	6.2	60	0.2	HBB6516	6.5
BNBX070R	★		★		7.5	7.0	6.7	80	0.2	HBB716	7.0
BNBX075R	★		★		8.0	7.5	7.2	80	0.2	HBB7516	7.5
BNBX080R	★		★		8.5	8.0	7.7	80	0.2	HBB816	8.0



NOTE: BNBX bars can be used with HBB type sleeves, however, HBX type sleeves are recommended for bars below ø6mm

★ = Worldwide Warehouse Item

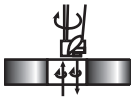
Adapter Sleeve Hardware

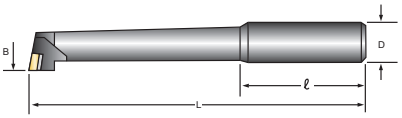


Screw	Setting Screw	Wrench	Applicable Sleeve
BFTX0409N	BT06035T	TRD15	HBXOOOO
-	BT0404	TH020	HBBOOOO

SUMIBORON Mini Boring Bars SJB Series

Jig Boring Tools





These figures show right hand tools.

Sumitomo Cat. No.	Dimensions (Inches) Min. Bore B	D	L	ℓ	Grade BN250
SJB2416	.250	.375	2.000	1.1875	•
SJB2420	.3125	.375	2.375	1.1875	•
SJB2424	.375	.375	2.750	1.1875	•
SJB2432	.500	.375	2.750	1.1875	•
SJB2440	.625	.375	3.750	1.1875	•

• = USA stocked item

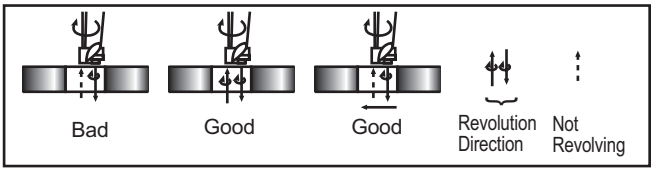
Sumitomo Cat. No.	Dimensions (mm) øD	ød	L	ℓ	Grade BN250
SJB0804	8	4	45	32	★
SJB0805	8	5	45	32	★
SJB0806	8	6	50	30	★
SJB0808	8	8	60	30	★
SJB1006	10	6	50	30	★
SJB1008	10	8	60	30	★
SJB1010	10	10	70	30	★
SJB1012	10	12	70	30	★
SJB1015	10	15	70	30	★

★ = Worldwide Warehouse item

Recommended Cutting Conditions

Rotating speed	800 rpm, or more	Low speed may cause chattering and chipping on the cutting edge
Depth of cut	001~.012 in./ per side	Excessive depth of cut may cause larger tool deflection resulting in deterioration of bore size
Feed rate (f)	.001~.004 in. IPR	—

NOTE



Either rotate the tool when removing or pull the tool away from work piece.

SUMITOMO CBN SOLID CARBIDE BORING BARS

Series: BSME Type

SUMIBORON

■ Characteristics

- Achieves the minimum bore diameter of ø2.5mm in the boring of hardened steel.
- Achieves high-precision cutting edge positioning thanks to the newly-developed clamp mechanism
- Expands the range of small hole boring to achieve more high-efficiency machining requiring no grinding.
- Brazed BSME: Applicable to bore diameters ranging from ø2.5 to 5.0mm
- SEXC with indexable insert: Applicable to bore diameters ranging from ø4.0 to 6.0mm

* All items are available 2-3 weeks of purchase

BSME
General/Facing

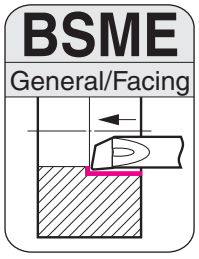


Fig. 1

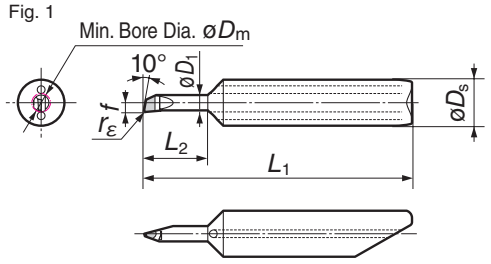
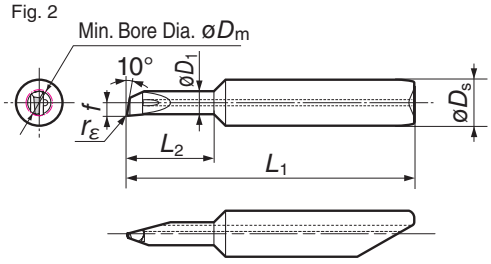


Fig. 2

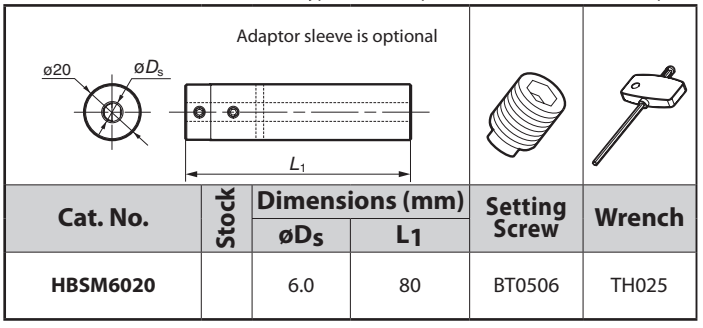


■ Brazed Boring Bar

Cat. No.	Stock		Min. Bore Dia.	Dimensions (mm)						Fig.	Applicable Sleeve
	BN2000		øDm	øDs	øD1	L1	f	L2	O		
	R	L									
BSME R/L25020D2S6			2.5	6.0	2.0	32.0	1.20	5.3	0.2	1	HBSM6020
BSME R/L25020D3S6			2.5	6.0	2.0	34.5	1.20	7.8	0.2		
BSME R/L25020D4S6			2.5	6.0	2.0	37.0	1.20	10.3	0.2		
BSME R/L30020D2S6			3.0	6.0	2.5	32.8	1.45	6.3	0.2	2	
BSME R/L30020D3S6			3.0	6.0	2.5	35.8	1.45	9.3	0.2		
BSME R/L30020D4S6			3.0	6.0	2.5	38.8	1.45	12.3	0.2		
BSME R/L35020D2S6			3.5	6.0	3.0	33.5	1.70	7.3	0.2		
BSME R/L35020D3S6			3.5	6.0	3.0	37.0	1.70	10.8	0.2		
BSME R/L35020D4S6			3.5	6.0	3.0	40.5	1.70	14.3	0.2		
BSME R/L40020D2S6			4.0	6.0	3.5	33.9	1.95	8.3	0.2		
BSME R/L40020D3S6			4.0	6.0	3.5	37.9	1.95	12.3	0.2		
BSME R/L40020D4S6			4.0	6.0	3.5	41.9	1.95	16.3	0.2		
BSME R/L45020D2S6			4.5	6.0	4.0	35.0	2.20	9.3	0.2		
BSME R/L45020D3S6			4.5	6.0	4.0	39.5	2.20	13.8	0.2		
BSME R/L45020D4S6			4.5	6.0	4.0	44.0	2.20	18.3	0.2		
BSME R/L50020D2S6			5.0	6.0	4.5	35.8	2.45	10.3	0.2		
BSME R/L50020D3S6			5.0	6.0	4.5	40.8	2.45	15.3	0.2		
BSME R/L50020D4S6			5.0	6.0	4.5	45.8	2.45	20.3	0.2		

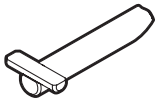
■ Adaptor Sleeve

The BSME Type needs adapter sleeve HBSM6020 (sold separately).



Cat. No.	Stock	Dimensions (mm)		Setting Screw	Wrench
		øDs	L1		
HBSM6020		6.0	80	BT0506	TH025

■ Alignment Jig*

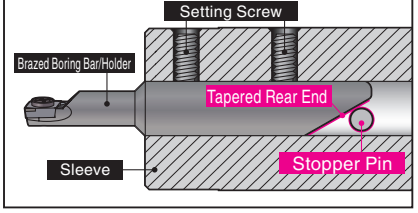


Cat. No.	Stock
AFBSM60	

* This jig is used for centering sleeves when setting them into holders.

■ Newly Developed Clamp Mechanism

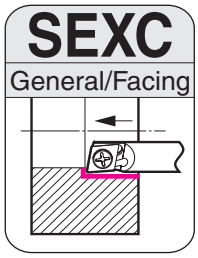
Achieving high-precision cutting edge positioning with a combination of a tapered ended tool/holder and a sleeve with an internal stopper pin. (Common to BSME and SEXC Types.)

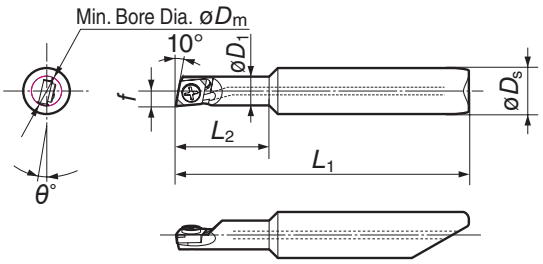


Sumitomo Indexable CBN Carbide Boring Bars w/Sleeve

SUMIBORON

* All items are available 2-3 weeks of purchase





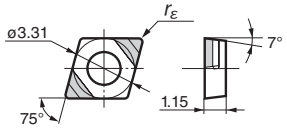
■ Holder

Cat. No.	Stock R	Stock L	Min. Bore Dia. øDm	Dimensions (mm) øDs	øD1	L1	f	L2	rε	Sleeve	Clamp Bolt	Recommended Tightening Torque (N•m)	Wrench
E06D2-SEXC R/L03-04P			4.0	6.0	3.75	33.75	1.95	8	-13	HBSM6020	MIB1.6-2	0.2	SDBSM
E06D3-SEXC R/L03-04P			4.0	6.0	3.75	37.75	1.95	12	-13				
E06D2-SEXC R/L03-05P			5.0	6.0	4.75	35.25	2.45	10	-12		MIB1.6-2.5		
E06D3-SEXC R/L03-05P			5.0	6.0	4.75	40.25	2.45	15	-12				
E06D2-SEXC R/L03-06P			6.0	6.0	5.75	36.75	2.95	12	-11		MIB1.6-3		
E06D3-SEXC R/L03-06P			6.0	6.0	5.75	42.75	2.95	18	-11				

The SEXC Type needs adapter sleeve HBSM6020 (sold separately).

■ Spare Parts

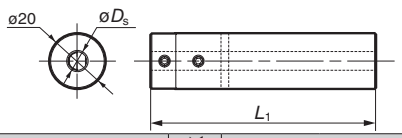
■ Insert



Cat. No.	Stock BN2000	Stock BN7000	Dimensions (mm) Nose Radius U
2NU-ECXA 030X02LE			0.2
2NU-ECXA 030X02LF			0.2

LE: Honed Edge, LF: Sharp Edge

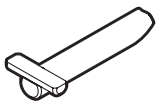
■ Adaptor Sleeve



Cat. No.	Stock	Dimensions (mm) øDs	L1	Setting Screw	Wrench
HBSM6020		6.0	80	BT0506	TH025

Adaptor sleeve is optional

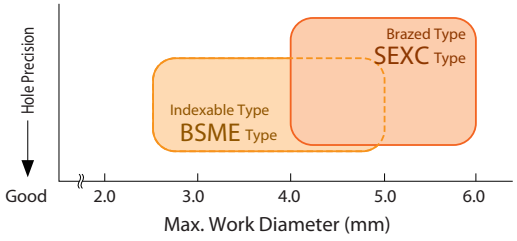
■ Alignment Jig*



Cat. No.	Stock
AFBSM60	

* This jig is used for centering sleeves when setting them into holders.

■ Application Range



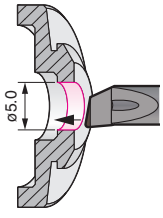
■ Recommended Cutting Conditions

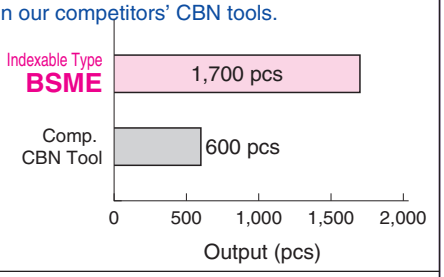
Spindle Speed *n*	Above 2,000min^{-1}	May cause chattering or chipping at the cutting edge in low-speed machining.
Depth-of-cut a_p	0.01 to 0.15mm	Excessive cutting depth causes deformation of the tool, which consequently leads to dimensional accuracy deterioration.
Feed Rate *f*	0.01 to 0.10mm/rev	–

■ Application Example

Hardened Alloy Steel Valve Component — BSME

The BSME type provides stable machining and a tool life that is over 2 times longer than our competitors' CBN tools.

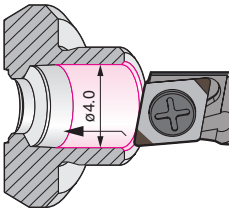


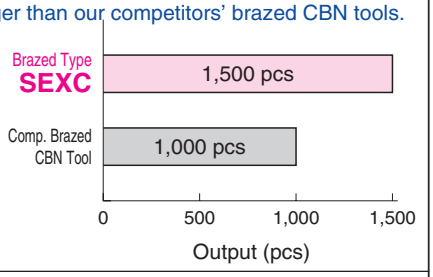


Work Material : Hardened Alloy Steel Valve Component (Automotive Component)
Tool : BSME R50020D2S6 Grade : BN2000
Cutting Conditions : v_c=135m/min (7,500min^{-1}) f=0.02mm/rev a_p=0.10mm Dry

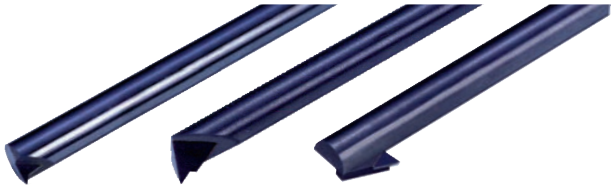
Bearing Steel Small Automotive Component — SEXC

The SEXC type provides drastically reduced tool costs and a tool life that is 1.5 times longer than our competitors' brazed CBN tools.





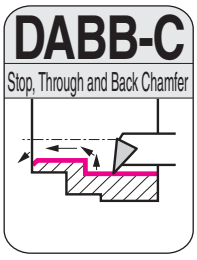
Work Material : Bearing Steel Small Automotive Component (60HRC)
Holder : E06D2-SEXC R/L03-04P Insert : 2NU-ECXA 030X02LF (BN2000)
Cutting Conditions : v_c=50m/min (4,000min^{-1}) f=0.02mm/rev a_p=0.02mm Wet

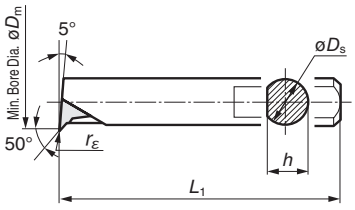


SUMIDIA

DABB-C

Stop, Through and Back Chamfer



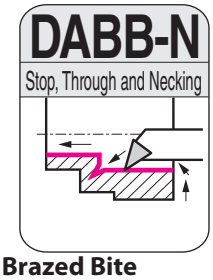


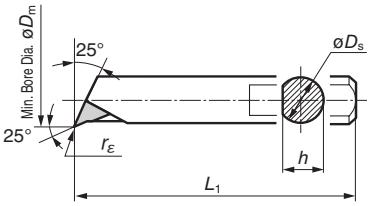
■ **Brazed Bite**

Cat. No.	Stock	Min. Bore Dia.	Dimensions (mm)				Applicable Sleeve
	DA2200	øDm	øDs	h	L1	rε	
DABB 025CR	★	3.0	2.5	2.2	60	0.1	HBB 2516
DABB 035CR	★	4.0	3.5	3.2	60	0.1	HBB 3516
DABB 045CR	★	5.0	4.5	4.1	80	0.1	HBB 4516
DABB 060CR	★	7.0	6.0	5.2	80	0.1	HBB 616

DABB-N

Stop, Through and Necking



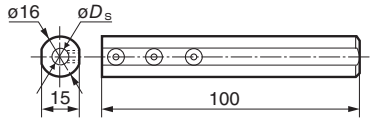


■ **Brazed Bite**

Cat. No.	Stock	Min. Bore Dia.	Dimensions (mm)				Applicable Sleeve
	DA2200	øDm	øDs	h	L1	rε	
DABB 025NR	★	3.0	2.5	2.2	60	0.1	HBB 2516
DABB 035NR	★	4.0	3.5	3.2	60	0.1	HBB 3516
DABB 045NR	★	5.0	4.5	4.1	80	0.1	HBB 4516
DABB 060NR	★	7.0	6.0	5.2	80	0.1	HBB 616

■ **Spare Parts**

■ **Adaptor Sleeve**



Cat. No.	Stock	øDs (mm)	Setting Screw	Wrench
HBX2516	★	2.5	BT 0404	TH 020
HBX3516	★	3.5		
HBX4516	★	4.5		
HBX6016	★	6.0		

(For Hexagonal Holes)

* This jig is used for centering sleeves when setting them into holders.

SUMITOMO

CARBIDE - CBN - DIAMOND

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Threading, Grooving, & Cut-Off Holders

Pages 277-314

THREADING, GROOVING, & CUT-OFF **PAGES**

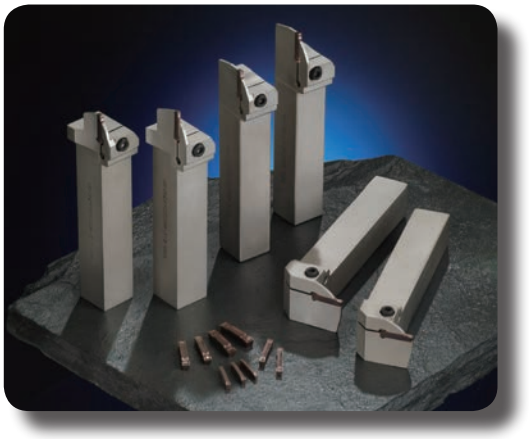
GND SERIES

High Rigidity Body

The GND series is designed for grooving and features a single-piece construction made of special steel. This design reduces chatter and also delivers steady performance for turning, profiling, and facing.

Wide Range of Chipbreakers

The GND lineup features 8 types of chipbreakers for various machining applications. Offers consistent chip control under various conditions.



Grooving Tool Holders GND Type

Multi-Purpose / General Feed MG Chipbreaker | Multi-Purpose / Low Feed ML Chipbreaker | Grooving / General Feed GG Chipbreaker | Grooving / Low Feed GL Chipbreaker | Profiling / General Feed RG Chipbreaker | Low Cutting Force GF Chipbreaker | For Non-Ferrous Material GA Chipbreaker | For Cut-off Applications CG Chipbreaker

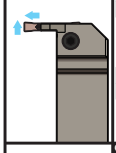
GNDM — Straight Type

Shank Size Range	Seat Size Availability	Application	Page #
Inch ☐ .750" x .750" ☐ 1.00" x 1.00" ☐ 1.25" x 1.25" **Metric** ☐ 16 x 16mm ☐ 20 x 20mm ☐ 25 x 25mm ☐ 32 x 25mm ☐ 32 x 32mm	1.25 1.5 2.0 3.0 4.0 5.0 6.0 7.0 8.0 Applicable Breaker MG ML GG GL GA GF RG CG	Grooving, Turning, Profiling	Inch: pg. 283 Metric pg. 287

GNDI — Straight Type

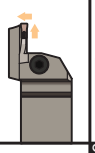
Shank Size Range	Seat Size Availability	Application	Page #
Inch ø1.00" ø1.25" ø1.50" **Metric** ø25mm ø32mm ø40mm	1.25 1.5 2.0 3.0 4.0 5.0 6.0 7.0 8.0 Applicable Breaker MG ML GG GL GA GF RG CG	Grooving, Turning, Profiling	pg. 291

GNDMS — L Type



Shank Size Range	Seat Size Availability	Application	Page #
Inch ☐ .750" x .750" ☐ 1.00" x 1.00" **Metric** ☐ 20 x 20mm ☐ 25 x 25mm	1.25 1.5 2.0 3.0 4.0 5.0 6.0 7.0 8.0 Applicable Breaker MG ML GG GL GA GF RG CG	Grooving, Turning, Profiling	Inch: pg. 283 Metric pg. 287

GNDF — Straight Type

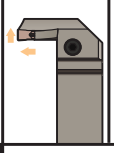


Shank Size Range	Seat Size Availability	Application	Page #
Inch ☐ .750" x .750" ☐ 1.00" x 1.00" **Metric** ☐ 20 x 20mm ☐ 25 x 25mm	1.25 1.5 2.0 3.0 4.0 5.0 6.0 7.0 8.0 Applicable Breaker MG ML GG GL GA GF RG CG	Grooving, Turning, Profiling	Inch: pg. 285 Metric pg. 290

GNDL — Straight Type

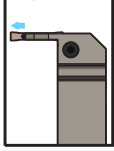
Shank Size Range	Seat Size Availability	Application	Page #
Inch ☐ .750" x .750" ☐ 1.00" x 1.00" ☐ 1.25" x 1.25" **Metric** ☐ 10 x 10mm ☐ 12 x 12mm ☐ 16 x 16mm ☐ 20 x 20mm ☐ 25 x 25mm ☐ 32 x 25mm ☐ 32 x 32mm	1.25 1.5 2.0 3.0 4.0 5.0 6.0 7.0 8.0 Applicable Breaker MG ML GG GL GA GF RG CG	Grooving, Cut-Off	Inch: pg. 284 Metric pg. 288

GNDFS — L Type



Shank Size Range	Seat Size Availability	Application	Page #
Metric ☐ 25 x 25mm ☐ 32 x 32mm	1.25 1.5 2.0 3.0 4.0 5.0 6.0 7.0 8.0 Applicable Breaker MG ML GG GL GA GF RG CG	Grooving, Turning, Profiling	pg. 291

GNDLS — L Type

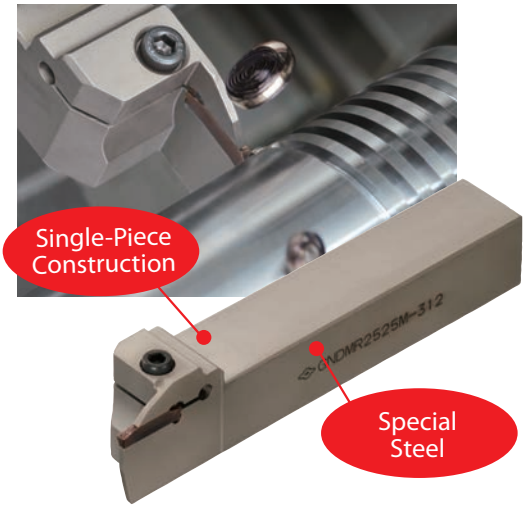


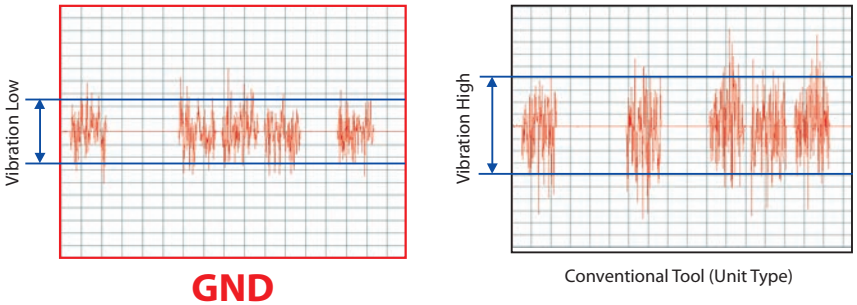
Shank Size Range	Seat Size Availability	Application	Page #
Inch ☐ .750" x .750" ☐ 1.00" x 1.00" **Metric** ☐ 20 x 20mm ☐ 25 x 25mm	1.25 1.5 2.0 3.0 4.0 5.0 6.0 7.0 8.0 Applicable Breaker MG ML GG GL GA GF RG CG	Grooving, Cut-Off	Inch: pg. 284 Metric pg. 288

GROOVING TOOLHOLDERS
GND SERIES

Eliminates Vibration

High rigid design reduces vibration by as much as 30% over conventional types





GND
GND Type

Conventional Tool (Unit Type)

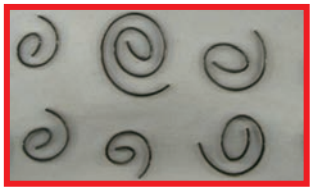
Part Material	Holder	Insert
4115 Steel	GNDL R2525M-220	GCM N2002-GG

Cutting Conditions: v_c=328 SFM, f=0.004 IPR, a_p= 0.78", Wet

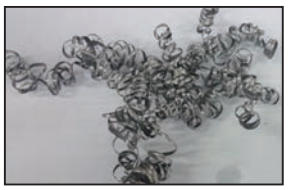
Excellent Chip Control

Special chipbreakers for various machining applications (grooving, turning, profiling)

Grooving



GND Type (GG Type Chipbreaker)



Conventional Tool

Part Material	Holder	Insert
4115 Steel	GNDL R2525M-320	GCM N3002-GG

Cutting Conditions: v_c=328 SFM, f=0.006 IPR, a_p=0.472", Wet

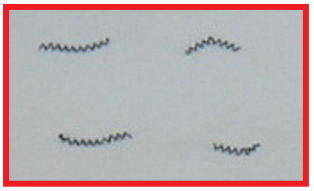
GND Type (RG Type Chipbreaker)

Conventional Tool

Part Material	Holder	Insert
4115 Steel	GNDM R2525M-312	GCM N3015-RG

Cutting Conditions: v_c=328 SFM, f=0.005 IPR, a_p= 0.039", Wet

Turning



GND Type (ML Type Chipbreaker)

Conventional Tool

Part Material	Holder	Insert
4115 Steel	GNDM R2525M-312	GCM N3002-ML

Cutting Conditions: v_c=328 SFM, f=0.004 IPR, a_p=0.020" Wet

GND Type (RG Type Chipbreaker)

Conventional Tool

Part Material	Holder	Insert
4115 Steel	GNDM R2525M-312	GCM N3015-RG

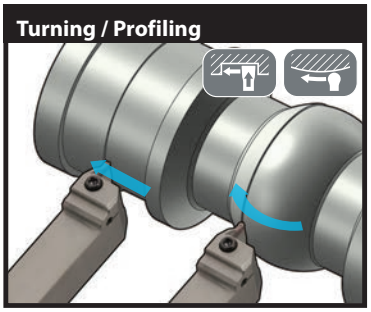
Cutting Conditions: v_c=328 SFM, f=0.006 IPR, a_p=0.004", Wet

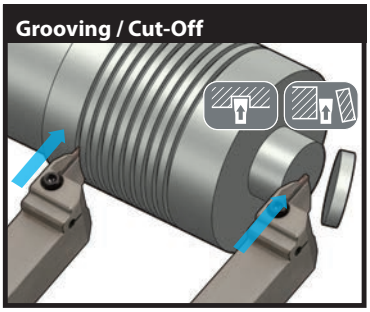
Improved Precision

Our precision sintering technology delivers **±0.03mm** accuracy for all grooving widths (from 2.0 to 6.0 mm).

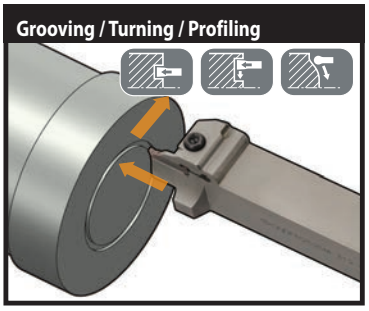
GND Type Holder Selection Guide

External Grooving

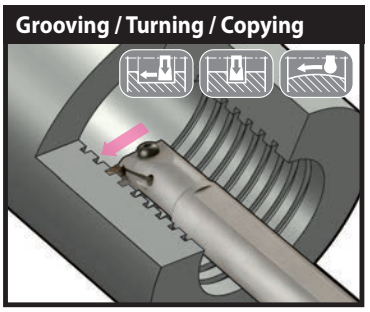




Face Grooving

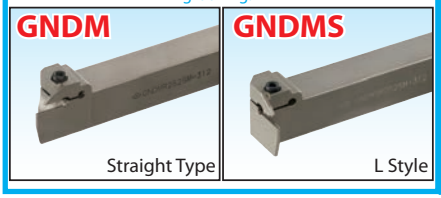


Internal Grooving



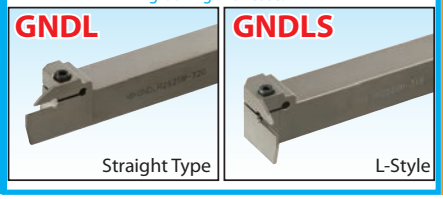
GNDM Type / GNDMS Type

Perfect for turning and profiling. Can also be used for grooving.



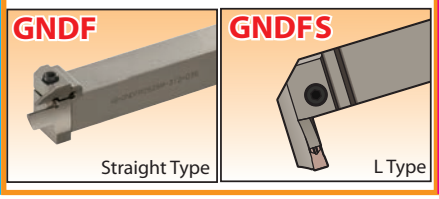
GNDL Type / GNDLS Type

Perfect for grooving and cut-off applications. Handles deep grooving with ease.



GNDF Type / GNDFS Type

For facing work.



GNDI Type

for internal grooving.

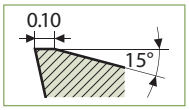
GND Type Chipbreaker Selection

Grooving/Turning

General Purpose Type — Standard insert for turning

MG Type

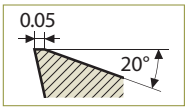
Cross Section of Cutting Edge



Low Feed Type — For low-feed chip management

ML Type

Cross Section of Cutting Edge

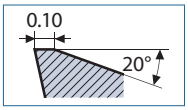


Grooving/Cut-Off

General Purpose Type — First choice for grooving

GG Type

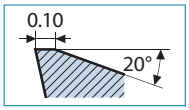
Cross Section of Cutting Edge



Low Feed Type — For low-feed chip management

GL Type

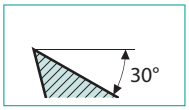
Cross Section of Cutting Edge



Low Cutting Force Type — Applicable to ultra-thin grooving

GF Type

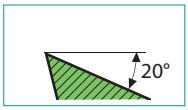
Cross Section of Cutting Edge



Low Cutting Force Type — For Non-ferrous Materials

GA Type NEW

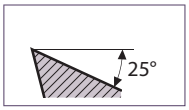
Cross Section of Cutting Edge



Cut-Off Type — Ideal for cut-off applications

CG Type

Cross Section of Cutting Edge

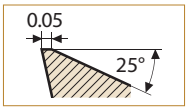


Copying

General Purpose Type — Perfect for copying

RG Type

Cross Section of Cutting Edge



Recommended Cutting Conditions

Part Material	P				M			K						S		N
	Carbon Steel/ Alloy Steel				Stainless Steel			Gray Cast Iron			Ductile Cast Iron			Exotic Alloy		Non-ferrous
Grade	AC830P	AC520U	AC530U	T2500A (Cermet)	AC830P	AC520U	AC530U	AC425K	AC520U	AC530U	AC425K	AC520U	AC530U	AC520U	AC530U	H10
Speed (SFM)	260-650	260-650	165-650	350-750	230-500	230-500	165-500	260-650	200-650	165-650	400-600	200-500	165-500	65-260	65-200	500-1000

Grooving & Cutoff

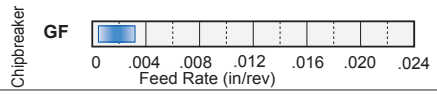
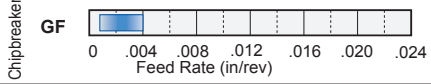
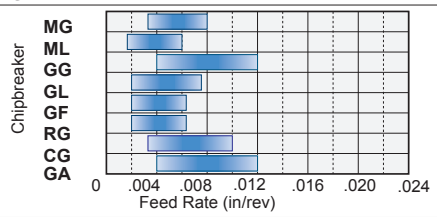
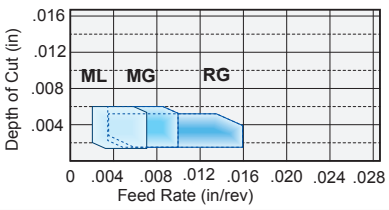
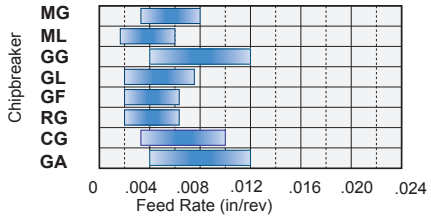
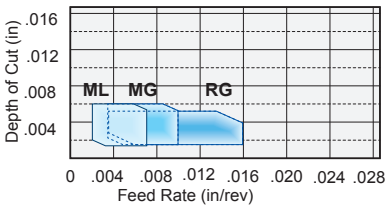
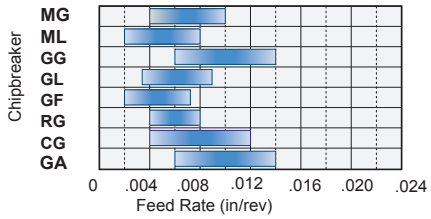
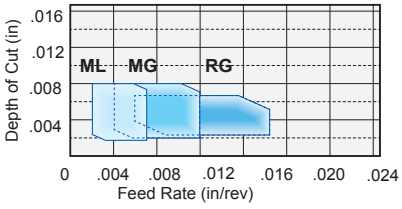
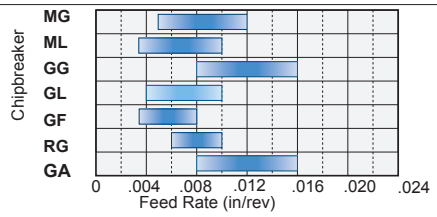
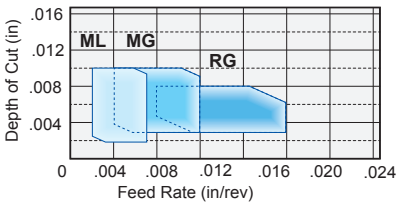
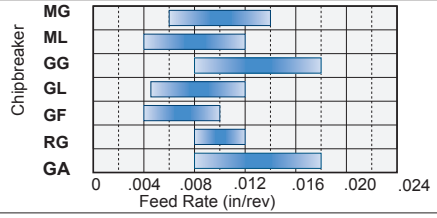
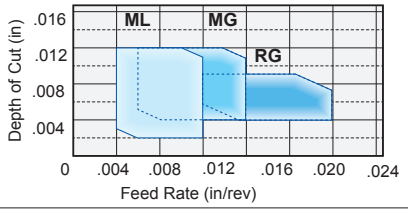
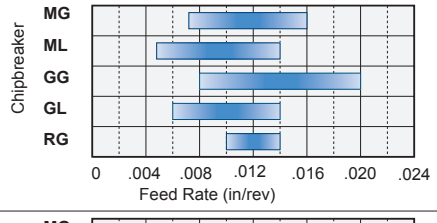
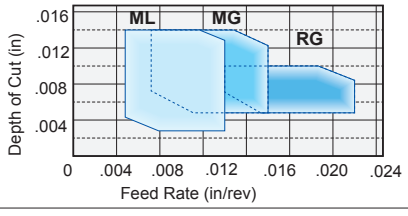
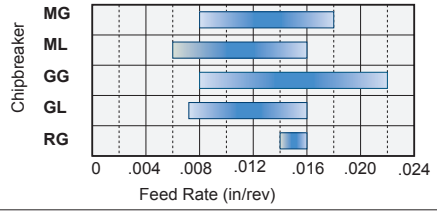
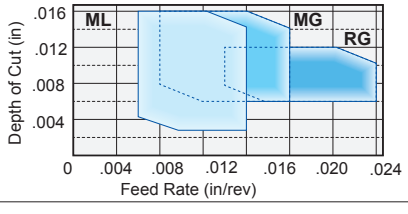
Seat Size	MG Feed (ipr)	ML Feed (ipr)	GG Feed (ipr)	GL Feed (ipr)	RG Feed (ipr)	CG Feed (ipr)	GA Feed (ipr)
2	-	-	.002-.010	.001-.006	-	.002-.008	.002-.010
3	.003-.008	.001-.006	.004-.012	.002-.008	.003-.006	.003-.010	.004-.012
4	.004-.010	.002-.008	.006-.014	.003-.009	.004-.008	.004-.012	.006-.014
5	.005-.012	.003-.010	.008-.016	.004-.010	.006-.010	-	.008-.016
6	.006-.014	.004-.012	.008-.018	.005-.012	.008-.012	-	.008-.018
7	.007-.016	.005-.014	.008-.020	.006-.014	.010-.014	-	-
8	.008-.018	.006-.016	.008-.022	.007-.016	.014-.016	-	-

Turning

Seat Size	MG Feed (ipr)	MG Depth (in)	ML Feed (ipr)	ML Depth (in)	RG Feed (ipr)	RG Depth (in)
3	.003-.010	.016-.06	.002-.007	.012-.060	.004-.016	.012-.048
4	.004-.012	.020-.08	.002-.008	.016-.080	.006-.018	.024-.064
5	.005-.014	.030-.10	.003-.010	.020-.100	.008-.020	.030-.080
6	.006-.016	.040-.12	.004-.012	.020-.120	.012-.024	.040-.090
7	.007-.016	.048-.014	.005-.014	.028-.014	.014-.026	.048-.098
8	.008-.018	.060-.016	.006-.016	.028-.016	.014-.028	.060-.120

*For difficult to machine and harder materials, please adjust speeds and feeds accordingly

Chipbreaker Selection Guide

Groov. Width (mm)	Recommended Cutting Conditions		Nose Radius (mm)	Inserts
	Grooving	Turning		
1.25			.008	GCM N12505 **GF**
1.5			.008	GCM N150005 **GF**
2.0			.008	GCM N2002 **GG** GCM N2002 **GL** GCM N2002 **GF** GCM R/L2002 **CG**05
3.0			.008	GCM N3002 **ML** GCM N3002 **GG** GCM N3002 **GL** GCM N3002 **GF** GCM R/L3002 **CG**05
			.016	GCM N3004 **MG** GCM N3004 **GG**
			.060	GCM N3015 **RG**
4.0			.008	GCM N4002 **GG** GCM N4002 **GL** GCM N4002 **GF** GCM R/L4002 **CG**05
			.016	GCM N4004 **ML** GCM N4004 **GG**
			.032	GGCM N 4008 **MG**
			.078	GCM N4020 **RG**
5.0			.008	GCM N5002 **GG** GCM N5002 **GL** GCM N5002 **GF**
			.016	GCM N5004 **ML** GCM N5004 **GG**
			.032	GCM N5008 **MG**
			.098	GCM N5025 **RG**
6.0			.008	GCM N6002 **GG** GCM N6002 **GL** GCM N6002 **GF**
			.016	GCM N6004 **ML** GCM N6004 **GG**
			.032	GCM N6008 **MG**
			.118	GCM N6030 **RG**
7.0			.016	GCM N7004 **ML** GCM N7004 **GG** GCM N7004 **GL**
			.032	GCM N7008 **MG**
			.134	GCM N7035 **RG**
8.0			.016	GCM N8004 **ML** GCM N8004 **GG** GCM N8004 **GL**
			.032	GCM N8008 **MG**
			.160	GCM N8040 **RG**

Nomenclature for OD Groover GND Series

GND M R/L 16 3 M -075

#1- 3 #4 #5 #6 #7 #8 #9

#1-3 Series Name
#1 **G**roove #2 **N**ew #3 **D**epth

#4 Application
M: Multi-function
L: Deep Groove
MS: 90° Multi
LS: 90° Deep

#5 Handedness
R: Right Handed
L: Left Handed

#6 Shank Size*16
12: 0.750 x 0.750"
16: 1.000 x 1.000"
20: 1.250 x 1.250"

#7 Seat Size
2
3
4
5
6
7
8

#8 Overall Length
K: 5.0"
M: 6.0"
P: 7.0"

#9 Max Groove Depth*100
050: 0.50"
070: 0.70"
075: 0.75"
090: 0.90"
100: 1.00"

Nomenclature for Face Grooving Holders

GND F R/L 16 3 M -075 -035

#1- 3 #4 #5 #6 #7 #8 #9 #10

#1-3 Series Name
#1 **G**roove #2 **N**ew #3 **D**epth

#4 Application
F: Face Groover
FS: 90° Face

#5 Handedness
R: Right Handed
L: Left Handed

#6 Shank Size*16
12: 0.750 x 0.750"
16: 1.000 x 1.000"
20: 1.250 x 1.250"

#7 Seat Size
2
3
4
5
6
8

#8 Overall Length
K: 5.0"
M: 6.0"
P: 7.0"

#9 Max Groove Depth*100
050: 0.50"
070: 0.70"
075: 0.75"
090: 0.90"

#10 Min.Part Diam. mm (Inch)
035: 35mm (1.378")
040: 40mm (1.575")
045: 45mm (1.772")
050: 50mm (1.969")
065: 65mm (2.559")
085: 85mm (3.346")

#10 Min.Part Diam. mm (Inch) *(cont.)*
090: 90mm (3.543")
100: 100mm (3.937")
125: 125mm (4.921")
140: 140mm (5.512")
180: 180mm (7.087")
280: 280mm (11.024")

Insert Nomenclature

GCM N 3 125 R0.5 -GG -AC530U

#1- 3 #4 #5 #6 #7 #8 #9

#1-3 Series Name
#1 **G:** Grooving Insert
#2 **C:** 7° Relief Angle
#3 **M:** Molded Tolerance

#4 Handedness
R: Right Handed
L: Left Handed
N: Neutral

#5 Seat Size
2
3
4
5
6
7
8

#6 Groove Width*100
094: 0.094"
125: 0.125"
187: 0.187"
250: 0.250"

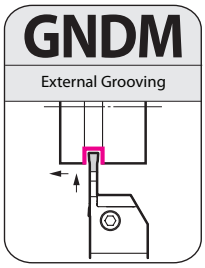
#7 Corner Radius in 64ths
R0.5: 0.5/64 = 0.0078"
R1.0: 1/64 = 0.0156"
R2.0: 2/64 = 0.0312"

#8 Chipbreaker
GG: Std. Feed Deep Groove
GL: Low Feed Deep Groove
MG: Std. Feed Traverse
ML: Low Feed Traverse
RG: Full Radius Profiling
GF: Low Cutting Force
GA: Non-ferrous grooving

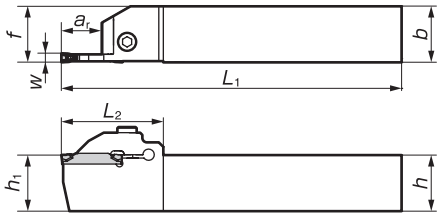
*Note: Items with the RG chipbreaker have a radius equal to 1/2 the width (Ex: GCMN3125-RG = 0.0625"

#9: Grade
AC520U: Universal Grade For most materials
AC530U: Universal Grade For most materials
AC830P: Tough CVD Grade For steels
AC425K: CVD Grade For Cast and Ductile Irons
T2500A: finishing of steels and stainless steels
H10: for non-ferrous materials

External Multi-Purpose (Grooving / Turning / Profiling)



Use for multi-purpose or profiling insert for turning (widening).

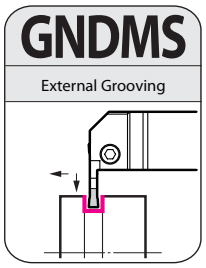


Above figures show right hand tools

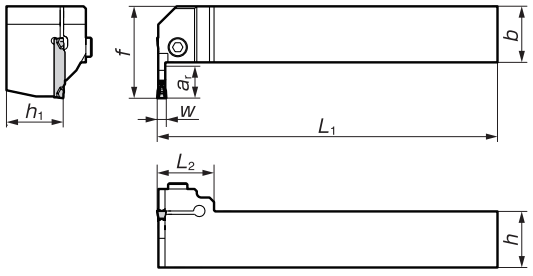
Catalog Number	Dimensions (in)						Groove Width	Max. Groove depth	Seat Size	Cap Screw	Wrench
	h	b	L1	f	h1	L2	W (inch)	ar (inch)			
GNDM L/R 122K-050	.750	.750	5.000	.750	.750	1.441	.094	.500	2	BX0520	LH040
GNDM L/R 123K-050	.750	.750	5.000	.750	.750	1.441	.125	.500	3		
GNDM L/R 124K-070	.750	.750	5.000	.750	.750	1.772	.157	.700	4		
GNDM L/R 125K-070	.750	.750	5.000	.750	.750	1.772	.1875	.700	5		
GNDM L/R 126K-070	.750	.750	5.000	.750	.750	1.772	.250	.700	6		
GNDM L/R 162K-050	1.000	1.000	6.000	1.000	1.000	1.441	.094	.500	2		
GNDM L/R 163M-050	1.000	1.000	6.000	1.000	1.000	1.441	.125	.500	3		
GNDM L/R 164M-070	1.000	1.000	6.000	1.000	1.000	1.772	.157	.700	4		
GNDM L/R 165M-070	1.000	1.000	6.000	1.000	1.000	1.772	.1875	.700	5		
GNDM L/R 166M-070	1.000	1.000	6.000	1.000	1.000	1.772	.250	.700	6		
GNDM L/R 203P-050	1.250	1.250	6.750	1.250	1.250	1.441	.125	.500	3	BX0620	LH050
GNDM L/R 204P-070	1.250	1.250	6.750	1.250	1.250	1.772	.157	.700	4		
GNDM L/R 205P-070	1.250	1.250	6.750	1.250	1.250	1.772	.1875	.700	5		
GNDM L/R 206P-070	1.250	1.250	6.750	1.250	1.250	1.772	.250	.700	6		
GNDM L/R 207P-070	1.250	1.250	6.750	1.250	1.250	2.000	.275	.700	7		
GNDM L/R 208P-070	1.250	1.250	6.750	1.250	1.250	2.000	.315	.700	8		

Please see page 296 for applicable inserts

External L-Styled (Side Cut) Multi-Purpose (Grooving / Turning / Profiling)



Use for multi-purpose or profiling insert for turning (widening).

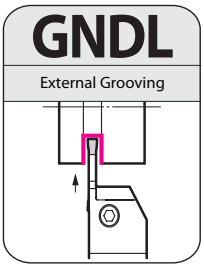


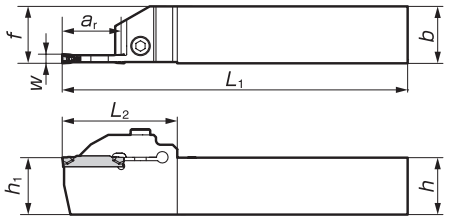
Above figures show right hand tools

Catalog Number	Dimensions (in)						Groove Width	Max. Groove depth	Seat Size	Cap Screw	Wrench
	h	b	L1	f	h1	L2	W (inch)	ar (inch)			
GNDMS L/R 123K-040	.750	.750	5.000	1.222	.750	1.000	.125	.4000	3	BX0520	LH040
GNDMS L/R 124K-050	.750	.750	5.000	1.300	.750	1.000	.157	.5000	4		
GNDMS L/R 125K-050	.750	.750	5.000	1.300	.750	1.000	.1875	.5000	5		
GNDMS L/R 163M-050	1.000	1.000	6.000	1.551	1.000	1.000	.125	.5000	3		
GNDMS L/R 164M-055	1.000	1.000	6.000	1.630	1.000	1.000	.157	.5500	4		
GNDMS L/R 165M-055	1.000	1.000	6.000	1.630	1.000	1.000	.1875	.5500	5		
GNDMS L/R 166M-055	1.000	1.000	6.000	1.630	1.000	1.000	.250	.5500	6		

Please see page 296 for applicable inserts

External Deep Grooving / Cut-Off



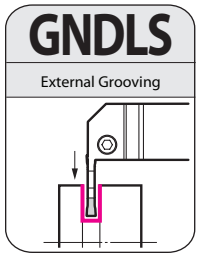


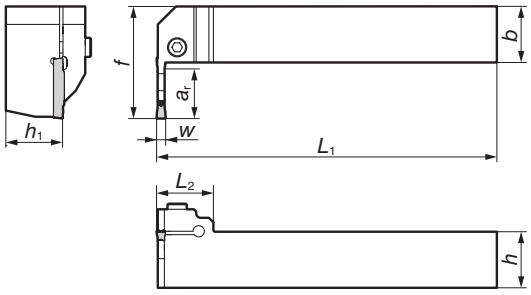
Above figures show right hand tools

Catalog Number	Dimensions (in)						Groove Width	Max. Groove depth	Seat Size		
	h	b	L1	f	h1	L2	W (inch)	ar (inch)		Cap Screw	Wrench
GNDL L/R 122K-075	.750	.750	5.000	.750	.750	1.752	.094	.750	2	BX0520	LH040
GNDL L/R 123K-075	.750	.750	5.000	.750	.750	1.752	.125	.750	3		
GNDL L/R 124K-100	.750	.750	5.000	.750	.750	1.969	.157	1.000	4		
GNDL L/R 125K-100	.750	.750	5.000	.750	.750	1.969	.1875	1.000	5		
GNDL L/R 126K-100	.750	.750	5.001	.750	.750	1.969	.250	1.000	6		
GNDL L/R 162M-075	1.000	1.000	6.000	1.000	1.000	1.752	.094	.750	2		
GNDL L/R 163M-075	1.000	1.000	6.000	1.000	1.000	1.752	.125	.750	3		
GNDL L/R 164M-100	1.000	1.000	6.000	1.000	1.000	1.969	.157	1.000	4		
GNDL L/R 165M-100	1.000	1.000	6.000	1.000	1.000	1.969	.187	1.000	5		
GNDL L/R 166M-100	1.000	1.000	6.000	1.000	1.000	1.969	.250	1.000	6		
GNDL L/R 203P-090	1.250	1.250	6.750	1.250	1.250	1.752	.125	0.900	3	BX0620	LH050
GNDL L/R 204P-100	1.250	1.250	6.750	1.250	1.250	2.000	.157	1.000	4		
GNDL L/R 205P-100	1.250	1.250	6.750	1.250	1.250	2.000	.1875	1.000	5		
GNDL L/R 206P-100	1.250	1.250	6.750	1.250	1.250	2.000	.250	1.000	6		
GNDL L/R 207P-100	1.250	1.250	6.750	1.250	1.250	2.000	.275	1.000	7		
GNDL L/R 208P-100	1.250	1.250	6.750	1.250	1.250	2.000	.315	1.000	8		

Please see page 296 for applicable inserts

External L-Style (Side Cut) Grooving



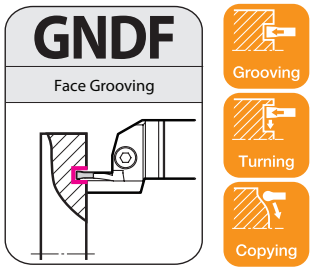


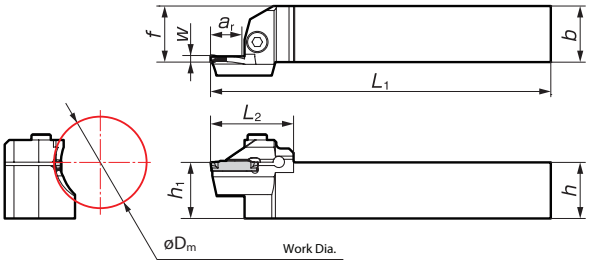
Above figures show right hand tools

Catalog Number	Dimensions (in)						Groove Width	Max. Groove depth	Seat Size		
	h	b	L1	f	h1	L2	W (inch)	ar (inch)		Cap Screw	Wrench
GNDLS L/R 122K-060	.750	.750	5.000	1.459	.750	1.000	.094	.600	2	BX0520	LH040
GNDLS L/R 123K-060	.750	.750	5.000	1.459	.750	1.000	.125	.600	3		
GNDLS L/R 124K-070	.750	.750	6.000	1.787	.750	1.000	.157	.700	4		
GNDLS L/R 162M-070	1.000	1.000	6.000	1.787	1.000	1.000	.094	.700	2		
GNDLS L/R 163M-070	1.000	1.000	6.000	1.787	1.000	1.000	.125	.700	3		
GNDLS L/R 164M-090	1.000	1.000	6.000	1.984	1.000	1.000	.157	.900	4		
GNDLS L/R 165M-090	1.000	1.000	6.000	1.984	1.000	1.000	.1875	.900	5		
GNDLS L/R 166M-090	1.000	1.000	6.000	1.984	1.000	1.000	.250	.900	6		

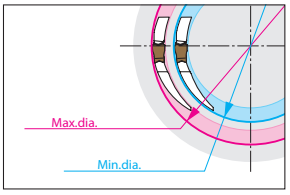
Please see page 296 for applicable inserts

Face Grooving





Above figures show right hand tools



Work diameters in stock table indicate external diameter of face groove.

Catalog Number	Dimensions (in)						Work Dia. ΦDm		Grooving width	Max. Grooving Depth ar (inch)	Seat Size	Cap Screw	Wrench
	h	b	L1	f	h1	L2	Min.	Max.					
GNDF L/R 123K-050-035	.750	.750	5.000	.750	.750	1.402	1.378	1.772	.125	.500	3	BX0520	LH040
GNDF L/R 123K-050-040	.750	.750	5.000	.750	.750	1.402	1.575	2.165	.125	.500	3		
GNDF L/R 123K-070-050	.750	.750	5.000	.750	.750	1.638	1.969	2.756	.125	.700	3		
GNDF L/R 123K-070-065	.750	.750	5.000	.750	.750	1.638	2.559	3.397	.125	.700	3		
GNDF L/R 123K-070-090	.750	.750	5.000	.750	.750	1.638	3.543	5.906	.125	.700	3		
GNDF L/R 123K-070-140	.750	.750	5.000	.750	.750	1.638	5.512	7.874	.125	.700	3		
GNDF L/R 123K-070-180	.750	.750	5.000	.750	.750	1.638	7.087	11.811	.125	.700	3		
GNDF L/R 124K-070-040	.750	.750	5.000	.750	.750	1.638	1.575	2.165	.157	.700	4	BX0520	LH040
GNDF L/R 124K-090-050	.750	.750	5.000	.750	.750	1.835	1.969	2.756	.157	.900	4		
GNDF L/R 124K-090-065	.750	.750	5.000	.750	.750	1.835	2.559	3.543	.157	.900	4		
GNDF L/R 124K-090-085	.750	.750	5.000	.750	.750	1.835	3.346	5.118	.157	.900	4		
GNDF L/R 124K-090-125	.750	.750	5.000	.750	.750	1.835	4.921	7.874	.157	.900	4		
GNDF L/R 124K-090-180	.750	.750	5.000	.750	.750	1.835	7.087	11.811	.157	.900	4		
GNDF L/R 124K-090-280	.750	.750	5.000	.750	.750	1.835	11.024	39.370	.157	.900	4		
GNDF L/R 125K-090-050	.750	.750	5.000	.750	.750	1.835	1.969	2.756	.1875	.900	5	BX0520	LH040
GNDF L/R 125K-090-065	.750	.750	5.000	.750	.750	1.835	2.559	3.543	.1875	.900	5		
GNDF L/R 125K-090-085	.750	.750	5.000	.750	.750	1.835	3.346	5.118	.1875	.900	5		
GNDF L/R 125K-090-125	.750	.750	5.000	.750	.750	1.835	4.921	7.874	.1875	.900	5		
GNDF L/R 125K-090-180	.750	.750	5.000	.750	.750	1.835	7.087	11.811	.1875	.900	5		
GNDF L/R 125K-090-280	.750	.750	5.000	.750	.750	1.835	11.024	39.370	.1875	.900	5		
GNDF L/R 126K-090-050	.750	.750	5.000	.750	.750	1.835	1.969	2.953	.250	.900	6	BX0520	LH040
GNDF L/R 126K-090-070	.750	.750	5.000	.750	.750	1.835	2.756	4.331	.250	.900	6		
GNDF L/R 126K-090-100	.750	.750	5.000	.750	.750	1.835	3.397	7.874	.250	.900	6		
GNDF L/R 126K-090-180	.750	.750	5.000	.750	.750	1.835	7.087	11.811	.250	.900	6		
GNDF L/R 126K-090-280	.750	.750	5.000	.750	.750	1.835	11.024	39.370	.250	.900	6		
GNDF L/R 163M-050-035	1.000	1.000	6.000	1.000	1.000	1.402	1.378	1.772	.125	.500	3	BX0520	LH040
GNDF L/R 163M-050-040	1.000	1.000	6.000	1.000	1.000	1.402	1.575	2.165	.125	.500	3		
GNDF L/R 163M-070-050	1.000	1.000	6.000	1.000	1.000	1.638	1.969	2.756	.125	.700	3		
GNDF L/R 163M-070-065	1.000	1.000	6.000	1.000	1.000	1.638	2.559	3.397	.125	.700	3		
GNDF L/R 163M-070-090	1.000	1.000	6.000	1.000	1.000	1.638	3.543	5.906	.125	.700	3		
GNDF L/R 163M-070-140	1.000	1.000	6.000	1.000	1.000	1.638	5.512	7.874	.125	.700	3		
GNDF L/R 163M-070-180	1.000	1.000	6.000	1.000	1.000	1.638	7.087	11.811	.125	.700	3		
GNDF L/R 164M-070-040	1.000	1.000	5.000	.750	.750	1.638	1.575	2.165	.157	.700	4	BX0520	LH040
GNDF L/R 164M-090-050	1.000	1.000	5.000	.750	.750	1.835	1.969	2.756	.157	.900	4		
GNDF L/R 164M-090-065	1.000	1.000	5.000	.750	.750	1.835	2.559	3.543	.157	.900	4		
GNDF L/R 164M-090-085	1.000	1.000	5.000	.750	.750	1.835	3.346	5.118	.157	.900	4		
GNDF L/R 164M-090-125	1.000	1.000	5.000	.750	.750	1.835	4.921	7.874	.157	.900	4		
GNDF L/R 164M-090-180	1.000	1.000	5.000	.750	.750	1.835	7.087	11.811	.157	.900	4		
GNDF L/R 164M-090-280	1.000	1.000	5.000	.750	.750	1.835	11.024	39.370	.157	.900	4		
GNDF L/R 165M-090-050	1.000	1.000	6.000	1.000	1.000	1.835	1.969	2.756	.1875	.900	5	BX0520	LH040
GNDF L/R 165M-090-065	1.000	1.000	6.000	1.000	1.000	1.835	2.559	3.543	.1875	.900	5		
GNDF L/R 165M-090-085	1.000	1.000	6.000	1.000	1.000	1.835	3.346	5.118	.1875	.900	5		
GNDF L/R 165M-090-125	1.000	1.000	6.000	1.000	1.000	1.835	4.921	7.874	.1875	.900	5		
GNDF L/R 165M-090-180	1.000	1.000	6.000	1.000	1.000	1.835	7.087	11.811	.1875	.900	5		
GNDF L/R 165M-090-280	1.000	1.000	6.000	1.000	1.000	1.835	11.024	39.370	.1875	.900	5		
GNDF L/R 166M-090-050	1.000	1.000	6.000	1.000	1.000	1.835	1.969	2.953	.250	.900	6	BX0520	LH040
GNDF L/R 166M-090-070	1.000	1.000	6.000	1.000	1.000	1.835	2.756	4.331	.250	.900	6		
GNDF L/R 166M-090-100	1.000	1.000	6.000	1.000	1.000	1.835	3.937	7.874	.250	.900	6		
GNDF L/R 166M-090-180	1.000	1.000	6.000	1.000	1.000	1.835	7.087	11.811	.250	.900	6		
GNDF L/R 166M-090-280	1.000	1.000	6.000	1.000	1.000	1.835	11.024	39.370	.250	.900	6		

Please see page 296 for applicable inserts

Nomenclature for OD Groover GND Series (METRIC)

GND M R/L 2525 M - 3 12

#1-3 #4 #5 #6 #7 #8 #9

#1-3 Series Name
#1 **G**roove #2 **N**ew #3 **D**epth

#4 Application
M: Multi-function
L: Deep Groove
MS: 90° Multi
LS: 90° Deep
S: Shallow Groove

#5 Handedness
R: Right Handed
L: Left Handed

#6 Shank Size (mm)
1010: 10 x 10 mm
1212: 12 x 12 mm
1616: 16 x 16 mm
2020: 20 x 20 mm
2525: 25 x 25 mm
3232: 32 x 32 mm

#7 Overall Length
JX: 120 mm
K: 125 mm
M: 150 mm
P: 170 mm

#8 Seat Size
1.25
1.5
2
3
4
5
6
7
8

#9 Max Groove Depth (mm)
10
12
12.5
14
16
18
20
23
25

Nomenclature for Face Grooving Holders

GND F R/L 2525 M - 3 18 - 090

#1-3 #4 #5 #6 #7 #8 #9 #10

#1-3 Series Name
#1 **G**roove #2 **N**ew #3 **D**epth

#4 Application
F: Face Groover
FS: 90° Face

#5 Handedness
R: Right Handed
L: Left Handed

#6 Shank Size (mm)
2020: 20 x 20 mm
2525: 25 x 25 mm
3232: 32 x 32 mm

#7 Overall Length
K: 125 mm
M: 150 mm
P: 170 mm

#8 Seat Size
2
3
4
5
6
8

#9 Max Groove Depth (mm)
12
18
23

#10 Min.Part Diam. mm (Inch)
035: 35mm (1.378")
040: 40mm (1.575")
045: 45mm (1.772")
050: 50mm (1.969")
065: 65mm (2.559")
085: 85mm (3.346")

#10 Min.Part Diam. mm (Inch) *(cont.)*
090: 90mm (3.543")
100: 100mm (3.937")
125: 125mm (4.921")
140: 140mm (5.512")
180: 180mm (7.087")
280: 280mm (11.024")

Insert Nomenclature (METRIC)

GCM N 30 02 -GG -AC530U

#1-3 #4 #5 #6 #7 #8

#1-3 Series Name
#1 **G:** Grooving Insert
#2 **C:** 7º Relief Angle
#3 **M:** Molded Tolerance

#4 Handedness
R: Right Handed
L: Left Handed
N: Neutral

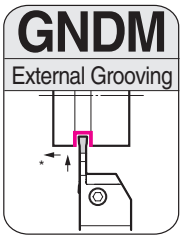
#5 Seat Size & Groove Width		
#	Seat	Groove Width
20	2	2.0 mm
30	3	3.0 mm
40	4	4.0 mm
50	5	5.0 mm
60	6	6.0 mm
70	7	7.0 mm
80	8	8.0 mm

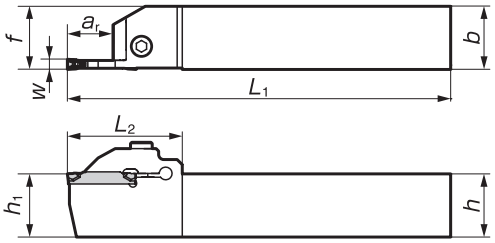
#6 Corner Radius *10
02 =0.2mm
04 =0.4mm
08 =0.8mm

#7 Chipbreaker
GG: Std. Feed Deep Groove
GL: Low Feed Deep Groove
MG: Std. Feed Traverse
ML: Low Feed Traverse
RG: Full Radius Profiling
GF: Low Cutting Force
GA: Non-ferrous Material

#8: Grade
AC520U: Universal Grade For most materials
AC530U: Universal Grade For most materials
AC830P: Tough CVD Grade For steels
AC425K: CVD Grade For Cast and Ductile Irons
T2500A: finishing of steels and stainless steels
H10: for non-ferrous materials

External Multi-purpose Type (Grooving, Turning, and Copying)





Above figures show right hand tools

■ Holders

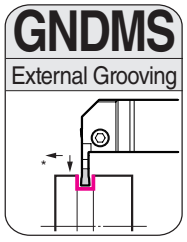
* Use the multi-purpose copying insert for turning (wide grooves).

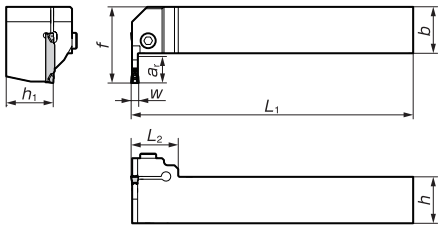
■ Spare Parts

Catalog Number	Dimensions (mm)						Groove Width	Max. Groove Depth a_r (mm)	Seat Size	Cap Screw	Recommended Tightening Torque (N-m)	Wrench
	h	b	L_1	f	h_1	L_2	W(mm)					
GNDM R/L1616JX-1.510	16	16	120	16	16	26.0	1.5	10	1.5	BX0515	5.0	LH040
GNDM R/L1616JX-212	16	16	120	16	16	30.0	2.0	12	2			
GNDM R/L1616JX-312	16	16	120	16	16	30.0	3.0	12	3			
GNDM R/L2020K-312	20	20	125	20	20	36.6	3.0	12	3	BX0520		
GNDM R/L2020K-418	20	20	125	20	20	45.0	4.0	18	4			
GNDM R/L2020K-518	20	20	125	20	20	45.0	5.0	18	5			
GNDM R/L2020K-618	20	20	125	20	20	45.0	6.0	18	6			
GNDM R/L2525M-312	25	25	150	25	25	36.6	3.0	12	3			
GNDM R/L2525M-418	25	25	150	25	25	45.0	4.0	18	4			
GNDM R/L2525M-518	25	25	150	25	25	45.0	5.0	18	5			
GNDM R/L2525M-618	25	25	150	25	25	45.0	6.0	18	6			
GNDM R/L3232P-312	32	32	170	32	32	36.6	3.0	12	3	BX0620	6.0	LH050
GNDM R/L3232P-418	32	32	170	32	32	45	4.0	18	4			
GNDM R/L3232P-518	32	32	170	32	32	45	5.0	18	5			
GNDM R/L3232P-618	32	32	170	32	32	45	6.0	18	6			
GNDM R/L3232P-718	32	32	170	32	32	50	7.0	18	7			
GNDM R/L3232P-818	32	32	170	32	32	50	8.0	18	8			

Select holders and inserts with the same grooving widths (*w*). Refer to page 296 for applicable inserts.

External L-Styled (Side Cut) Multi-purpose Type (Grooving, Turning, and Copying)





Above figures show right hand tools

■ Holders

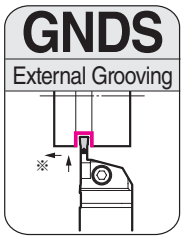
* Use the multi-purpose copying insert for turning (wide grooves).

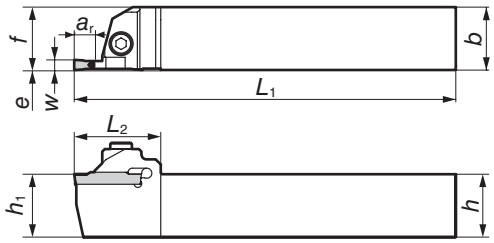
■ Spare Parts

Catalog Number	Dimensions (mm)						Groove Width	Max. Groove Depth a_r (mm)	Seat Size	Cap Screw	Recommended Tightening Torque (N-m)	Wrench
	h	b	L_1	f	h_1	L_2	W(mm)					
GNDMS R/L 2020K-310	20	20	125	32	20	25	3.0	10	3	BX0520	5.0	LH040
GNDMS R/L 2020K-412	20	20	125	34	20	25	4.0	12	4			
GNDMS R/L 2020K-512	20	20	125	34	20	25	5.0	12	5			
GNDMS R/L 2525M-312	25	25	150	39	25	25	3.0	12	3			
GNDMS R/L 2525M-414	25	25	150	41	25	25	4.0	14	4			
GNDMS R/L 2525M-514	25	25	150	41	25	25	5.0	14	5			
GNDMS R/L 2525M-614	25	25	150	41	25	25	6.0	14	6			

Select holders and inserts with the same grooving widths (*w*). Refer to page 296 for applicable inserts.

External Multi-purpose Shallow Grooves Type (Grooving, Turning, and Copying)





Above figures show right hand tools

■ Holders

* Use the multi-purpose copying insert for turning (wide grooves).

■ Spare Parts

Catalog Number	Dimensions (mm)						Groove Width	Max. Groove Depth a_r (mm)	Seat Size	Cap Screw	Recommended Tightening Torque (N-m)	Wrench
	h	b	L_1	f	h_1	L_2	W(mm)					
GNDS R/L2020K-206	20	20	125	20	20	30.0	2.0	6	2	BX0520	5.0	LH040
GNDS R/L2020K-306	20	20	125	20	20	30.0	3.0	6	3			
GNDS R/L2020K-410	20	20	125	20	20	34.0	4.0	10	4			
GNDS R/L2020K-510	20	20	125	20	20	34.0	5.0	10	5			
GNDS R/L2020K-610	20	20	125	20	20	34.0	6.0	10	6			
GNDS R/L2525M-206	25	25	150	25	25	30.0	2.0	6	2			
GNDS R/L2525M-306	25	25	150	25	25	30.0	3.0	6	3			
GNDS R/L2525M-410	25	25	150	25	25	34.0	4.0	10	4			
GNDS R/L2525M-510	25	25	150	25	25	34.0	5.0	10	5			
GNDS R/L2525M-610	25	25	150	25	25	34.0	6.0	10	6			

Select holders and inserts with the same grooving widths (*w*). Refer to page 296 for applicable inserts.

External Deep Grooving & Cut-Off

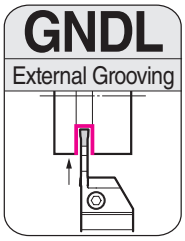


Fig. 1

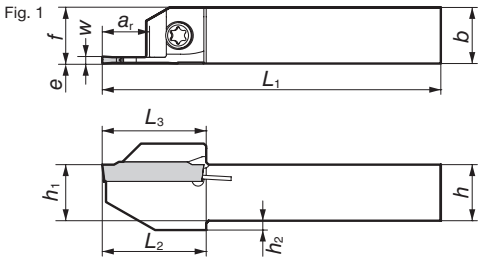
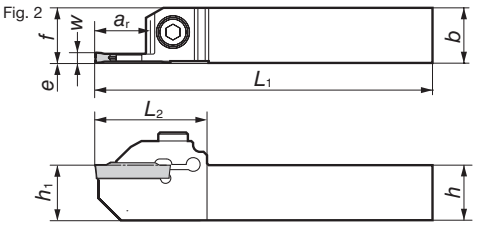


Fig. 2



Above figures show right hand tools

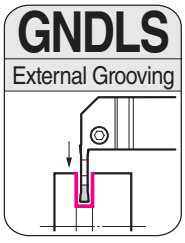
■ Holders

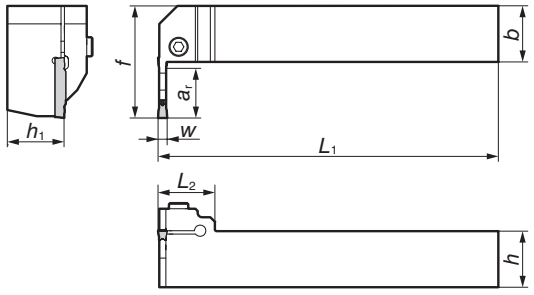
■ Spare Parts

Catalog Number	Dimensions (mm)							Groove Width	Max. Groove Depth a_r (mm)	Seat Size	Cap Screw	Recommended Tightening Torque (N-m)	Wrench
	h	b	L_1	f	h_1	L_2	h_2	W(mm)					
GNDL R/L1010JX-210	10	10	120	10	10	22.0	2.0	2.0	10	2	BFTX0412N	5.0	LT15-10
GNDL R/L1010JX-310	10	10	120	10	10	22.0	2.0	3.0	10	3			
GNDL R/L1212JX-212.5	12	12	120	12	12	22.0	2.0	2.0	12.5	2			
GNDL R/L1212JX-312.5	12	12	120	12	12	22.0	2.0	3.0	12.5	3			
GNDL R/L1616JX-216	16	16	120	16	16	32.0	-	2.0	16	2	BX0515		LH040
GNDL R/L1616JX-316	16	16	120	16	16	32.0	-	3.0	16	3			
GNDL R/L2020K-220	20	20	125	20	20	44.5	-	2.0	20	2	BX0520		
GNDL R/L2020K-320	20	20	125	20	20	44.5	-	3.0	20(18)	3			
GNDL R/L2020K-425	20	20	125	20	20	50.0	-	4.0	25(23)	4			
GNDL R/L2020K-525	20	20	125	20	20	50.0	-	5.0	25(23)	5			
GNDL R/L2020K-625	20	20	125	20	20	50.0	-	6.0	25(23)	6			
GNDL R/L2525M-220	25	25	150	25	25	44.5	-	2.0	20	2			
GNDL R/L2525M-320	25	25	150	25	25	44.5	-	3.0	20(18)	3			
GNDL R/L2525M-425	25	25	150	25	25	50.0	-	4.0	25(23)	4			
GNDL R/L2525M-525	25	25	150	25	25	50.0	-	5.0	25(23)	5			
GNDL R/L2525M-625	25	25	150	25	25	50.0	-	6.0	25(23)	6			
GNDL R/L3232P-320	32	32	170	32	32	44.5	-	3.0	20	3	BX0620	6.0	LH050
GNDL R/L3232P-425	32	32	170	32	32	50	-	4.0	25	4			
GNDL R/L3232P-525	32	32	170	32	32	50	-	5.0	25	5			
GNDL R/L3232P-625	32	32	170	32	32	50	-	6.0	25	6			
GNDL R/L3232P-725	32	32	170	32	32	50	-	7.0	25	7			
GNDL R/L3232P-825	32	32	170	32	32	50	-	8.0	25	8			

Select holders and inserts with the same grooving widths (*w*). Dimensions in parentheses under maximum grooving depth are for applications that use copying inserts (RG Type Breakers). Refer to page 296 for applicable inserts.

External L-Styled (Side Cut) Grooving





Above figures show right hand tools

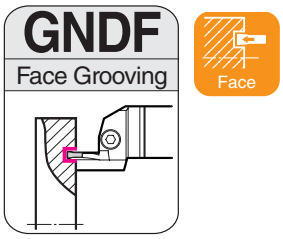
■ Holders

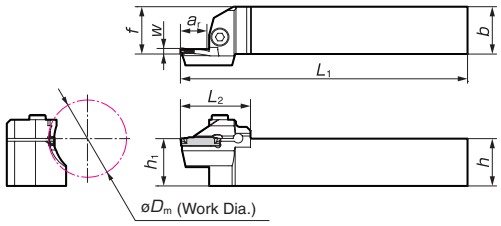
■ Spare Parts

Catalog Number	Dimensions (mm)						Groove Width	Max. Groove Depth a_r (mm)	Seat Size	Cap Screw	Recommended Tightening Torque (N-m)	Wrench
	h	b	L_1	f	h_1	L_2	W(mm)					
GNDLS R/L2020K-216	20	20	125	38	20	25	2.0	16	2	BX0520	5.0	LH040
GNDLS R/L2020K-316	20	20	125	38	20	25	3.0	16	3			
GNDLS R/L2525M-218	25	25	150	45	25	25	2.0	18	2			
GNDLS R/L2525M-318	25	25	150	45	25	25	3.0	18	3			
GNDLS R/L2525M-423	25	25	150	50	25	25	4.0	23	4			
GNDLS R/L2525M-523	25	25	150	50	25	25	5.0	23	5			
GNDLS R/L2525M-623	25	25	150	50	25	25	6.0	23	6			

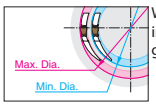
Grooving Toolholders
GND Series - **Metric**

Face Grooving





Above figures show right hand tools



Work diameters in the stock table indicate external diameters of face grooves.

■ **Holders**

*** Use the multi-purpose copying insert for turning (wide grooves).**

■ **Spare Parts**

Catalog Number	Dimensions (mm)						Work Dia. (mm)	Groove Width	Max. Groove Depth	Seat Size	Cap Screw	Recommended Tightening Torque (N-m)	Wrench
	h	b	L_1	f	h_1	L_2	ΦD$_m$	W(mm)	a_r (mm)				
GNDF R/L2020K-312-035	20	20	125	20	20	35.6	35 to 45	3.0	12				
GNDF R/L2020K-312-040	20	20	125	20	20	35.6	40 to 55	3.0	12				
GNDF R/L2020K-318-050	20	20	125	20	20	41.6	50 to 70	3.0	18				
GNDF R/L2020K-318-065	20	20	125	20	20	41.6	65 to 100	3.0	18	3	BX0520	5.0	LH040
GNDF R/L2020K-318-090	20	20	125	20	20	41.6	90 to 150	3.0	18				
GNDF R/L2020K-318-140	20	20	125	20	20	41.6	140 to 200	3.0	18				
GNDF R/L2020K-318-180	20	20	125	20	20	41.6	180 to 300	3.0	18				
GNDF R/L2020K-418-040	20	20	125	20	20	41.6	40 to 55	4.0	18				
GNDF R/L2020K-423-050	20	20	125	20	20	46.6	50 to 70	4.0	23				
GNDF R/L2020K-423-065	20	20	125	20	20	46.6	65 to 90	4.0	23				
GNDF R/L2020K-423-085	20	20	125	20	20	46.6	85 to 130	4.0	23	4	BX0520	5.0	LH040
GNDF R/L2020K-423-125	20	20	125	20	20	46.6	125 to 200	4.0	23				
GNDF R/L2020K-423-180	20	20	125	20	20	46.6	180 to 300	4.0	23				
GNDF R/L2020K-423-280	20	20	125	20	20	46.6	280 to 1000	4.0	23				
GNDF R/L2020K-523-050	20	20	125	20	20	46.6	50 to 70	5.0	23				
GNDF R/L2020K-523-065	20	20	125	20	20	46.6	65 to 90	5.0	23				
GNDF R/L2020K-523-085	20	20	125	20	20	46.6	85 to 130	5.0	23				
GNDF R/L2020K-523-125	20	20	125	20	20	46.6	125 to 200	5.0	23	5	BX0520	5.0	LH040
GNDF R/L2020K-523-180	20	20	125	20	20	46.6	180 to 300	5.0	23				
GNDF R/L2020K-523-280	20	20	125	20	20	46.6	280 to 1000	5.0	23				
GNDF R/L2020K-623-050	20	20	125	20	20	46.6	50 to 75	6.0	23				
GNDF R/L2020K-623-070	20	20	125	20	20	46.6	70 to 110	6.0	23				
GNDF R/L2020K-623-100	20	20	125	20	20	46.6	100 to 200	6.0	23	6	BX0520	5.0	LH040
GNDF R/L2020K-623-180	20	20	125	20	20	46.6	180 to 300	6.0	23				
GNDF R/L2020K-623-280	20	20	125	20	20	46.6	280 to 1000	6.0	23				
GNDF R/L2525M-312-035	25	25	150	25	25	35.6	35 to 45	3.0	12				
GNDF R/L2525M-312-040	25	25	150	25	25	35.6	40 to 55	3.0	12				
GNDF R/L2525M-318-050	25	25	150	25	25	41.6	50 to 70	3.0	18				
GNDF R/L2525M-318-065	25	25	150	25	25	41.6	65 to 100	3.0	18	3	BX0520	5.0	LH040
GNDF R/L2525M-318-090	25	25	150	25	25	41.6	90 to 150	3.0	18				
GNDF R/L2525M-318-140	25	25	150	25	25	41.6	140 to 200	3.0	18				
GNDF R/L2525M-318-180	25	25	150	25	25	41.6	180 to 300	3.0	18				
GNDF R/L2525M-418-040	25	25	150	25	25	41.6	40 to 55	4.0	18				
GNDF R/L2525M-423-050	25	25	150	25	25	46.6	50 to 70	4.0	23				
GNDF R/L2525M-423-065	25	25	150	25	25	46.6	65 to 90	4.0	23				
GNDF R/L2525M-423-085	25	25	150	25	25	46.6	85 to 130	4.0	23	4	BX0520	5.0	LH040
GNDF R/L2525M-423-125	25	25	150	25	25	46.6	125 to 200	4.0	23				
GNDF R/L2525M-423-180	25	25	150	25	25	46.6	180 to 300	4.0	23				
GNDF R/L2525M-423-280	25	25	150	25	25	46.6	280 to 1000	4.0	23				
GNDF R/L2525M-523-050	25	25	150	25	25	46.6	50 to 70	5.0	23				
GNDF R/L2525M-523-065	25	25	150	25	25	46.6	65 to 90	5.0	23				
GNDF R/L2525M-523-085	25	25	150	25	25	46.6	85 to 130	5.0	23				
GNDF R/L2525M-523-125	25	25	150	25	25	46.6	125 to 200	5.0	23	5	BX0520	5.0	LH040
GNDF R/L2525M-523-180	25	25	150	25	25	46.6	180 to 300	5.0	23				
GNDF R/L2525M-523-280	25	25	150	25	25	46.6	280 to 1000	5.0	23				
GNDF R/L2525M-623-050	25	25	150	25	25	46.6	50 to 75	6.0	23				
GNDF R/L2525M-623-070	25	25	150	25	25	46.6	70 to 110	6.0	23				
GNDF R/L2525M-623-100	25	25	150	25	25	46.6	100 to 200	6.0	23	6	BX0520	5.0	LH040
GNDF R/L2525M-623-180	25	25	150	25	25	46.6	180 to 300	6.0	23				
GNDF R/L2525M-623-280	25	25	150	25	25	46.6	280 to 1000	6.0	23				

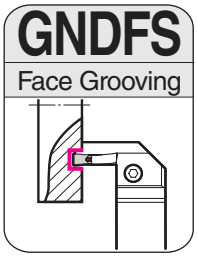
Select holders and inserts with the same grooving widths (*w*). Refer to page 296 for applicable inserts.

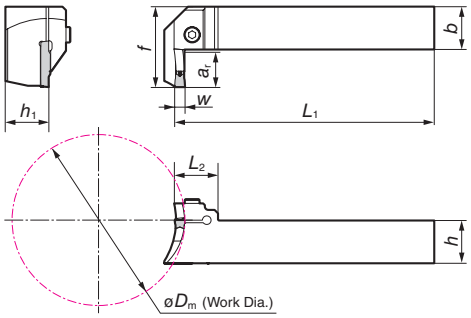
GROOVING TOOLHOLDERS

GND SERIES

Series: GNDFS • GNDI

Face Grooving





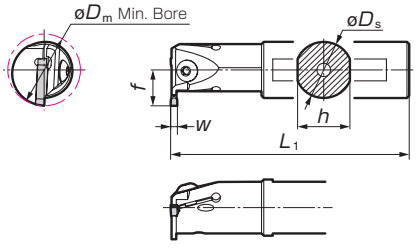
■ Spare Parts

Catalog Number	Dimensions (mm)						Work Dia. (mm)	Groove Width	Max. Groove Depth	Cap Screw	Recommended Tightening Torque (N-m)	Wrench
	h	b	L_1	f	h_1	L_2	øD_m	w	a_r (mm)			
GNDFS R/L2525M-620-070	25	25	150	47	25	25	70 to 100	6.0	20	BX0520	5.0	LH040
GNDFS R/L2525M-620-100	25	25	150	47	25	25	100 to 200	6.0	20			
GNDFS R/L2525M-620-180	25	25	150	47	25	25	180 to 300	6.0	20			
GNDFS R/L2525M-620-280	25	25	150	47	25	25	280 to 1000	6.0	20			
GNDFS R/L2525M-620-450	25	25	150	47	25	25	From 450	6.0	20			
GNDFS R/L3232P-620-070	32	32	170	54	32	25	70 to 100	6.0	20	BX0620	6.0	LH050
GNDFS R/L3232P-620-100	32	32	170	54	32	25	100 to 200	6.0	20			
GNDFS R/L3232P-620-180	32	32	170	54	32	25	180 to 300	6.0	20			
GNDFS R/L3232P-620-280	32	32	170	54	32	25	280 to 1000	6.0	20			
GNDFS R/L3232P-620-450	32	32	170	54	32	25	From 450	6.0	20			
GNDFS R/L2525M-820-070	25	25	150	47	25	30	70 to 100	8.0	20	BX0620	6.0	LH050
GNDFS R/L2525M-820-100	25	25	150	47	25	30	100 to 200	8.0	20			
GNDFS R/L2525M-820-180	25	25	150	47	25	30	180 to 300	8.0	20			
GNDFS R/L2525M-820-280	25	25	150	47	25	30	280 to 1000	8.0	20			
GNDFS R/L2525M-820-450	25	25	150	47	25	30	From 450	8.0	20			
GNDFS R/L3232P-820-070	32	32	170	54	32	30	70 to 100	8.0	20	BX0620	6.0	LH050
GNDFS R/L3232P-820-100	32	32	170	54	32	30	100 to 200	8.0	20			
GNDFS R/L3232P-820-180	32	32	170	54	32	30	180 to 300	8.0	20			
GNDFS R/L3232P-820-280	32	32	170	54	32	30	280 to 1000	8.0	20			
GNDFS R/L3232P-820-450	32	32	170	54	32	30	From 450	8.0	20			

Select holders and inserts with the same grooving widths (w).

GNDFS products made to order

Internal Grooving



■ Metric Holders

Catalog Number	Dimensions (mm)					Max. Groove Depth	Seat Size
	Shank Diameter	h	Overall L1	f	Min. Bore Dm	ar (mm)	
GNDIR/L2532-T206	25	23	200	16	32	6	2
GNDIR/L2532-T306	25	23	200	16	32	6	3
GNDIR/L2532-T406	25	23	200	16	32	6	4
GNDIR/L2532-T506	25	23	200	16	32	6	5
GNDIR/L3240-T210	32	30	250	26	40	10	2
GNDIR/L3240-T310	32	30	250	26	40	10	3
GNDIR/L3240-T410	32	30	250	26	40	10	4
GNDIR/L3240-T510	32	30	250	26	40	10	5
GNDIR/L4050-T311	40	38	300	31	50	11	3
GNDIR/L4050-T411	40	38	300	31	50	11	4
GNDIR/L4050-T511	40	38	300	31	50	11	5
GNDIR/L4050-T611	40	38	300	31	50	11	6

■ Inch Holders

Catalog Number	Dimensions (in)					Max Groove Depth	Seat Size
	Shank Diameter	h	Overall L1	f	Min. Bore Dm	W (inch)	
GNDIR/L162T-25	1.000	0.906	8.000	0.630	1.250	0.250	2
GNDIR/L163T-25	1.000	0.906	8.000	0.630	1.250	0.250	3
GNDIR/L164T-25	1.000	0.906	8.000	0.630	1.250	0.250	4
GNDIR/L165T-25	1.000	0.906	8.000	0.630	1.250	0.250	5
GNDIR/L166T-25	1.000	0.906	8.000	0.630	1.250	0.250	6
GNDIR/L202T-40	1.250	1.181	10.000	1.024	1.575	0.400	2
GNDIR/L203T-40	1.250	1.181	10.000	1.024	1.575	0.400	3
GNDIR/L204T-40	1.250	1.181	10.000	1.024	1.575	0.400	4
GNDIR/L205T-40	1.250	1.181	10.000	1.024	1.575	0.400	5
GNDIR/L206T-40	1.250	1.181	10.000	1.024	1.575	0.400	6
GNDIR/L243T-43	1.500	1.421	12.000	1.145	2.000"	0.430	3
GNDIR/L244T-43	1.500	1.421	12.000	1.145	2.000"	0.430	4
GNDIR/L245T-43	1.500	1.421	12.000	1.145	2.000"	0.430	5
GNDIR/L246T-43	1.500	1.421	12.000	1.145	2.000"	0.430	6

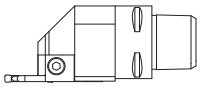
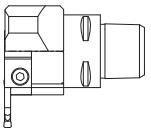
GND SERIES

Series: Polygon Shank GND

Features and Benefits

- ISO Polygon shank holder
- Economic cassettes
- Compact and stable construction
- Repeatability of ± 2 µm interface
- Internal coolant supply directly from the holder to the cutting edge

Product Range - Holders

Application		Series	Shape	Grooving Width (mm)					Grooving Depth (mm)
				2	3	4	5	6	
External Grooving		PSC_0M00R/L Straight		2	3				12
						4	5	6	18
		PSC_0M90R/L L-Style		2	3				12
						4	5	6	18

Note: 2mm Grooving width - please use only for grooving not for turning!

Identification Details - Polygon-Toolholder

PSC	40	-	G	M	00	R
Polygonshank	Shank Diameter (Ø D)		Series Symbol GND	Application External Multi-Purpose	Style 00 = Straight 90 = L-Style	Holder Design R = Right L = Left

Identification Details - Cassette

GND	C	M	L	3	12
Series Symbol GND	Cassette	Application External Multi-Purpose	Holder Design R = Right L = Left	Grooving Width	Max. Grooving Depth

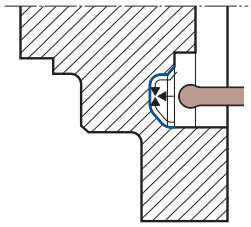
Selection Chart

Cassette	Grooving Width (mm)					Max. Grooving Depth	Chipbreaker							
	2	3	4	5	6		MG	ML	GG	GL	GF	RG	CG	GA
GNDCM R	■					12	◎	◎	◎	◎	◎		◎	◎
GNDCM L	■						◎	◎	◎	◎	◎		◎	◎
GNDCM R		■				12	◎	◎	◎	◎	◎	◎	◎	◎
GNDCM L		■					◎	◎	◎	◎	◎	◎	◎	◎
GNDCM R			■			18	◎	◎	◎	◎	◎	◎	◎	◎
GNDCM L			■				◎	◎	◎	◎	◎	◎	◎	◎
GNDCM R				■	■	18	◎	◎	◎	◎	◎	◎		◎
GNDCM L				■	■		◎	◎	◎	◎	◎	◎		◎

■ Stock ◎ Recommendation

Application Examples

4120 Steel, Automotive Part, Face Profiling

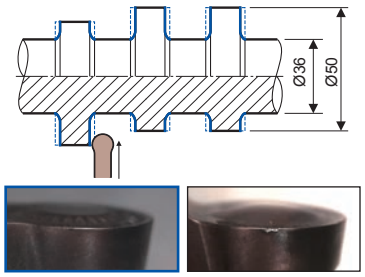


Target:
- Higher rigidity
- Vibration reduction
- Chip control
- Wear resistance performance

Holder:	GNDF R2525M 423-125
Insert:	GCM N4020 RG
Grooving width:	0.16" (4mm)
Cutting conditions:	v_c= 650 SFM f = .006 IPR wet

Stable machining free of vibration!
Excellent chip control using the GND type.

1053 Steel, Cam Shaft Grooving / Finishing (Contin. to Heavy Interrupted)

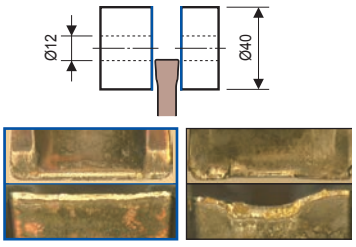


Target:
- Higher rigidity
- Vibration reduction
- Chip control
- Fracture resistance

Holder:	GNDM L2525M 618
Insert:	GCM N6030 RG
Grooving width:	0.24" (6mm)
Cutting conditions:	v_c= 430 SFM f = .014 IPR wet

Stable machining free of vibration!
Excellent fracture resistance
Stable chip control

1048 Steel, Machine Part, Cut-Off

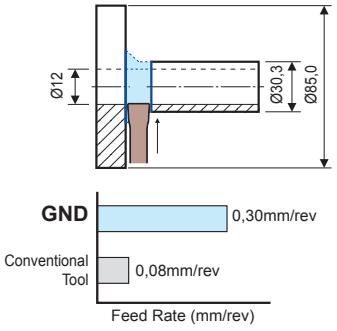


Target:
- Higher rigidity
- Vibration reduction
- Fracture resistance

Holder:	GNDL R2525M 320
Insert:	GCM N3002 GG
Grooving width:	0.12" (3mm)
Cutting conditions:	n = 1600min^{-1} v_c= 650 SFM f = .002 IPR wet

Stable machining free of vibration!
Excellent fracture resistance
Stable fracture resistance

4137 Steel, Crank, Cut-Off

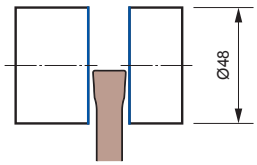


Target:
- Higher rigidity
- Vibration reduction
- Chip control

Holder:	GNDL R2525M 320
Insert:	GCM N3002 GG
Grooving width:	0.12" (3mm)
Cutting conditions:	v_c= 380 SFM f = .012 IPR wet

Improved efficiency
Stable machining free of vibration!
Stable chip control

Hardened Steel (45-48HRC), Machine Part, Cut-Off

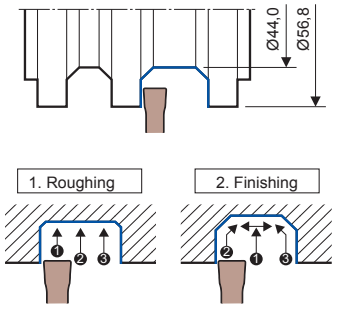


Target:
- Higher rigidity
- Vibration reduction
- Chip control

Holder:	GNDL R2525M 425
Insert:	GCM N4002 GG
Grooving width:	.16" (4mm)
Cutting conditions:	v_c= 170 SFM f = .0012 IPR wet

Stable machining free of vibration!
Excellent chip control using the GND type.
No more unexpected breakage!

5120 Steel, Gear Shaft, Grooving / Pocketing



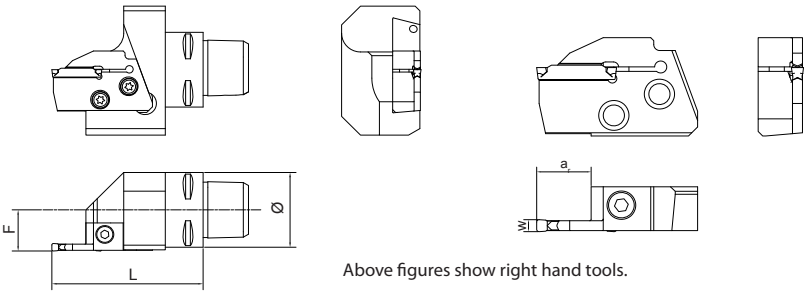
Target:
- Higher rigidity
- Vibration reduction
- Chip control

Holder:	GNDM R2020K 518
Insert:	GCM N5008 MG
Grooving width:	.20" (5mm)
Cutting conditions:	v_c= 500 SFM f = .004 IPR wet

Stable machining free of vibration!
Excellent chip control using the GND type.

External Multi-Purpose Type (Grooving, Turning, Profiling)

Use for multi-purpose or profiling insert for turning (wide grooves).



Above figures show right hand tools.

Holder (Right Hand)

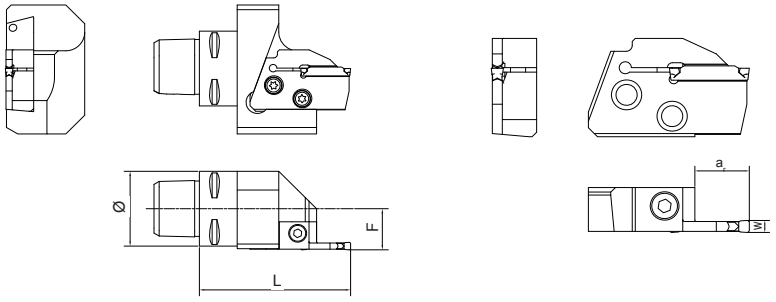
Cat. No.	Stock	Ø	Direction	F	L	Cap Screw	Tightening Torque (N·m)	Wrench
PSC40GM00R	★	40 mm	right	22 mm	80 mm	BFTX0619N	7.5	TRD25
PSC50GM00R	★	50mm	right	27 mm	80 mm			

Cassette

Cat. No.	Stock	Direction	Grooving Width w (mm)	Grooving Depth a_r (mm)	Inserts	Cap Screw	Tightening Torque (N·m)	Wrench
GNDCMR212	★	right	2	12	GCM □2002-□□	BX0515	5.0	LH040
GNDCMR312	★	right	3	12	GCM □30□□-□□			
GNDCMR418	★	right	4	18	GCM □40□□-□□		6.0	
GNDCMR518	★	right	5	18	GCM □50□□-□□			
GNDCMR618	★	right	6	18	GCM □60□□-□□			

★: Worldwide Warehouse Item

Use for multi-purpose or profiling insert for turning (wide grooves).



Above figures show right hand tools.

Holder

Cat. No.	Stock	Ø	Direction	F	L	Cap Screw	Tightening Torque (N·m)	Wrench
PSC40GM00L	★	40 mm	left	22 mm	80 mm	BFTX0619N	7.5	TRD25
PSC50GM00L	★	50 mm	left	27 mm	80 mm			

Cassette

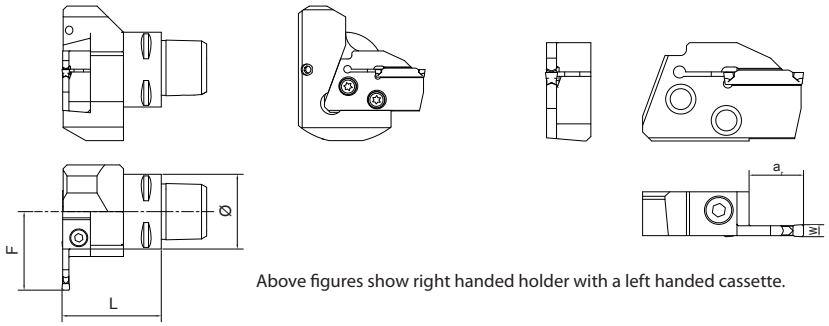
Cat. No.	Stock	Direction	Grooving Width w (mm)	Grooving Depth a_r (mm)	Inserts	Cap Screw	Tightening Torque (N·m)	Wrench
GNDCML212	★	left	2	12	GCM □2002-□□	BX0515	5.0	LH040
GNDCML312	★	left	3	12	GCM □30□□-□□			
GNDCML418	★	left	4	18	GCM □40□□-□□		6.0	
GNDCML518	★	left	5	18	GCM □50□□-□□			
GNDCML618	★	left	6	18	GCM □60□□-□□			

★: Worldwide Warehouse Item

External Multi-Purpose Type (Grooving, Turning, Profiling)

GNDCMR
External Grooving

Use for multi-purpose or profiling insert for turning (wide grooves).



Above figures show right handed holder with a left handed cassette.

Holder

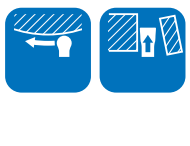
Cat. No.	Stock	Ø	Direction	F	L	Cap Screw	Tightening Torque (N·m)	Wrench
PSC40GM90R	★	40 mm	right	22 mm	80 mm	BFTX0619N	7.5	TRD25
PSC50GM90R	★	50 mm	right	27 mm	80 mm			

Cassette

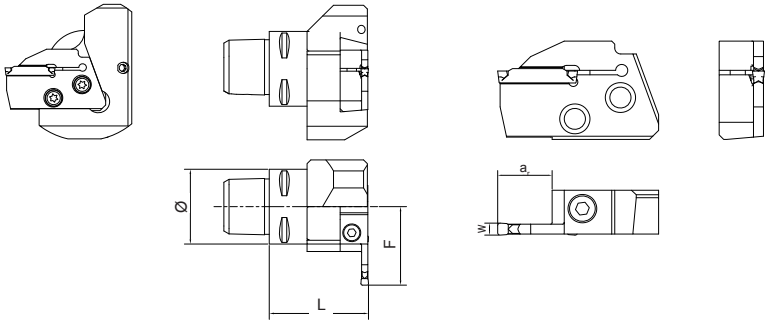
Cat. No.	Stock	Direction	Grooving Width w (mm)	Grooving Depth a_r (mm)	Inserts	Cap Screw	Tightening Torque (N·m)	Wrench
GNDCML212	★	left	2	12	GCM □2002-□□	BX0515	5.0	LH040
GNDCML312	★	left	3	12	GCM □30□□-□□			
GNDCML418	★	left	4	18	GCM □40□□-□□		6.0	
GNDCML518	★	left	5	18	GCM □50□□-□□			
GNDCML618	★	left	6	18	GCM □60□□-□□			

★: Worldwide Warehouse Item

GNDCML
External Grooving



Use for multi-purpose or profiling insert for turning (wide grooves).



Above figures show left handed holder with a right handed cassette.

Holder

Cat. No.	Stock	Ø	Direction	F	L	Cap Screw	Tightening Torque (N·m)	Wrench
PSC40GM90L	★	40 mm	left	22 mm	80 mm	BFTX0619N	7.5	TRD25
PSC50GM90L	★	50 mm	left	27 mm	80 mm			

Cassette

Cat. No.	Stock	Direction	Grooving Width w (mm)	Grooving Depth a_r (mm)	Inserts	Cap Screw	Tightening Torque (N·m)	Wrench
GNDCMR212	★	right	2	12	GCM □2002-□□	BX0515	5.0	LH040
GNDCMR312	★	right	3	12	GCM □30□□-□□			
GNDCMR418	★	right	4	18	GCM □40□□-□□		6.0	
GNDCMR518	★	right	5	18	GCM □50□□-□□			
GNDCMR618	★	right	6	18	GCM □60□□-□□			

★: Worldwide Warehouse Item

Fig. 1

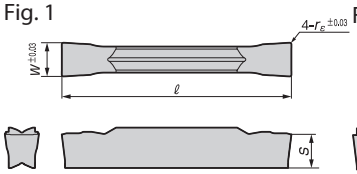
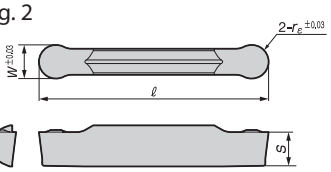


Fig. 2



Type		Cat. No.	Coated Carbide				Cermet	Uncoated Carbide	Dimensions (inch)					Figure
			S		K	P		N	W	rε	ℓ	Seat	S	
			AC520U	AC530U	AC425K	AC830P	T2500A	H10						
Deep Grooving Cut Off	General Feed GG Type	GCMN2002-GG	●	●	●	●			.078	.0078	.831	2	.142	
		GCMN2094R0.5-GG	●	●	●	●			.094	.0078	.831	2	.142	
		GCMN3002-GG	●	●	●	●			.118	.0078	.831	3	.150	
		GCMN3004-GG	●	●	●	●			.118	.0156	.831	3	.150	
		GCMN3125R0.5-GG	●	●	●	●			.125	.0078	.831	3	.150	
		GCMN4002-GG	●	●	●	●			.157	.0078	1.039	4	.157	
		GCMN4004-GG	●	●	●	●			.157	.0156	1.039	4	.157	
		GCMN5187R0.5-GG	●	●	●	●			.187	.0078	1.039	5	.161	
		GCMN5002-GG	●	●	●	●			.197	.0078	1.039	5	.161	
		GCMN5004-GG	●	●	●	●			.197	.0156	1.039	5	.161	
		GCMN6002-GG	●	●	●	●			.236	.0078	1.039	6	.177	
		GCMN6004-GG	●	●	●	●			.236	.0156	1.039	6	.177	
		GCMN6250R0.5-GG	●	●	●	●			.250	.0078	1.039	6	.177	
		GCMN6250R1.0-GG	●	●	●	●			.250	.0156	1.039	6	.177	
		GCMN7004-GG	●	●		●			.276	.0156	1.132	7	.217	
		GCMN8004-GG	●	●		●			.315	.0156	1.132	8	.236	
	Low Feed GL Type	GCMN2002-GL	●	●	●	●	○		.078	.0078	.831	2	.142	
		GCMN2094R0.5-GL	●	●	●	●			.094	.0078	.831	2	.142	
		GCMN3002-GL	●	●	●	●	○		.118	.0078	.831	3	.150	
		GCMN3125R0.5-GL	●	●	●	●			.125	.0078	.831	3	.150	
		GCMN4002-GL	●	●	●	●	○		.157	.0078	1.039	4	.157	
		GCMN5187R0.5-GL	●	●	●	●			.187	.0078	1.039	5	.161	
		GCMN5002-GL	●	●	●	●			.197	.0078	1.039	5	.161	1
		GCMN6002-GL	●	●	●	●			.236	.0078	1.039	6	.177	
		GCMN6250R0.5-GL	●	●	●	●			.250	.0078	1.039	6	.177	
		GCMN7004-GL	●	●		●			.276	.0156	1.132	7	.217	
		GCMN8004-GL	●	●		●			.315	.0156	1.132	8	.236	
Multi function (traversing)	General Feed MG Type	GCMN3004-MG	●	●	●	●			.118	.0156	.831	3	.150	
		GCMN3125R1.0-MG	●	●	●	●			.125	.0156	.831	3	.150	
		GCMN4008-MG	●	●	●	●			.157	.0312	1.039	4	.157	
		GCMN5187R2.0-MG	●	●	●	●			.187	.0312	1.039	5	.161	
		GCMN5008-MG	●	●	●	●			.197	.0312	1.039	5	.161	
		GCMN6008-MG	●	●	●	●			.236	.0312	1.039	6	.177	
		GCMN6250R2.0-MG	●	●	●	●			.250	.0312	1.039	6	.177	
		GCMN7008-MG	●	●	●	●			.276	.0313	1.132	7	.217	
		GCMN8008-MG	●	●	●	●			.315	.0313	1.132	8	.236	
	Low Feed ML Type	GCMN3002-ML	●	●	●	●	○		.118	.0078	.831	3	.150	
		GCMN3125R0.5-ML	●	●	●	●			.125	.0078	.831	3	.150	
		GCMN4004-ML	●	●	●	●	○		.157	.0156	1.039	4	.157	
		GCMN5187R1.0-ML	●	●	●	●			.187	.0156	1.039	5	.161	
		GCMN5004-ML	●	●	●	●			.197	.0156	1.039	5	.161	
		GCMN6004-ML	●	●	●	●			.236	.0156	1.039	6	.177	
		GCMN6250R1.0-ML	●	●	●	●			.250	.0156	1.039	6	.177	
		GCMN7004-ML	●	●	●	●			.276	.0156	1.132	7	.217	
		GCMN8004-ML	●	●	●	●			.315	.0156	1.132	8	.236	
Profiling	General Feed RG Type	GCMN3015-RG	●	●	●	●	○		.118	.059	.831	3	.150	
		GCMN3125-RG	●	●	●	●			.125	.0625	.831	3	.150	
		GCMN4020-RG	●	●	●	●	○		.157	.078	1.039	4	.157	
		GCMN5187-RG	●	●	●	●			.187	.0938	1.039	5	.161	
		GCMN5025-RG	●	●	●	●			.197	.098	1.039	5	.161	2
		GCMN6030-RG	●	●	●	●			.236	.118	1.039	6	.177	
		GCMN6250-RG	●	●	●	●			.250	.125	1.039	6	.177	
		GCMN7035-RG	●	●	●	●			.276	.138	1.144	7	.217	
		GCMN8040-RG	●	●	●	●			.315	.157	1.152	8	.236	

GROOVING TOOLHOLDERS
GND SERIES

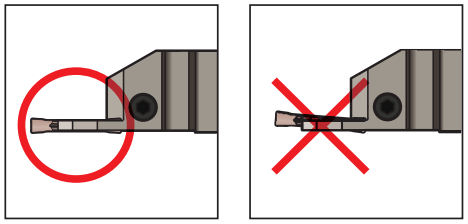
GND Series - Inserts Cont'd

Type		Cat. No.	Coated Carbide			Cermet	Uncoated Carbide	Dimensions (inch)					Figure
			S		K	P	N	W	rε	ℓ	Seat	S	
			AC520U	AC530U	AC425K	AC830P	T2500A	H10						
For Non-ferrous Materials	GA Type	GCGN2002-GA						○	.078	.0078	.831	2	.142	1
		GCGN3002-GA						○	.118	.0078	.831	3	.150	
		GCGN4004-GA						○	.157	.0156	1.039	4	.157	
		GCGN5004-GA						○	.197	.0156	1.039	5	.161	
		GCGN6004-GA						○	.236	.0156	1.039	6	.177	

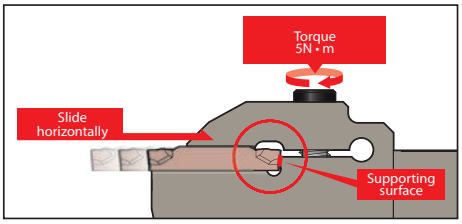
Type		Cat. No.	R	L	R	L	R	L	R	L	R	L	R	L	Dimensions (inch)					
Cut-off (Handed)	CG-05 Type	GCM_2002-CG-05	●	●	●	●	●	●	●	●					.078	.0078	.831	2	.142	1
		GCM_3002-CG-05	●	●	●	●	●	●	●	●					.118	.0078	.831	3	.150	
		GCM_4002-CG-05	●	●	●	●	●	●	●	●					.157	.0078	1.039	4	.157	

Notes on Attaching Inserts
- Remove any debris or oil from the insert seat before attaching the insert.
- Grind off any burr or flaws on the insert seat.
- Slide the insert flat over its seat.
- Clamp the insert with its opposite end (the holder side) firmly against the supporting surface.
- The recommended tightening torque is **5 N•m**. Tightening above the recommended torque may damage the insert which could cause injury and other accidents.

1. Attach insert on the seat flat

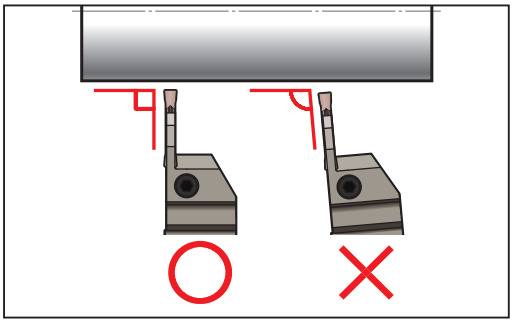


2. Push insert fully into place

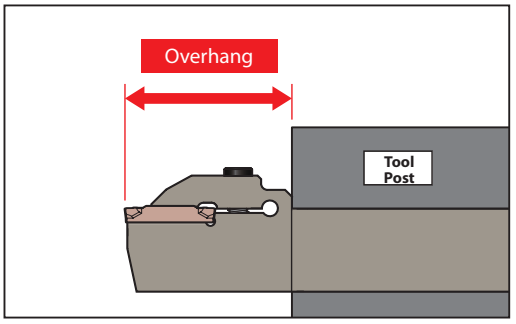


Notes on Attaching Holders
- Remove any debris or oil from the tool post before attaching the holder.
- Grind off any burr or flaws on the tool post.
- Attach the insert so that it is perpendicular to the workpiece.
- Set holder with shortest possible overhang.

3. Attach at right angle to workpiece

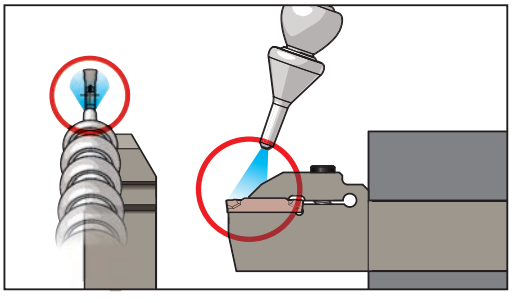


4. Set with short overhang

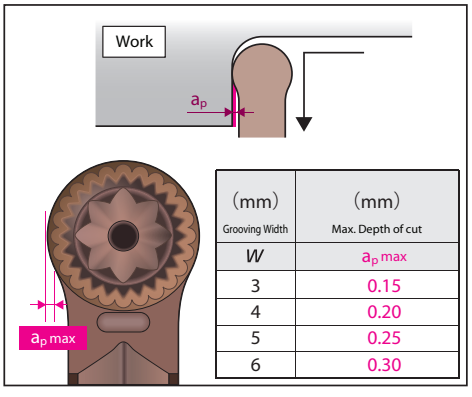


Notes on Setting Coolant Supply Nozzle
- Set the coolant supply nozzle so that coolant can be supplied from the top of the upper clamp unit.

Supply coolant to top of upper clamp unit

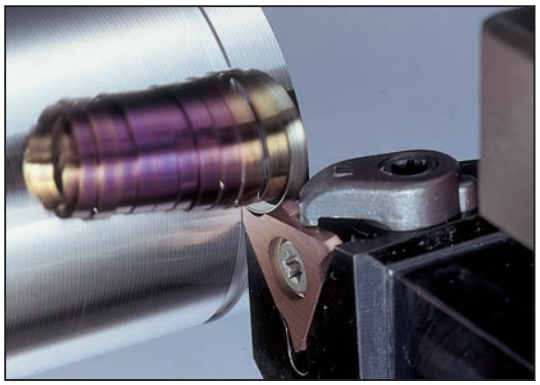


Maximum depth of cut when pulling up with RG chipbreaker



(mm) Grooving Width	(mm) Max. Depth of cut
W	a_p max
3	0.15
4	0.20
5	0.25
6	0.30

SumiTurn B-Groove System for Internal & External Grooving



Characteristics of GWC Series

- Similar insert can be use for both external and internal grooving
- Full range of insert grades to cover a wide range of work materials available:
  - Coated Carbide: AC530U
  - Uncoated Carbide: H1
  - Coated Cermet: T3000Z
  - Cermet :T1500A/T1200A
  - SUMIBORON: BN2000/BN250
  - SUMIDIA: DA2200
- A wide variation of grooving widths from 0.33mm to 4.8mm
- Insert with Chipbreaker, SumiTurn B-Groove, are now stocked
- Customers can modify the grooving width, nose radius and rake angle according to their own requirements using the grooving insert blanks (* Sumitomo Electric Hardmetal also accepts special orders.)

External Shallow Grooves

Fig. 1

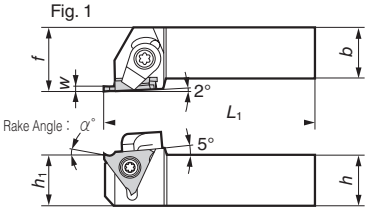


Fig. 2

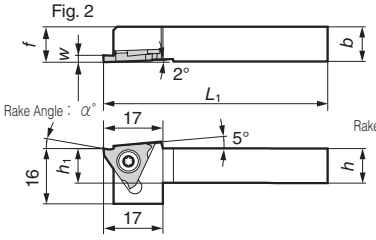
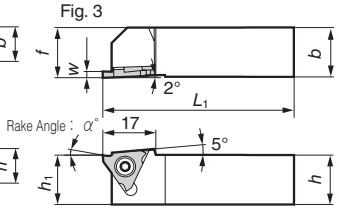


Fig. 3



Note 1: Refer to insert table on F5 for a° dimensions.
Note 2: Figures show right hand tools.

fig. 5

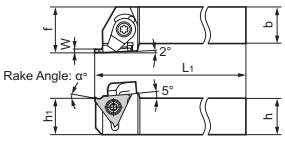
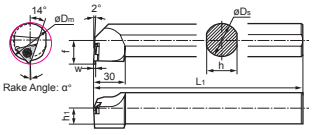
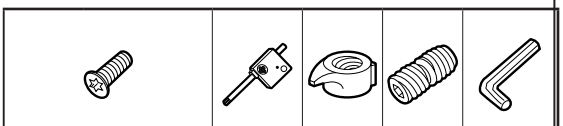


fig. 6



■ Spare Parts



■ Holders Right handed holders are applicable with right handed inserts.

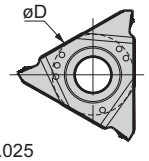
	Cat. No.	Stock R	Stock L	Dimensions mm/(in.) h	b	L_1	f	h_1	Fig.	Grooving Width w mm/(in.)	Max. Grooving Depth mm/(in.)	* Group No.	Screw	Recommended Tightening Torque (N•m)	Wrench	Clamp	Double Screw	Spanner
Metric	GWC R/L1010-3	★	★	10	10	125	10	10	2	0.33 to 2.80	0.8 to 2.5	1	BFTX0409N	3.4	TRX15	-	-	-
	GWC R/L1212-3	★	★	12	12	125	12	12	2	0.33 to 2.80	0.8 to 2.5	1						
	GWC R/L1616-3	★	★	16	16	125	16	16	3	0.33 to 2.80	0.8 to 2.5	1						
	GWC R/L2020-3	★	★	20	20	125	25	20	1	0.33 to 2.80	0.8 to 2.5	1	BFTX0409N	3.4	TRX15	CCM6B L/R	WB6-20T/TL	LT20
	GWC R/L2525-3	★	★	25	25	150	30	25	1	0.33 to 2.80	0.8 to 2.5	1						
	GWC R/L2020-15	★	★	20	20	125	25	20	1	1.00 to 1.45	2.0	2	BFTX0511N	5.0	TRX20	CCM8U L/R	WB8-22T/TL	LT27
	GWC R/L2020-25	★	★	20	20	125	25	20	1	1.50 to 2.30	3.5	3						
	GWC R/L2020-35	★	★	20	20	125	25	20	1	2.50 to 4.80	5.0	4						
	GWC R/L2525-15	★	★	25	25	150	30	25	1	1.00 to 1.45	2.0	2						
	GWC R/L2525-25	★	★	25	25	150	30	25	1	1.50 to 2.30	3.5	3						
	GWC R/L2525-35	★	★	25	25	150	30	25	1	2.50 to 4.80	5.0	4						
Inch	GWC R/L124C-25	•	•	(0.75)	(0.75)	(5.00)	(0.938)	(0.75)	5	(0.060 - 0.090)	(0.1378)							
	GWC R/L124C-35	•	•	(0.75)	(0.75)	(5.00)	(0.938)	(0.75)		(0.060 - 0.090)	(0.1969)							
	GWC R/L164D-25	•	•	(1.00)	(1.00)	(6.00)	(1.18)	(1.00)		(0.100 - 0.189)	(0.1378)							
	GWC R/L164D-35	•	•	(1.00)	(1.00)	(6.00)	(1.18)	(1.00)		(0.100 - 0.189)	(0.1969)							

	Cat. No.	Stock R	Stock L	Dimensions mm/(in.) h	b	L_1	f	h_1	Min Bore øDm	Grooving Width w mm/(in.)	Max. Grooving Depth mm/(in.)	Fig.	Screw	Recommended Tightening Torque (N•m)	Wrench
Internal	GWCI R/L325	•	•	25	23	200	17.5	11.5	35	0.33 - 2.80	0.5 - 2.0	6	BFTX0409N	3.4	TRX15
	GWCI R/L432	•	•	32	30	250	22.5	15.0	40	1.25 - 4.80	1.7 - 2.5		BFTX0511N	5.0	TRX20
	GWCI R/L 204	•	•	(1.250)	(1.181)	(10.00)	(0.890)	(0.590)	(1.580)	(0.050 - 0.189)	(0.070 - 0.100)				

Rake Angle with Insert fitted on holder (α°)	AC530U
EXTERNAL: GWC R/L	10°
INTERNAL: GWCI R/L	1°

* Refer to pages F6, F7, and F8 for applicable TGA type inserts. Select applicable inserts for the holders by using matching group numbers.

■ INSERTS



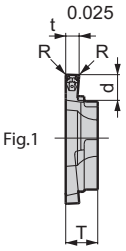


Fig.1

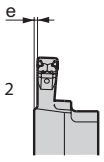
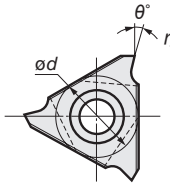


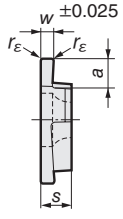
Fig. 2

Grade		Cutting Edge	P
Coated Carbide	AC530U	Honing	15°
Carbide	H1	Sharp	25°
Coated Cermet	T3000Z	Honing	15°
Cermet	T1500A	Sharp	10°
	T1200A	Sharp	10°
SUMIBORON	BN2000	Neg. Land	5°
	BN250	Neg. Land	5°
SUMIDIA	DA2200	Sharp	15°

* For rake angle when fitted on the holder, refer to page F5.

Sumitomo Cat. No.	AC530U R	AC530U L	Tooth t	Dimensions *mm* (in) e	R	D	T	d	Max. Groove Depth OD	Max. Groove Depth ID	Fig.	Holder(s)
TGA R/L4150BF	★	★	*1.50*	*0.250*								
TGA R/L4165BF	★	★	*1.65*	*0.175*							2	
TGA R/L4175BF	★	★	*1.75*	*0.125*								GWC R/L2020-25
TGA R/L4185BF	★	★	*1.85*	*0.075*	*0.2*	*12.70*	*4.76*	*3.9*	*3.5*	*2.5*		GWC R/L2525-25
TGA R/L4200BF	★	★	*2.00*									GWCI R/L432
TGA R/L4220BF	★	★	*2.20*	*0.000*							1	
TGA R/L4230BF	★	★	*2.30*									
TGA R/L4250BF	★	★	*2.50*									
TGA R/L4265BF	★	★	*2.65*									
TGA R/L4270BF	★	★	*2.70*									
TGA R/L4280BF	★	★	*2.80*									
TGA R/L4300BF	★	★	*3.00*		*0.3*							
TGA R/L4320BF	★	★	*3.20*									
TGA R/L4330BF	★	★	*3.30*									
TGA R/L4350BF	★	★	*3.50*	*0.000*		*12.70*	*4.76*	*5.4*	*5.0*	*2.5*	1	GWC R/L2525-35
TGA R/L4370BF	★	★	*3.70*									GWCI R/L432
TGA R/L4390BF	★	★	*3.90*									
TGA R/L4400BF	★	★	*4.00*									
TGA R/L4410BF	★	★	*4.10*		*0.4*							
TGA R/L4420BF	★	★	*4.20*									
TGA R/L4430BF	★	★	*4.30*									
TGA R/L4440BF	★	★	*4.40*									
TGA R/L4450BF	★	★	*4.50*									
TGA R/L40062BF	●	●	(0.062)	(0.016)								
TGA R/L40072BF	●	●	(0.072)	(0.010)							2	GWC R/L2020-25
TGA R/L40088BF	●	●	(0.088)	(0.003)	(0.008)			(0.154)	(0.138)			GWC R/L2525-25
TGA R/L40094BF	●	●	(0.094)									GWCI R/L432
TGA R/L40097BF	●	●	(0.097)									
TGA R/L40105BF	●	●	(0.105)			(0.500)	(0.187)			(0.098)		
TGA R/L40110BF	●	●	(0.110)	(0.000)								
TGA R/L40122BF	●	●	(0.122)		(0.012)			(0.213)	(0.197)		1	GWC R/L2525-35
TGA R/L40125BF	●	●	(0.125)									GWCI R/L432
TGA R/L40142BF	●	●	(0.142)									
TGA R/L40156BF	●	●	(0.156)		(0.016)							





Above figures show right hand tools.

Cat. No. (Add E to the end of the Cat. No. for T1500A grades)	Coated Carbide AC530U R	Coated Carbide AC530U L	Carbide H1 R	Carbide H1 L	Coated Cermet T3000Z R	Coated Cermet T3000Z L	Cermet T1500A R	Cermet T1500A L	SUMIBORON BN2000 R	SUMIBORON BN2000 L	SUMIDIA DA2200 R	SUMIDIA DA2200 L	Grooving Width (mm) w	Max. Grooving Depth (mm) External	Max. Grooving Depth (mm) Internal	Dimensions (mm) a	Dimensions (mm) rε	Dimensions (mm) ød	Dimensions (mm) s	Group No.*
TGA R/L3033(E)	★	★	★	★	★	★	★	★	★	★	★	★	**0.33**	**0.8**	**0.5**	1.0	0.05			
TGA R/L3050(E)	★	★	★	★	★	★	★	★	★	★	★	★	**0.50**	**1.2**	**0.8**	1.4				
TGA R/L3075(E)	★	★	★	★	★	★	★	★					**0.75**							
TGA R/L3095(E)	★	★	★	★	★	★	★	★					**0.95**							
TGA R/L3100(E)	★	★	★	★	★	★	★	★					**1.00**							
TGA R/L3110(E)	★	★			★	★	★	★					**1.10**							
TGA R/L3125(E)	★	★	★	★	★	★	★	★					**1.25**							
TGA R/L3135(E)	★	★			★	★	★	★					**1.35**	**2.0**	**1.5**	2.5				
TGA R/L3145(E)	★	★	★	★	★	★	★	★					**1.45**							
TGA R/L3150(E)	★	★	★	★	★	★	★	★					**1.50**				0.1			
TGA R/L3165(E)	★	★			★	★	★	★					**1.65**				0.2			
TGA R/L3175(E)	★	★			★	★	★	★					**1.75**				for			
TGA R/L3185(E)	★	★	★	★	★	★	★	★					**1.85**				T1500A/			
TGA R/L3200(E)	★	★	★	★	★	★	★	★					**2.00**				T1200A			
TGA R/L3220(E)	★	★			★	★	★	★					**2.20**							
TGA R/L3230(E)	★	★	★	★	★	★	★	★					**2.30**							
TGA R/L3250(E)	★	★	★	★	★	★	★	★					**2.50**	**2.5**	**2.0**	3.0				
TGA R/L3265(E)	★	★			★	★	★	★					**2.65**							
TGA R/L3270(E)	★	★			★	★	★	★					**2.70**							
TGA R/L3280(E)	★	★			★	★	★	★					**2.80**							
TGA R/L4125(E)	★	★	★	★	★	★	★	★	★		★		**1.25**	**2.0**	**1.7**	2.5				2
TGA R/L4145(E)	★	★	★	★	★	★	★	★					**1.45**							
TGA R/L4150(E)	★	★	★	★	★	★	★	★	★		★		**1.50**							
TGA R/L4165(E)	★	★			★	★	★	★					**1.65**							
TGA R/L4175(E)	★	★	★	★	★	★	★	★					**1.75**				0.2			
TGA R/L4185(E)	★	★	★	★	★	★	★	★					**1.85**	**3.5**	**2.5**	3.9	*2			3
TGA R/L4200(E)	★	★	★	★	★	★	★	★	★		★		**2.00**							
TGA R/L4220(E)	★	★			★	★	★	★					**2.20**							
TGA R/L4230(E)	★	★	★	★	★	★	★	★					**2.30**							
TGA R/L4250(E)	★	★	★	★	★	★	★	★	★		★		**2.50**							
TGA R/L4265(E)	★	★	★	★	★	★	★	★					**2.65**							
TGA R/L4270(E)	★	★			★	★	★	★					**2.70**	**5.0**	**2.5**	5.4				
TGA R/L4280(E)	★	★	★	★	★	★	★	★					**2.80**	*1		*1				
TGA R/L4300(E)	★	★	★	★	★	★	★	★	★		★		**3.00**				0.3			
TGA R/L4320(E)	★	★			★	★	★	★					**3.20**				*2			
TGA R/L4330(E)	★	★	★	★	★	★	★	★					**3.30**							
TGA R/L4350(E)	★	★	★	★	★	★	★	★	★		★		**3.50**							
TGA R/L4370(E)	★	★			★	★	★	★					**3.70**							
TGA R/L4390(E)	★	★			★	★	★	★					**3.90**							
TGA R/L4400(E)	★	★	★	★	★	★	★	★	★		★		**4.00**							
TGA R/L4410(E)	★	★			★	★	★	★					**4.10**	**5.0**	**2.5**	5.4				
TGA R/L4420(E)	★	★			★	★	★	★					**4.20**				0.4			
TGA R/L4430(E)	★	★	★	★	★	★	★	★					**4.30**				*2			
TGA R/L4440(E)	★	★			★	★	★	★					**4.40**							
TGA R/L4450(E)	★	★	★	★	★	★	★	★					**4.50**							
TGA R/L4480(E)	★	★	★	★	★	★	★	★					**4.80**						5.00	

* Select applicable inserts for the holders by using matching group numbers.

*1: SUMIBORON, SUMIDIA is a = 4.4 (4.0)

*2: SUMIBORON is r_ε = 0.2, SUMIDIA is r_ε = 0.1

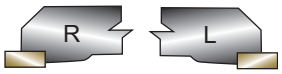
●: USA Stocked Item

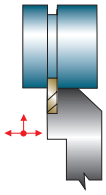
★: Worldwide Warehouse Item

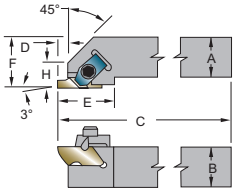
▲: USA Limited Availability Item

■ SUMINOTCH GROOVING TOOLHOLDERS

SS Series

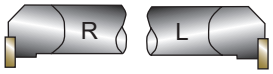


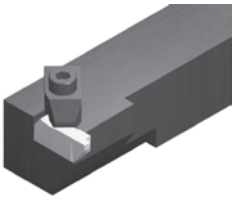


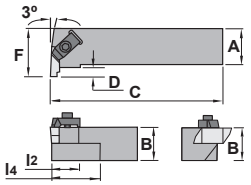


Catalog Number		Applicable Insert		A	B	C	D	E	F	H			
Right	Left	R.H.	L.H.								Right Hand Clamp	Left Hand Clamp	Screw
SSR062	SSL062	SG-2R	SG-2L	.375	.375	2.5	.138	1.25	.562	.50	TF74	TF75	S-310 / ST1291
SSR-82V	SSL-82V			.500	.500	3.5	.138	1.25	.750	.50			
SSR-102B	SSL-102B			.625	.625	4.5	.138	1.25	.875	.50			
SSR-122B	SSL-122B			.750	.750	4.5	.138	1.25	1.000	.50			
SSR-162C	SSL-162C			1.000	1.000	5.0	.138	1.25	1.250	.50			
SSR-123A	SSL-123A	SG-3R	SG-3L	.750	.750	4.0	.210	1.25	1.000	.50	TF72	TF73	S-412 / ST-1297
SSR-123B	SSL-123B			.750	.750	4.5	.210	1.25	1.000	.50			
SSR-163C	SSL-163C			1.000	1.000	5.0	.210	1.25	1.250	.50			
SSR-163D	SSL-163D			1.000	1.000	6.0	.210	1.25	1.250	.50			
SSR-203D	SSL-203D			1.250	1.250	6.0	.210	1.25	1.500	.50			

SE Series





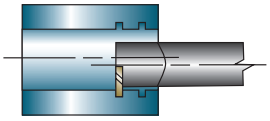


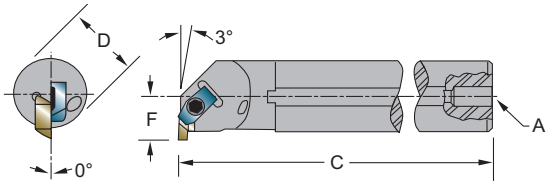
Catalog Number		Applicable Insert		A	B	l_2	C	l_4	D	F			
Right	Left	R.H.	L.H.								Right Hand Clamp	Left Hand Clamp	Screw
SER062	SEL062	SG-2R	SG-2L	.375	.375	.500	2.5	1.000	.138	.750	TF74	TF75	ST-1291
SER082J	SEL082J			.500	.500	.500	3.5	1.000	.138	.750			
SER102B	SEL102B			.625	.625	-	4.5	1.000	.138	.750			
SER122B	SEL122B			.750	.750	.500	4.5	1.000	.138	1.000			
SER123B	SEL123B	SG-3R	SG-3L	.750	.750	.750	4.5	2.000	.210	1.125	TF72	TF73	ST-1297
SER163D	SEL163D			1.000	1.000	.750	6.0	2.000	.210	1.250			
SER203D	SEL203D			1.250	1.250	.750	6.0	2.000	.210	1.500			

Note: Right-hand boring bars use left-hand inserts. Left-hand boring bars use right-hand inserts.

■ SUMINOTCH GROOVING BORING BARS

A-SE Series





Sumitomo Cat. No.		Gage Insert		D	C	F	Min. Bore	A	Right Hand Clamp	Left Hand Clamp	Clamp Screw
Right Hand	Left Hand	R.H.	L.H.								
A08-SER2	A08-SEL2	SG-2R	SG-2L	.500	8.000	.437	0.730	1/4-18 NPT	TF-74	TF-75	S-310
A10-SER2	A10-SEL2	SG-2R	SG-2L	.625	10.000	.500	1.000	1/4-18 NPT	TF-74	TF-75	S-310
A12-SER2	A12-SEL2	SG-2R	SG-2L	.750	10.000	.562	1.125	1/4-18 NPT	TF-74	TF-75	S-310
A16-SER2	A16-SEL2	SG-2R	SG-2L	1.000	12.000	.688	1.375	1/4-18 NPT	TF-74	TF-75	S-310
A16-SER3	A16-SEL3	SG-3R	SG-3L	1.000	12.000	.688	1.375	1/4-18 NPT	TF72	TF-73	S-412
A20-SER3	A20-SEL3	SG-3R	SG-3L	1.250	14.000	.875	1.750	1/4-18 NPT	TF72	TF-73	S-412
A24-SER3	A24-SEL3	SG-3R	SG-3L	1.500	14.000	1.000	2.000	1/4-18 NPT	TF72	TF-73	S-412

Note: Right-hand boring bars use left-hand inserts. Left-hand boring bars use right-hand inserts.

■ SUMINOTCH GROOVING INSERTS

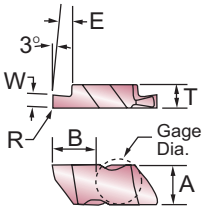
■ RECOMMENDED RUNNING CONDITIONS

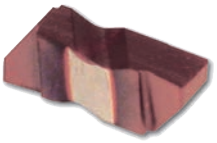
Material		Speed (SFM)	Feed Rate (in/rev)
Steels	free-machining carbon alloys plain carbon steels alloy steels 190-330HB alloy steels 330-450HB	450-750 400-700 400-700 350-600	.004 - .012
Stainless Steels	martensitic/ferritic stainless steel austenitic stainless steel	250-650 175-700	.004 - .009
Cast Iron	gray cast iron 190-330HB gray cast iron 330-450HB alloy/ductile irons	400-700 350-600 250-650	.004 - .015
High Temperature Alloys	high temp alloys 200-260HB high temp alloys 260-450HB titanium alloys Ti 6Al-4V	60-250 30-175 90-250	.003 - .008
Non-Ferrous Materials	free-machining aluminum alloys copper/zinc/brass non-metallics	600-2500 300-900 350-1200	.004 - .012

● USA Stocked Item

★ Worldwide Warehouse Item

▲ USA Limited Availability Item





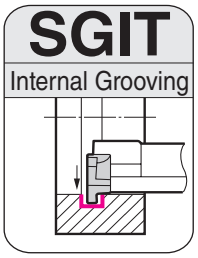
Left				Dimensions (in)							Right			
SG	Coated	CBN									SG	Coated	CBN	
	EH520V	BN250	BN350	W ±.001	R	E ±.001	T	A	B	Gage Dia.		EH520V	BN250	BN350
SG-2031L	●			.031	.002/.005	.050					SG-2031R	●		
SG-2041L	●			.041	.002/.005	.050					SG-2041R	●		
SG-2047L	●			.047	.002/.005	.050					SG-2047R	●		
SG-2058L	●			.058	.005/.010	.050	.150	.219	.2700	.1875	SG-2058R	●		
SG-2062L	●			.062	.005/.010	.110					SG-2062R	●		
SG-2094L	●			.094	.005/.010	.110					SG-2094R	●		
SG-2125L	●			.125	.005/.010	.110					SG-2125R	●		
SG-3047L	●			.047	.005/.010	.120					SG-3047R	●	●	●
SG-3062L	●	●	●	.062	.005/.010	.120					SG-3062R	●	●	●
SG-3072L	●			.072	.005/.010	.120					SG-3072R	●		
SG-3088L	●			.088	.005/.010	.180					SG-3088R	●		
SG-3094L	●	●	●	.094	.005/.010	.180					SG-3094R	●	●	●
SG-3097L	●			.097	.005/.010	.180					SG-3097R	●		
SG-3105L	●			.105	.005/.010	.180					SG-3105R	●		
SG-3110L	●			.110	.005/.010	.180	.195	.344	.4050	.3750	SG-3110R	●		
SG-3122L	●			.122	.005/.010	.180					SG-3122R	●		
SG-3125L	●	●	●	.125	.005/.010	.180					SG-3125R	●	●	●
SG-3142L	●			.142	.005/.010	.180					SG-3142R	●		
SG-3156L	●			.156	.005/.010	.180					SG-3156R	●		
SG-3178L	●			.178	.005/.010	.180					SG-3178R	●		
SG-3185L	●			.185	.020/.025	.180					SG-3185R	●		
SG-3189L	●			.189	.020/.025	.180					SG-3189R	●		●

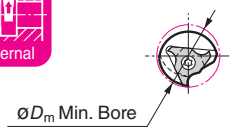
SUMINOTCH GROOVING INSERTS- Cont'd

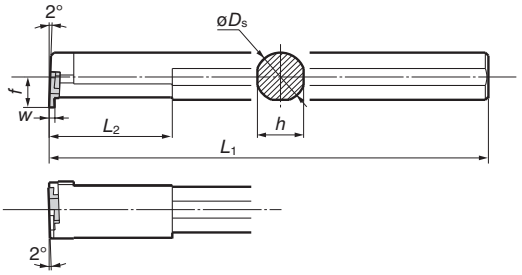
Left		Dimensions (in)							Right	
SG-CB	Coated EH520V	W ±.001	R	E ±.001	T	A	B	Gage Dia.	SG-CB	Coated EH520V
SG-2047L-CB	•	.047	.002/.005	.050	.150	.219	.2700	.1875	SG-2047R-CB	•
SG-2062L-CB	•	.062	.005/.010	.110					SG-2062R-CB	•
SG-2078L-CB	•	.078	.005/.010	.110					SG-2078R-CB	•
SG-2094L-CB	•	.094	.005/.010	.110					SG-2094R-CB	•
SG-2125L-CB	•	.125	.005/.010	.110					SG-2125R-CB	•
SG-3047L-CB	•	.047	.005/.010	.075	.195	.344	.4050	.3750	SG-3047R-CB	•
SG-3062L-CB	•	.062	.005/.010	.094					SG-3062R-CB	•
SG-3072L-CB	•	.072	.005/.010	.094					SG-3072R-CB	•
SG-3078L-CB	•	.078	.005/.010	.094					SG-3078R-CB	•
SG-3088L-CB	•	.088	.005/.010	.150					SG-3088R-CB	•
SG-3094L-CB	•	.094	.005/.010	.150					SG-3094R-CB	•
SG-3125L-CB	•	.125	.020/.025	.150					SG-3125R-CB	•
SG-3189L-CB	•	.189	.020/.025	.150					SG-3189R-CB	•

• = USA Stocked Item

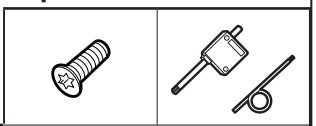
Internal Grooving







■ Spare Parts

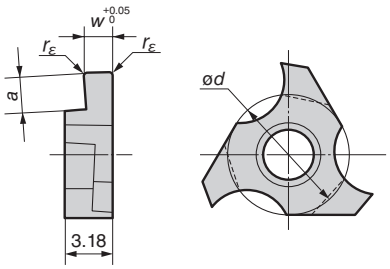


■ Holders

Cat. No.	Stock	Dimensions (mm)					Min. Bore (mm)	Grooving Width (mm)	Max. Grooving Depth (mm)	Gage Insert	Screw	Wrench
		øDs	h	L1	f	L2		w				
SGIT R08	★	8	7.0	125	5.0	20	10.0	**0.50 to 2.00**	**0.8***	GITL3□□□	BFTX02506NS	RT08
SGIT R10	★	10	9.0	150	6.0	25	12.0		**0.8***			
SGIT R12	★	12	11.0	180	7.0	30	14.0	**1.00 to 2.00**	**1.8**	GITL5□□□	BFTX0307NS	RT10
SGIT R14	★	14	13.0	180	8.0	35	16.0		**1.8**			
SGIT R16	★	16	15.0	200	10.0	40	20.0	**1.50 to 2.00**	**2.8**	GITL6□□□		
SGIT R20	★	20	19.0	200	12.0	40	25.0		**2.8**			

*Maximum grooving depth is 0.5mm when GITL3050 is set.

■ Inserts

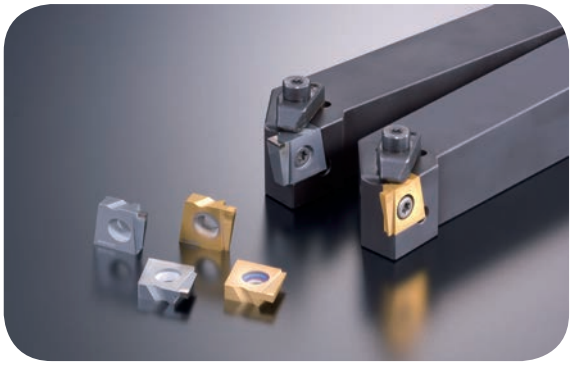


Cat. No.	Coated Carbide ACZ150	Dimensions (mm) w	a	rε	ød	Holder
GIT L3050	★	**0.50**	1.2	0.05	5.56	SGIT R08 SGIT R10
GIT L3065	★	**0.65**	1.2	0.05	5.56	
GIT L3075	★	**0.75**	1.2	0.05	5.56	
GIT L3100	★	**1.00**	1.2	0.05	5.56	
GIT L3125	★	**1.25**	1.2	0.20	5.56	
GIT L3145	★	**1.45**	1.2	0.20	5.56	
GIT L3150	★	**1.50**	1.2	0.05	5.56	
GIT L3200	★	**2.00**	1.2	0.10	5.56	
GIT L5100	★	**1.00**	2.2	0.05	7.94	SGIT R12 SGIT R14
GIT L5145	★	**1.45**	2.2	0.20	7.94	
GIT L5150	★	**1.50**	2.2	0.05	7.94	
GIT L5175	★	**1.75**	2.2	0.20	7.94	
GIT L5200	★	**2.00**	2.2	0.10	7.94	
GIT L6150	★	**1.50**	3.2	0.20	9.525	SGIT R16 SGIT R20
GIT L6175	★	**1.75**	3.2	0.20	9.525	
GIT L6200	★	**2.00**	3.2	0.20	9.525	

★ Worldwide Warehouse Item

CBN Grooving Toolholders

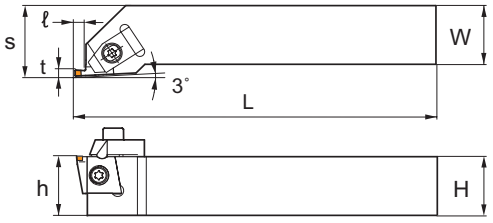
Series: GWB



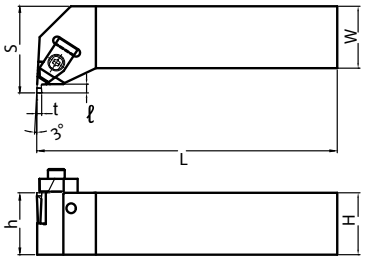
Features & Benefits

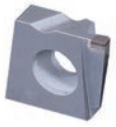
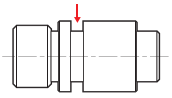
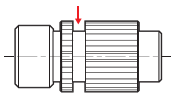
- New double clamping system provides reliable grooving of hardened steel
- 80° tangentially mounted CGA style insert for improved rigidity
- Wide range of widths and grades for continuous and interrupted grooving operations
- New special coated CBN grade BNC30G extends tool life of insert

GWB Series



GWBS 90° Series



Grade	Application	Features	Hv (GPa)	TRS (GPa)
BN2000 	Continuous grooving 	General purpose grade with good wear resistance	31-34	1.0-1.1
BNC30G 	Interrupted grooving 	Tough CBN substrate and special coating with high wear and peeling resistance	33-35	1.1-1.2

GWB(S) SERIES HOLDERS

Sumitomo Cat. No.	Stk.	H in (mm)	W in (mm)	h in (mm)	s in (mm)	t in (mm)	ℓ in (mm)	L in (mm)	Insert (See p. 134 for CGA availability & technical information)
GWBR 165D4	●	1.0 (25.4)	1.0 (25.4)	1.0 (25.4)	1.181 (30.0)	.059 < t ≤ .079 (1.5 < t ≤ 2.0)	.138 (3.5)	6.0 (152.4)	CGA R/L 1504□□ CGA R/L 4□□□
GWBL 165D4						.079 < t ≤ .118 (2.0 < t ≤ 3.0)	.177 (4.5)	6.039 (153.4)	
						.118 < t ≤ .177 (3.0 < t ≤ 4.5)	.197 (5.0)		
GWBR 165D6	●	1.0 (25.4)	1.0 (25.4)	1.0 (25.4)	1.181 (30.0)	.177 < t ≤ .236 (4.5 < t ≤ 6.0)	.197 (5.0)	6.039 (153.4)	CGA R/L 1506□□ CGA R/L 6□□□
GWBL 165D6									
GWBR 2525-45	★	.984 (25.0)	.984 (25.0)	.984 (25.0)	1.181 (30.0)	.059 < t ≤ .079 (1.5 < t ≤ 2.0)	.138 (3.5)	6.0 (152.4)	CGA R/L 1504□□ CGA R/L 4□□□
GWBL 2525-45						.079 < t ≤ .118 (2.0 < t ≤ 3.0)	.177 (4.5)	6.039 (153.4)	
						.118 < t ≤ .177 (3.0 < t ≤ 4.5)	.197 (5.0)		
GWBR 2525-60	★	.984 (25.0)	.984 (25.0)	.984 (25.0)	1.181 (30.0)	.177 < t ≤ .236 (4.5 < t ≤ 6.0)	.197 (5.0)	6.039 (153.4)	CGA R/L 1506□□ CGA R/L 6□□□
GWBL 2525-60									
GWBSR125D4	●	.750 (19.05)	.750 (19.05)	.750 (19.05)	.880 (22.35)	.059 < t ≤ .079 (1.5 < t ≤ 2.0)	.138 (3.5)	6.0 (152.4)	CGA R/L 1504□□ CGA R/L 4□□□
GWBSL125D4						.079 < t ≤ .118 (2.0 < t ≤ 3.0)	.177 (4.5)	6.0 (152.4)	
						.118 < t ≤ .177 (3.0 < t ≤ 4.5)	.197 (5.0)		
GWBSR165D4	●	1.0 (25.4)	1.0 (25.4)	1.0 (25.4)	1.167 (29.64)	.059 < t ≤ .079 (1.5 < t ≤ 2.0)	.138 (3.5)	6.0 (152.4)	CGA R/L 1504□□ CGA R/L 4□□□
GWBSL165D4						.079 < t ≤ .118 (2.0 < t ≤ 3.0)	.177 (4.5)	6.0 (152.4)	
						.118 < t ≤ .177 (3.0 < t ≤ 4.5)	.197 (5.0)		
GWBSR165D6	●	1.0 (25.4)	1.0 (25.4)	1.0 (25.4)	1.167 (29.64)	.177 < t ≤ .236 (4.5 < t ≤ 6.0)	.197 (5.0)	6.0 (152.4)	CGA R/L 1506□□ CGA R/L 6□□□
GWBSL165D6									
GWBSR205D4	●	1.25 (31.75)	1.25 (31.75)	1.25 (31.75)	1.75 (44.45)	.059 < t ≤ .079 (1.5 < t ≤ 2.0)	.138 (3.5)	6.0 (152.4)	CGA R/L 1504□□ CGA R/L 4□□□
GWBSL205D4						.079 < t ≤ .118 (2.0 < t ≤ 3.0)	.177 (4.5)	6.0 (152.4)	
						.118 < t ≤ .177 (3.0 < t ≤ 4.5)	.197 (5.0)		

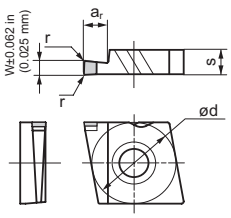
● = USA Stocked Item
★ = Worldwide Warehouse Item

GWB Grooving Toolholders

CGA Inserts

BNC30G

BN2000



■ INSERTS

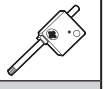
CGA	Coated	Uncoated	Dimensions				
	BNC30G	BN2000	W ± .001 in. ± .025 (mm)	a_r in (mm)	r in (mm)	ød in (mm)	s in (mm)
CGAR4062	●	●	.062 (1.575)	.1378 (3.5)	.0078 (.2)	.625 (15.875)	.1875 (4.76)
CGAL4062							
CGAR4094	●	●	.094 (2.388)	.1575 (4.0)			
CGAL4094							
CGAR4125	●	●	.125 (3.175)	.1969 (5.0)			
CGAL4125							
CGAR6189	●	●	.189 (4.801)				.25 (6.35)
CGAL6189							
CGAR1504150	●		.0591 (1.5)	.1378 (3.5)	.0078 (.2)	.625 (15.875)	.1875 (4.76)
CGAL1504150		●					
CGAR1504200	●	●	.0787 (2.0)				
CGAL1504200							
CGAR1504250	●		.0984 (2.5)	.1575 (4.0)			
CGAL1504250		●					
CGAR1504300	●	●	.1181 (3.0)				
CGAL1504300							
CGAR1504350	●		.1378 (3.5)	.1969 (5.0)			
CGAL1504350							
CGAR1504400	●	●	.1575 (4.0)				
CGAL1504400							
CGAR1504450	●		.1772 (4.5)				
CGAL1504450							
CGAR1506500	●	●	.1969 (5.0)				.25 (6.35)
CGAL1506500							
CGAR1506550	●		.2165 (5.5)				
CGAL1506550							
CGAR1506600	●	●	.2362 (6.0)				
CGAL1506600							

● USA Stocked Item

■ RECOMMENDED CUTTING CONDITIONS

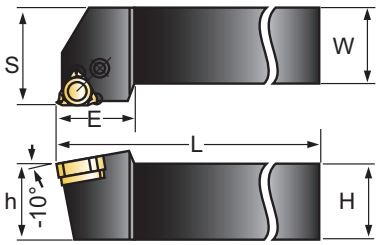
For hardened steel:	
Cutting Speed	260 - 400 sfm (80 - 120 m/min)
Feed Rate	.0016 -.0032 ipr (.04 - .08 mm/rev)
Coolant	Continuous cut: dry or wet Interrupted cut: dry
NOTE: To avoid thermal cracking of cutting edge during interrupted cutting applications, please ensure workpiece remains dry.	

■ HARDWARE

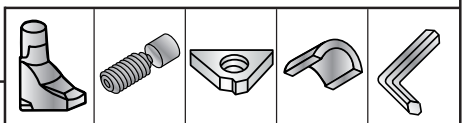
				
Clamp	Clamp Screw	Insert Screw	Spring	Wrench
TF-72 (Right hand) TF-73 (Left hand)	BX0520T	BFTX 0511N	GSP06	TRX20

LTER Series

For External Threading



LAYDOWN EXTERNAL THREADING INSERTS:
TME_____R
TUE_____R
TWE_____R



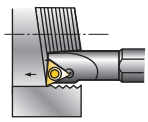
These figures show right hand tools.

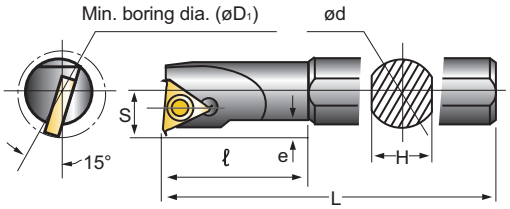
Sumitomo Cat. No.	STKD.	Dimensions						Lever Pin	Clamp Bolt	Shim	Shim Pin	Wrench
		H	W	h	S	L	E					
LTER 123C	•	.750	.750	.750	1.000	5.000	1.000	LCL3S	LCS3TE	LSTE31-0	LSP3	LH025
LTER 163D	•	1.000	1.000	1.000	1.250	6.000	1.000					

• = USA Stocked Item

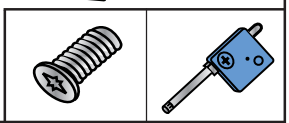
STIR Series

For Internal Threading



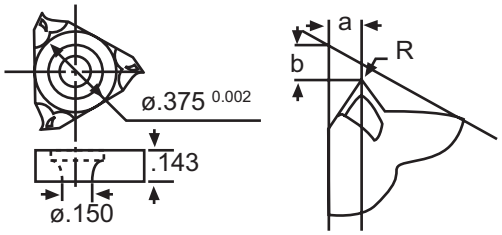


LAYDOWN INTERNAL THREADING INSERTS:
TMI_____R
TNPTI_____R



Sumitomo Cat. No.	STKD.	Dimensions							Screw	Wrench
		ø d	H	L	Min.Bore øD1	S	e	ℓ		
STIR 103	•	.625	.590	6.000	.750	.406	.006	1.378	BFTX03508	TRX10
STIR 123	•	.750	.670	7.000	1.000	.492	.006	1.575	BFTX03508	TRX10
STIR 163	•	1.000	.905	8.000	1.150	.600	.006	1.500	BFTX03508	TRX10
STIR 203	•	1.250	1.142	10.000	1.400	.724	.006	1.500	BFTX03508	TRX10
STIR 243	•	1.500	1.378	12.000	1.700	.897	.006	1.500	BFTX03508	TRX10

• = USA Stocked Item



- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item

EXTERNAL LAYDOWN - Full Profile (ISO Metric)

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade				R	Included Angle θ°	a	b
			Uncoated	Coated		Cermet				
			A30	EH20Z	AC225	T130A				
TME100R	1.00	-		▲	●		.0050	60	.031	.047
TME125R	1.25	-	▲	▲	●	●	.0067			
TME150R	1.50	-	●	▲	●	●	.0080		.039	
TME175R	1.75	-			●		.0094		.047	
TME200R	2.00	-	▲	▲	●	●	.0106		.055	
TME250R	2.50	-	▲	▲	●	●	.0140			
TME300R	3.00	-		▲	●		.0165		.071	

Full Profile (Inch)

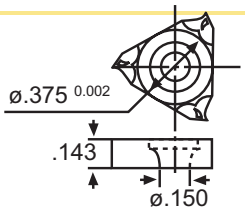
Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade					R	Included Angle θ°	a	b
			Uncoated	Coated		Cermet					
			A30	EH20Z	AC225	T1500A	T130A				
TUE24R	-	24	▲		●		●	.0047	60	.031	.047
TUE20R	-	20	●	▲	●		●	.0059			
TUE18R	-	18	●	▲	●		●	.0067		.039	
TUE16R	-	16	●	▲	●		●	.0079		.047	
TUE14R	-	14	●	▲	●	●	●	.0091			
TUE12R	-	12	●	●	●	●	●	.0110		.055	
TUE08R	-	8		●	●			.0169		.071	

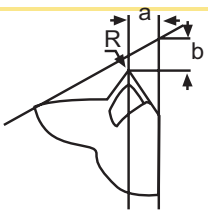
Partial Profile (60°)

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade				R	Included Angle θ°	a	b
			Uncoated	Coated		Cermet				
			A30	EH20Z	AC225	T130A				
TME1020R	1.0 ~ 2.0	24 ~ 12	●	▲	●	●	.005	60	.043	.047
TME1530R	1.50 ~ 3.00	16 ~ 8	●	▲	●	●	.008		.063	.039

Partial Profile (55°)

Sumitomo Catalog Number	Inch	Threads/ in	Stock Grade			R	Included Angle θ°	a	b
			Uncoated	Coated	Cermet				
			A30	AC225	T130A				
TWE1410R	-	14 ~ 10	▲	●	●	.009	55	.055	.047
TWE2416R	-	24 ~ 16	▲	●	●	.005			





- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item

INTERNAL LAYDOWN - Full Profile (ISO Metric)

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade				R	Included Angle θ°	a	b
			Uncoated	Coated		Cermet				
			A30	EH20Z	AC225	T130A				
TMI100R	1.00	-	●	▲	●	▲	.0024	60	.031	.047
TMI125R	1.25	-	▲		▲		.0030			
TMI150R	1.50	-			●	●	.0035		.039	
TMI175R	1.75	-	▲	▲	●		.0043		.047	
TMI200R	2.00	-	●		●	●	.0050		.055	
TMI250R	2.50	-	▲		▲		.0063			
TMI300R	3.00	-		▲	●		.0080		.071	

Partial Profile (60°)

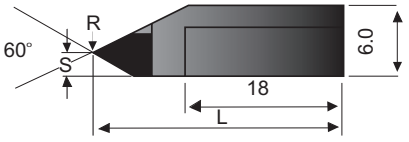
Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade					R	Included Angle θ°	a	b
			Uncoated	Coated		Cermet					
			A30	EH20Z	AC225	T1500A	T130A				
TMI1020R	1.0 ~ 2.0	24 ~ 12	●	▲	●	●	●	.0024	60	.039	.047
TMI1530R	1.50 ~ 3.00	16 ~ 8	●	●	●	●	●	.0035		.060	

Partial Profile (NPT)

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade			R	Included Angle θ°	a	b
			Uncoated	Coated	Cermet				
			A30	EH20Z	T130A				
TNPTI115R	-	11.5	▲	▲	●	.0004	60	.059	.043

THREADING INSERTS FOR BNGG HOLDERS

Sumitomo Catalog Number	Pitch (mm)	Threads/ in	Stock Grade		R	Included Angle θ°	a	b
			CBN					
			BN250	BN600				
BNTT1020R	1.0 ~ 2.0	-	●	▲	.0024	60	.039	.047
BNTT1530R	1.50 ~ 3.00	-	●		.0035		.060	



Solid Carbide • Solid Quality • Solid Performance

Because of the solid tungsten carbide support blade, Sumitomo cut-off tools are able to perform at depths 40% greater than any tools now available. Tungsten carbide is more rigid than steel so even in long overhang applications, bending, vibration and movement at the cutting edge are drastically reduced.

The solid carbide support blades fit in many existing cut-off tool blocks.

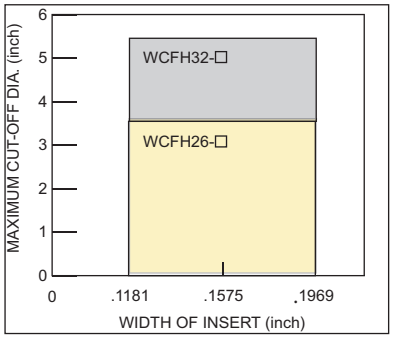
The unique positive rake inserts are available in neutral, right hand, and left hand styles. The insert design collapses the width of the chip, breaks it and facilitates chip flow away from the cut, thus welding and wear on the insert corners are greatly reduced, and coolant is easier to direct.

Operating at high speeds and feeds is possible because of longer tool life, and down-time for chip removal is drastically reduced.

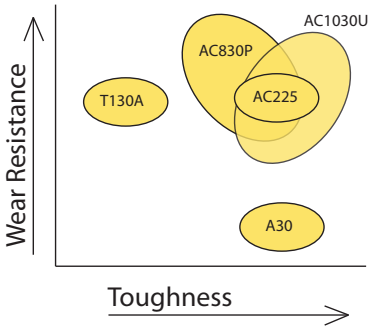
Safety is enhanced because long, stringy chips are avoided.

Note: Sumitomo Inserts fit only Sumitomo Blades.

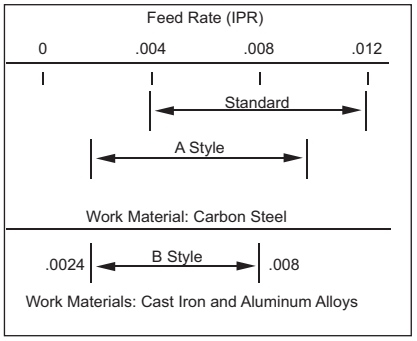
■ Maximum Cut-Off Diameter



■ Grade Application Range



■ Chipbreaker Range



■ Inserts Application

Grade	C.B. Style	Application	Feature
AC830P	Standard	Heavy feed in steel (.0032–.012 ipr)	Coated insert with excellent wear resistance. Standard chipbreaker for low cutting force applications.
	GG	general steel	general purpose, neutral chipbreaker
AC1030U	GF	Hard-to-cut metals	for low cutting force, neutral chipbreaker
	CF	Hard-to-cut metals	for low cutting force, handed chipbreaker
AC225	A	Light feed in steel (.0016–.010 ipr)	Coated insert with excellent toughness. A style chipbreaker with good chip control.
		Carbon steel, stainless steel	
T130A	A	Light feed in steel (.0012–.0061 ipr)	Cermet inserts produce excellent surface finish.
A30N	A	Slow speed and feed in steel	Equivalent to C5, C6 carbide.
G10E	A	For exotic materials	C2 carbide for exotic materials.
	B	For cast iron and aluminum alloy	C2 carbide with a sharp cutting edge.

■ Recommended Cutting Condiitons

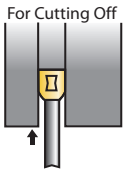
Part Material		Grade					
		AC830P	AC1030U	AC225	T1500A/ T1200A	A30	G10E
P Steel	General Steel	260-660	160-660	260-660	260-660	150-400	-
	Soft Steel	330-750	160-750	330-750	330-750	230-500	-
	Die Steel	200-500	160-500	200-500	200-500	150-400	-
M Stainless Steels		230-500	160-500	200-500	-	230-450	-
K Cast Irons		-	160-660	-	-	-	160-400
N Non-ferrous Metal		-	-	-	-	-	660-1650

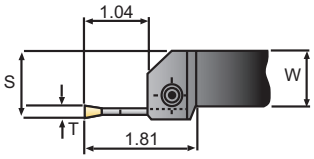
CAUTION
1. Do not use AC225 for light feed rate applications (Feed rate should be at least .004 ipr)
2. Use AC225 for stainless steel.
3. Use A style chipbreaker for low carbon steel.
4. Use coolant

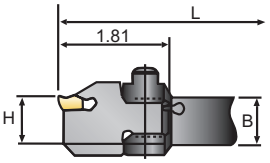
Breaker & Type		Feed f (IPR)										
		Neutral						Handed				
		GG	GF	none	T	A	B	none	CF	T	A	B
Width (mm)	2	.002-.008	.0012-.005	-	.0012-.004	.0012-.005	-	-	-	.0012-.004	-	-
	3	.003-.010	.0015-.006	.003-.010	-	.0015-.006	.002-.006	.003-.010	.002-.005	-	.0015-.006	.002-.006
	4	.004-.012	.002-.007	.004-.012	-	.002-.007	.002-.007	.004-.012	.002-.005	-	.002-.007	.002-.007
	5	.004-.014	.002-.008	.004-.012	-	.002-.008	.0025-.008	.004-.012	-	-	-	.0025-.008

WCFS Series

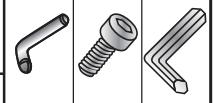
HOLDERS







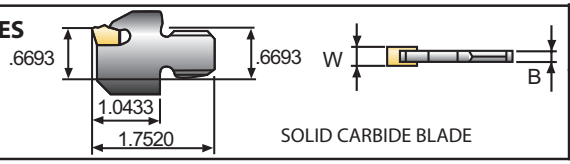
HARDENED STEEL HOLDER



These figures show right hand tools.

Sumitomo Cat. No.	STKD. R	STKD. L	Dimensions W	B	L	S	H	T	Support Blade	Insert	Extractor	Clamp Screw	Wrench
WCFSR/L-063-3	•	•	.625	.625	4.000	.740	.625	.1181	WCFH17-3	WCF☐3☐			
WCFSR/L-075-3	•	•	.750	.750	4.500	.870	.750	.1181	WCFH17-3	WCF☐3☐			
WCFSR/L-075-4	•	•	.750	.750	4.500	.910	.750	.1575	WCFH17-4	WCF☐4☐			
WCFSR/L-075-5	•	•	.750	.750	4.500	.950	.750	.1969	WCFH17-5	WCF☐5☐	SL-1	BX0622	LH050
WCFSR/L-100-3	•	•	1.000	1.000	6.000	1.120	1.000	.1181	WCFH17-3	WCF☐3☐			
WCFSR/L-100-4	•	•	1.000	1.000	6.000	1.160	1.000	.1575	WCFH17-4	WCF☐4☐			
WCFSR/L-100-5	•	•	1.000	1.000	6.000	1.200	1.000	.1969	WCFH17-5	WCF☐5☐			

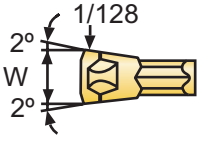
BLADES



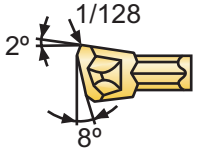
SOLID CARBIDE BLADE

Sumitomo Cat. No.	STOCK	Dimensions W	B
WCFH17-3	•	.1181	.094
WCFH17-4	•	.1575	.134
WCFH17-5	•	.1969	.169

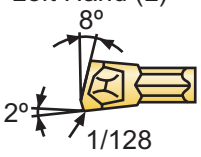
Neutral (N)



Right Hand (R)



Left Hand (L)



• = USA stocked item

▲ = USA limited availability item

WCF☐◯☐
General Steel

GG

WCF☐◯A
Hard-to-cut metals
Slow feed

WCF☐◯GF
Hard-to-cut metals
Slow feed

WCF☐◯CF
Hard-to-cut metals
Slow feed

WCF☐◯B
Cast iron
Aluminum alloy

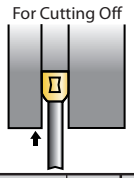
Catalog Number	Coated AC830P	W
WCFN2T	●	.0787
WCFR2T	●	
WCFN2-GG	●	
WCFN3	●	.1181
WCFR3	●	
WCFL3	●	
WCFN3-GG	●	
WCFN4	●	.1575
WCFR4	●	
WCFL4	●	
WCFN4-GG	●	
WCFN5	●	.1969
WCFR5	●	
WCFL5	●	
WCFN5-GG	●	

Catalog Number	Coated AC1030U	Coated AC225	Cermet T130A	Uncoated A30	Uncoated G10E	W
WCFN2-GF	●					.0787
WCFN3A		●	●	●	●	.1181
WCFR3A		●	●		▲	
WCFL3A		●	●	●	●	
WCFN3-GF	●					
WCFR3-CF	●					
WCFL3-CF	●					
WCFN4A		●	●		●	.1575
WCFR4A		●				
WCFL4A						
WCFN4-GF	●					
WCFR4-CF	●					
WCFL4-CF	●					
WCFN5A		●	●		●	.1969
WCFR5A		●				
WCFL5A						
WCFN5-GF	●					

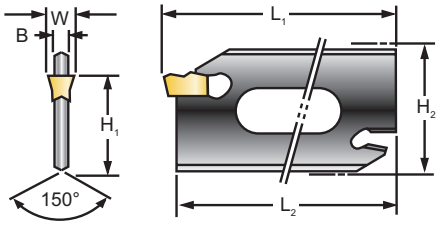
Catalog Number	Uncoated G10E	W
WCFN3B	●	.1181
WCFR3B	●	
WCFL3B	●	
WCFN4B	●	.1575
WCFR4B		
WCFL4B	●	
WCFN5B	●	.1969
WCFR5B		
WCFL5B		

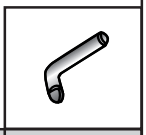
WCFH Series

SUPPORT BLADES



SOLID CARBIDE BLADE



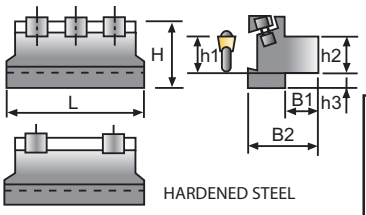


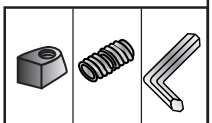
Sumitomo Cat. No.	STKD. R	Dimensions W	B	H_1	H_2	L_1	L_2	Max. Cut-Off Dia.	Tool Block		Insert	Extractor
WCFH26-3	•	.1181	.0945	.844	1.031	4.344	4.281	3.150	SBN063-26 SBN075-26	SBU075-26	WCF□3(A, B)	SL-1
WCFH26-4	•	.1575	.1339								WCF□4(A, B)	
WCFH26-5	•	.1969	.1693								WCF□5(A, B)	
WCFH32-3	•	.1181	.0945	.984	1.250	5.906	5.844	5.500	SBN100-32 SBN125-32	SBU075-32 SBU100-32	WCF□3(A, B)	
WCFH32-4	•	.1575	.1339								WCF□4(A, B)	
WCFH32-5	•	.1969	.1693								WCF□5(A, B)	

• = USA Stocked Item

SBN Series

Tool Blocks

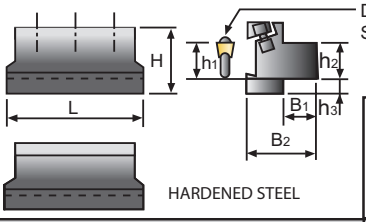


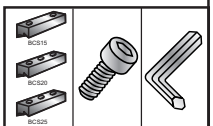


Sumitomo Cat. No.	Dimensions L	h_1	h_2	h_3	H	B_1	B_2	Clamp	Clamp Screw	Wrench
SBN063-26	3.000	.625	.625	.500	1.719	.625	1.328	BWS-30	WB8-20	LH040
SBN075-26	3.156	.750	.750	.375	1.719	.750	1.469			
SBN100-32	4.500	1.000	1.000	.3125	2.000	.8125	1.531			

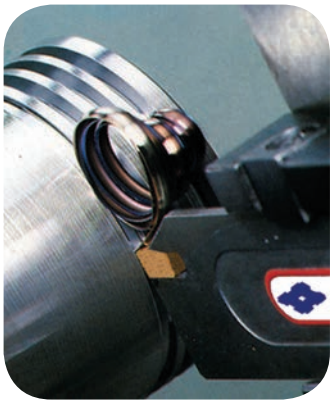
SBU Series

Tool Blocks





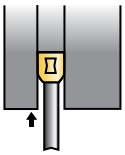
Sumitomo Cat. No.	Dimensions L	H	h_1	h_2	h_3	B_1	B_2	Wedge Clamp	Clamp Screw	Wrench
SBU075-26	3.156	1.781	.750	.750	.4375	.750	1.719	BCS15	BX0622	LH050
SBU075-32	4.000	2.000	.750	.750	.531	.781	1.719	BCS20		
SBU100-32	4.344	2.000	1.000	1.000	.344	.781	1.719	BCS25		

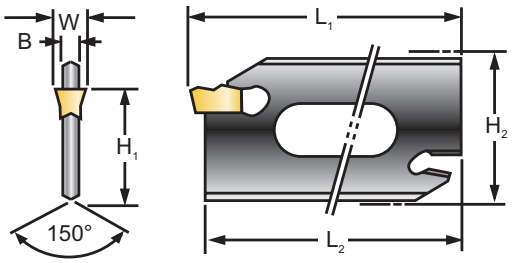


STFH Series Sumi-Grip Jr.

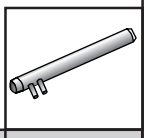
SUPPORT BLADES

For Cutting Off





HARDENED STEEL BLADE



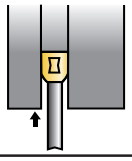
Sumitomo Cat. No.	STKD. R	Dimensions W	B	H_1	H_2	L_1	L_2	Max. Cut-Off Dia.	Tool Block		Insert	Wrench
STFH26-2	•	.0800	.0630	.8425	1.024	4.291	4.252	1.580	SBN063-26 SBN075-26	SBU075-26	WCF☐2T	SL-4
STFH26-3	•	.1200	.0945	.8425	1.024	4.291	4.252	2.760			WCF☐3☐	
STFH32-2	•	.0800	.0630	.9843	1.260	5.866	5.827	1.580	SBN100-32	SBU075-32	WCF☐2T	
STFH32-3	•	.1200	.0945	.9843	1.260	5.866	5.827	3.940	SBN125-32	SBU100-32	WCF☐3☐	

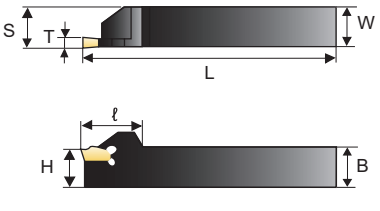
• = USA Stocked Item

STFS Series Sumi-Grip Jr.

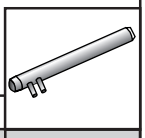
TOOL HOLDERS

For Cutting Off





HARDENED STEEL HOLDER



These figures show right hand tools.

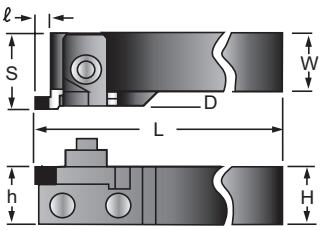
Sumitomo Cat. No.	STKD. R	L	Dimensions W	B	L	S	H	T	Max. Cut-Off Dia.	Insert	Wrench
STFSR/L-063-2	•	•	.625	.625	4.000	.625	.625	.0800	.650	WCF☐2T	SL-4
STFSR/L-075-2	•	•	.750	.750	5.000	.750	.750	.0800	.840	WCF☐2T	
STFSR/L-063-3	•	•	.625	.625	4.000	.625	.625	.1200	.750	WCF☐3☐	
STFSR/L-075-3	•	•	.750	.750	5.000	.750	.750	.1200	1.000	WCF☐3☐	
STFSR/L-100-3	•	•	1.000	1.000	6.000	1.000	1.000	.1200	1.000	WCF☐3☐	

Sumi-Grip Jr. is only available in steel blades and holders.

● USA Stocked Item

BNGG Series Grooving

For External Grooving

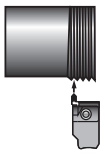


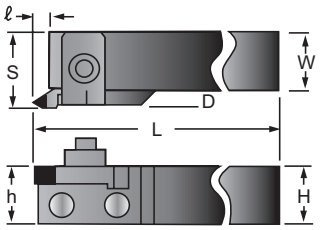
Sumitomo Cat. No.	STK. R	STK. L	Dimensions W	H	L	S	D	h	ℓ
BNGGR/L160	•		1	1	6	1.25	.281	1	.2

- For use in hard grooving with BNGNT type inserts.
- Extremely rigid design.
- Solves the chipping problems associated with vibration.
- **ANVIL SOLD SEPARATELY**.

BNGG Series Threading

For External Threading





Sumitomo Cat. No.	STK. R	STK. L	Dimensions W	H	L	S	D	h	ℓ
BNGGR/L160	•		1	1	6	1.25	.281	1	.2

- For use in hard threading with BNTT inserts.
- May apply various threading widths.
- **ANVIL SOLD SEPARATELY**.

Grooving Inserts

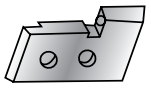
Insert	Grade BN250 R	BN250 L	BN350 R	BN350 L	BN500 R	BN500 L
BNGNT0200R/L	•	•	•			
BNGNT0250R/L	•	•				
BNGNT0300R/L	•	•	•			
BNGNT0400R/L	•	•	•			
BNGNT0500R/L	•	•				
BNGNT0600R/L	•	•				

Note: BNGNT inserts can be made in special widths per individual requirements. When using a special width BNGNT insert, the anvil must be altered as well. Please contact the Engineering Department for more information.

Threading Inserts

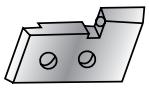
Insert	Grade BN250 R	BN250 L
BNTT1020R/L	•	
BNTT1530R/L	•	

* Threading Anvil



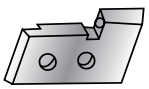
BNGSR/LTT

* Grooving Anvil



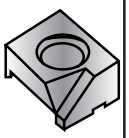
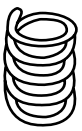
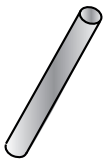
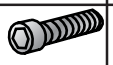
BNGSR/L200
BNGSR/L250
BNGSR/L300
BNGSR/L400
BNGSR/L500
BNGSR/L600

* Grooving Anvil Additional Widths



BNGSR/L150
BNGSR/L350
BNGSR/L450
BNGSR/L550

Hardware for Holders

Holder Cat. No.	Clamp	Adjust. Screw	Spring	Screws	Wrenches	
				 (Clamp Screw) BX0615	 (Clamp Wrench) LH050	
				 (Anvil Screw) BX0414	 (Anvil Wrench) LH030	
BNGGR/L160	BNGCR/L	FMJ	GSP06			1.8 X 45

Note: Holders for threading or grooving are identical, even though they have different part numbers. You may substitute one holder for the other and all hardware items are interchangeable.

* Holder and anvil assembly required

* Anvil sold separately.

SUMICUTOFF SOLID CARBIDE TOOLHOLDERS

Series: SCT Type

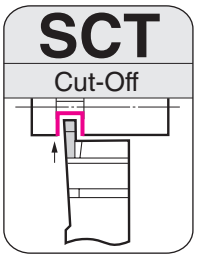


Fig.1

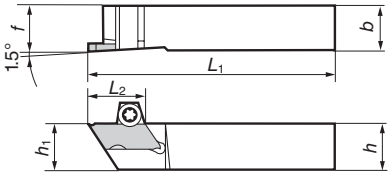
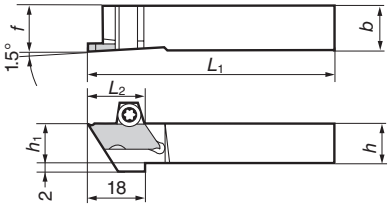
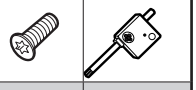


Fig.2



Above figures show right hand tools.

■ Spare Parts



■ Holders Right Hand (R) & Left Hand (L)

Cat. No.	Stock	Dimensions (mm)						Gage Insert	Fig.	Screw	Wrench
		h	*b*	*L1*	*f*	*h1*	*L2*				
SCT R08	●	.500	.500	6.0	.500	.500	.591	CT R12○○○○(-NB)	1	BFTX0410T8L	TRX08
SCT R10	●	.625	.625	6.0	.625	.625	.591				
SCT R12	●	.750	.750	6.0	.750	.750	.591				
SCT R1010	★	10	10	120	10	10	15	CT R05○○○○(-NB) CT R12○○○○(-NB)			
SCT R1212	★	12	12	120	12	12	15				
SCT R1616	★	16	16	120	16	16	15				
SCT R1010-16	★	10	10	120	10	10	18	CT R16○○○○(-NB)	2		
SCT R1212-16	★	12	12	120	12	12	18		1		
SCT R1616-16	★	16	16	120	16	16	18				
SCT L08	●	.500	.500	6.0	.500	.500	.591	CT R12○○○○(-NB)	1	BFTX0410T8R	TRX08
SCT L10	●	.625	.625	6.0	.625	.625	.591				
SCT L12	●	.750	.750	6.0	.750	.750	.591				
SCT L1010	★	10	10	120	10	10	15	CT L05○○○○(-NB) CT L12○○○○(-NB)			
SCT L1212	★	12	12	120	12	12	15				
SCT L1616	★	16	16	120	16	16	15				
SCT L1010-16	★	10	10	120	10	10	18	CT L16○○○○(-NB)	2		
SCT L1212-16	★	12	12	120	12	12	18		1		
SCT L1616-16	★	16	16	120	16	16	18				

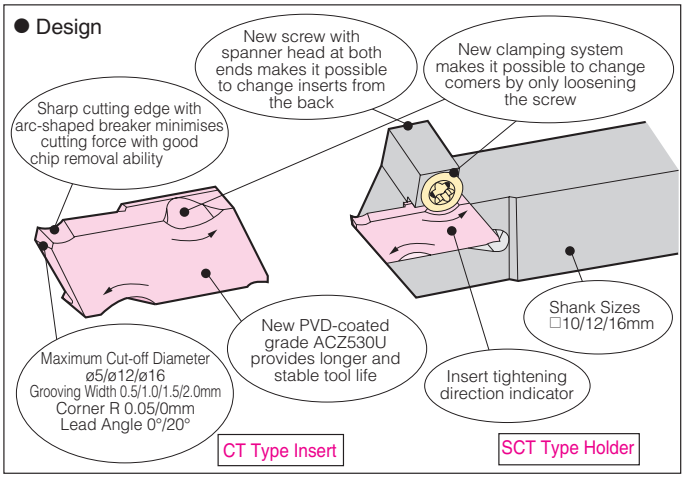
●: USA Stocked Item

★: Worldwide Warehouse Item

■ Characteristics

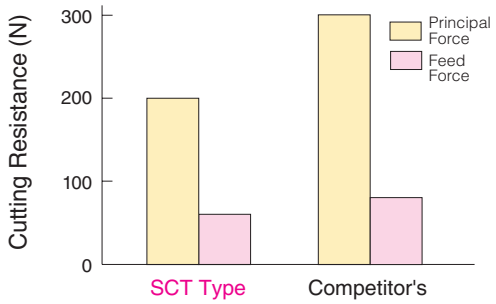
- New clamping system
  New clamping system makes it possible to change corners by only loosening the screw from the back.
- High quality surface finish
  Excellent chip removal with good surface finish even at the centre of the end face.
- Stable and long tool life
  PVD-coated grade AC530U provides stability and longer tool life.

● Design



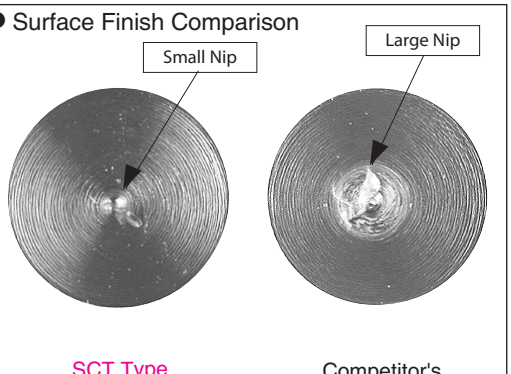
■ Comparison Test

● Wear Resistance



Work Material: S45C (ø10mm) Grooving Width: 1.5mm
V_c=60m/min *f*=0.06mm/rev Wet

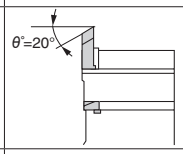
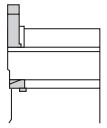
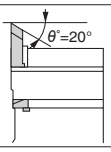
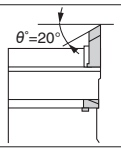
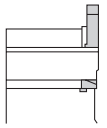
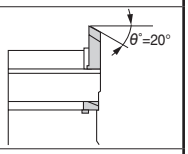
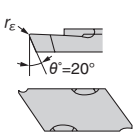
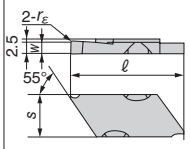
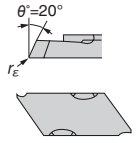
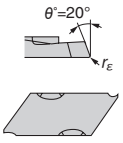
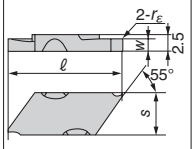
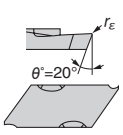
● Surface Finish Comparison



Work Material: SUS430 (ø8mm) Grooving Width: 1.0mm (handed)
V_c=45m/min *f*=0.02mm/rev Wet

Cut-off Grooving Toolholders
CTR Inserts

■ Insert and Holder Variations (Figures below show inserts with chipbreaker)

Holder Style	SCTR			SCTL		
Insert	CTRSSR	CTRSSN	CTRSSL	CTLSSR	CTLSSN	CTLSSL
Orientation						
Insert Shape & Dimensions						

■ Inserts (For Right-handed Holders)

Cat. No.	Coated Carbide AC530U			Max. Cut-off Diameter (mm)	Dimensions (mm)				Chipbreaker	Toolholder
	R	N	L		w	rε	L	s		
CTR 050505 R/N/L	★	★	★	5	0.5	0.05	19	7	Yes	SCT R1010 SCT R1212 SCT R1616
CTR 050500 R/N/L	★	★		5		0				
CTR 121005 R/N/L	★	★	★	12	1.0	0.05				
CTR 121505 R/N/L	★	★	★	12	1.5					
CTR 122005 R/N/L	★	★		12	2.0					
CTR 121000 R/N/L	★	★		12	1.0	0				
CTR 121500 R/N/L	★	★		12	1.5					
CTR 122000 R/N/L	★	★		12	2.0					
CTR 161005 R/N/L				16	1.0	0.05	23.1	8.3		SCT R1010-16 SCT R1212-16 SCT R1616-16
CTR 161505 R/N/L	★	★		16	1.5					
CTR 162005 R/N/L	★	★	★	16	2.0					
CTR 161000 R/N/L				16	1.0	0				
CTR 161500 R/N/L	★	★		16	1.5					
CTR 162000 R/N/L	★	★	★	16	2.0					
CTR 050500 R/N/L-NB				5	0.5	0	19	7	No	SCT R1010 SCT R1212 SCT R1616
CTR 121000 R/N/L-NB	★			12	1.0					
CTR 121500 R/N/L-NB	★			12	1.5					
CTR 122000 R/N/L-NB	★			12	2.0					
CTR 161000 R/N/L-NB				16	1.0		23.1	8.3		SCT R1010-16 SCT R1212-16 SCT R1616-16
CTR 161500 R/N/L-NB				16	1.5					
CTR 162000 R/N/L-NB	★			16	2.0					

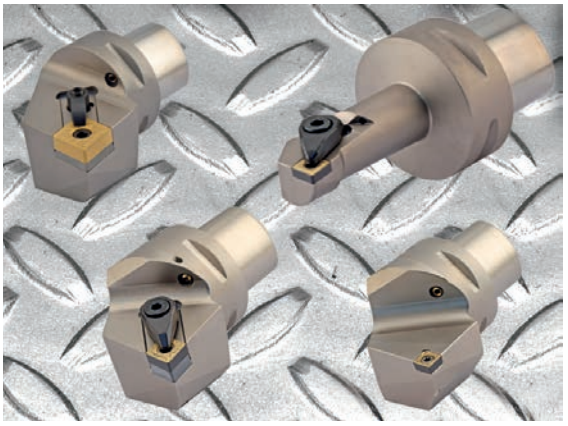
■ Inserts (For Left-handed Holders)

Cat. No.	Coated Carbide AC530U			Max. Cut-off Diameter (mm)	Dimensions (mm)				Chipbreaker	Toolholder
	R	N	L		w	rε	L	s		
CTL 050505 R/N/L	★	★		*5*	*0.5*	0.05	19	7	Yes	SCT L1010 SCT L1212 SCT L1616
CTL 050500 R/N/L	★	★		*5*		0				
CTL 121005 R/N/L	★	★	★	*12*	*1.0*	0.05				
CTL 121505 R/N/L	★	★	★	*12*	*1.5*					
CTL 122005 R/N/L	★	★		*12*	*2.0*					
CTL 121000 R/N/L	★	★		*12*	*1.0*	0				
CTL 121500 R/N/L	★	★		*12*	*1.5*					
CTL 122000 R/N/L	★	★		*12*	*2.0*					
CTL 161005 R/N/L				*16*	*1.0*	0.05	23.1	8.3		SCT L1010-16 SCT L1212-16 SCT L1616-16
CTL 161505 R/N/L	★	★		*16*	*1.5*					
CTL 162005 R/N/L	★	★	★	*16*	*2.0*					
CTL 161000 R/N/L				*16*	*1.0*	0				
CTL 161500 R/N/L	★	★		*16*	*1.5*					
CTL 162000 R/N/L	★	★		*16*	*2.0*					
CTL 050500 R/N/L-NB				*5*	*0.5*	0	19	7	No	SCT L1010 SCT L1212 SCT L1616
CTL 121000 R/N/L-NB				*12*	*1.0*					
CTL 121500 R/N/L-NB				*12*	*1.5*					
CTL 122000 R/N/L-NB				*12*	*2.0*					
CTL 161000 R/N/L-NB				*16*	*1.0*		23.1	8.3		SCT L1010-16 SCT L1212-16 SCT L1616-16
CTL 161500 R/N/L-NB				*16*	*1.5*					
CTL 162000 R/N/L-NB				*16*	*2.0*					

★ Worldwide Warehouse Item

Polygon Shank Toolholders & Bars

Pages 315-325



Polygon Shank Style Nomenclature

PSC 40- D D J

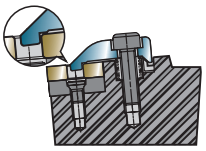
PSC	40-	D	D	J
Polygon Shank Type	Polygon Shank Size	Insert Holding	Insert Shape	Holder / Boring Bar Style

Sizes:

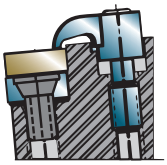
- 32 mm
- 40 mm
- 50 mm
- 63 mm

Insert Holding

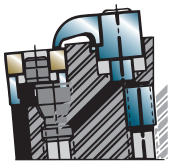
D Clamp Mechanism



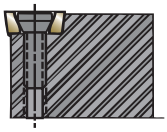
C Clamp



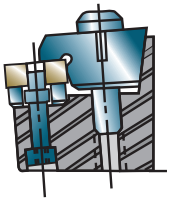
M Clamp and Lock Pin



S Screw Only



W Wedge Clamp*



Insert Shape

C	Diamond	80°
D	Diamond	55°
R	Round	360°
S	Square	90°
T	Triangle	60°
V	Diamond	35°
W	Trigon	80°

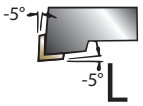
Holder / Boring Bar Style

F 0° end cutting offset shank

H -17.5° end cutting offset shank

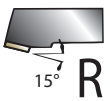
J -3° side cutting offset shank

K 15° end cutting offset shank

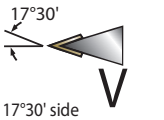


L 5° side & end cutting offset shank

N 27.5° cutting shank



R 15° side cutting offset shank



V 17°30' side cutting straight shank

All lead angles are ±1°

N

Insert Relief Angle

B 5°

C 7°

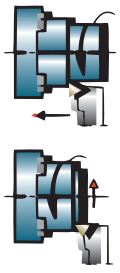
N 0°

P 11°

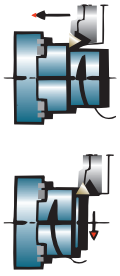
R

Hand

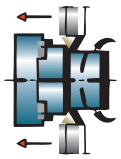
R
Right Hand



L
Left Hand



N
Neutral Hand



27

Distance from center (mm)

Holder Sizes:

22 mm
27 mm
35 mm
45 mm

Boring Bar Sizes:

11 mm
13 mm
17 mm
22 mm
27 mm

Neutral Holders f1: 0.5 mm

050

Holder Length (mm)

Holder Sizes:

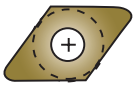
40 mm
45 mm
50 mm
60 mm
62 mm
65 mm

Boring Bar Sizes:

65 mm
70 mm
75 mm
80 mm
90 mm
100 mm
110 mm
140 mm

33

Insert Size

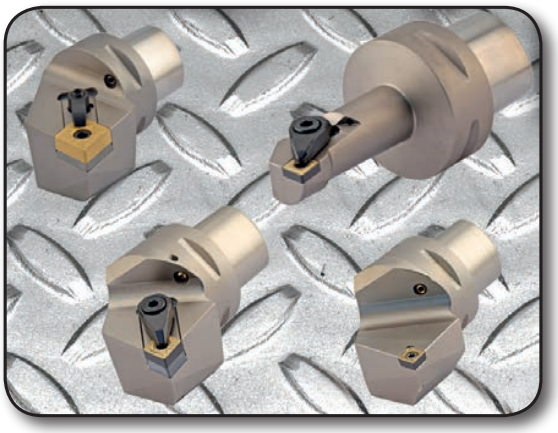


Inscribed Circle

&

Thickness

Polygon Shank Style



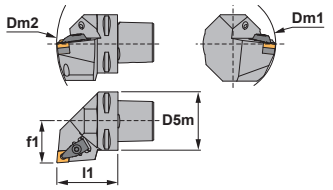
PSC- Features & Benefits

-The Sumitomo polygon shank holders enable an extremely high stiffness connection between machine and tool.
-The conical polygon can take high bending and torque moments based on the combination of the face contact to the spindle.
-This self-guiding coupling system offers high precision and repeatability
-While using this easy and quick coupling system it is possible to gain higher machine utilization time as the set-up and tool change times are reduced.
-The compact design and the high stiffness connection to the spindle offer a versatile use on multi-task machines, machining centers and turning-milling centers.
-Monoblock system
-No additional interfaces
-Precise positioning; self-guiding with high repeatability
-High stiffness supported by face contact of holder
-Carbide shims to prevent holders from damage
-Simple tool holder change and low-maintenance operation
-Internal coolant supply directly to the cutting edge
-Polygon shank and insert seat hardened for long holder life

PSC-Toolholders

DCLN 95º

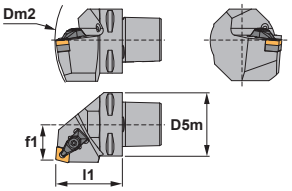
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Right	Left														
PSC32-DCLNR-22040-32	PSC32-DCLNL-22040-32	32	60	116	22.0	40.0	-6°	-6°	CN_ _32	ST-1764	ICSN-332	CL-2708	CLB-1695	SP-4294	LH030
PSC40-DCLNR-27050-32	PSC40-DCLNL-27050-32	40	60	140	27.0	50.0	-6°	-6°	CN_ _32						
PSC32-DCLNR-22045-43	PSC32-DCLNL-22045-43	32	60	121	22.0	45.0	-6°	-6°	CN_ _43	ST-1766	ICSN-442	CL-2712	CLB-1696	SP-4295	LH040
PSC40-DCLNR-27050-43	PSC40-DCLNL-27050-43	40	110	140	27.0	50.0	-6°	-6°	CN_ _43						
PSC50-DCLNR-35060-43	PSC50-DCLNL-35060-43	50	110	165	35.0	60.0	-6°	-6°	CN_ _43						
PSC63-DCLNR-45065-43	PSC63-DCLNL-45065-43	63	110	190	45.0	65.0	-6°	-6°	CN_ _43						
PSC40-DCLNR-27055-54	PSC40-DCLNL-27055-54	40	125	145	27.0	55.0	-6°	-6°	CN_ _54	ST-1768	ICSN533	CL-2716	CLB-1696	SP-4295	LH040
PSC50-DCLNR-35060-54	PSC50-DCLNL-35060-54	50	125	165	35.0	60.0	-6°	-6°	CN_ _54						
PSC63-DCLNR-45065-54	PSC63-DCLNL-45065-54	63	125	190	45.0	65.0	-6°	-6°	CN_ _54						
PSC50-DCLNR-35060-64	PSC50-DCLNL-35060-64	50	125	165	35.0	60.0	-6°	-6°	CN_ _64	ST-1770	ICSN633	CL-2719	CLB-1696	SP-4295	LH040
PSC63-DCLNR-45065-64	PSC63-DCLNL-45065-64	63	125	190	45.0	65.0	-6°	-6°	CN_ _64						

DCRN 75°

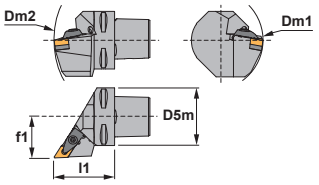
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Right	Left													
PSC40-DCRNR-22050-43	PSC40-DCRNL-22050-43	40	140	22.0	50.0	-6°	-6°	CN_ _ 43	ST-1766	ICSN-442	CL-2712	CLB-1696	SP-4295	LH040
PSC50-DCRNR-27060-43	PSC50-DCRNL-27060-43	50	165	27.0	60.0	-6°	-6°	CN_ _ 43						
PSC63-DCRNR-35065-43	PSC63-DCRNL-35065-43	63	190	35.0	65.0	-6°	-6°	CN_ _ 43						
PSC50-DCRNR-27060-54	PSC50-DCRNL-27060-54	50	165	27.0	60.0	-6°	-6°	CN_ _ 54	ST-1768	ICSN533	CL-2716	CLB-1696	SP-4295	LH040
PSC63-DCRNR-35065-54	PSC63-DCRNL-35065-54	63	190	35.0	65.0	-6°	-6°	CN_ _ 54						
PSC50-DCRNR-27060-64	PSC50-DCRNL-27060-64	50	165	27.0	60.0	-6°	-6°	CN_ _ 64	ST-1770	ICSN633	CL-2719	CLB-1696	SP-4295	LH040
PSC63-DCRNR-35065-64	PSC63-DCRNL-35065-64	63	190	35.0	65.0	-6°	-6°	CN_ _ 64						

DDJN 93°

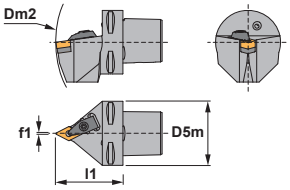
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Right	Left														
PSC32-DDJNR-22045-33	PSC32-DDJNL-22045-33	32	60	121	22.0	45.0	-6°	-7°	DN_ _ 33	ST-1764	IDSN322	CL-2708	CLB-1695	SP-4294	LH030
PSC40-DDJNR-27050-33	PSC40-DDJNL-27050-33	40	60	140	27.0	50.0	-6°	-7°	DN_ _ 33						
PSC50-DDJNR-35060-33	PSC50-DDJNL-35060-33	50	65	165	35.0	60.0	-6°	-7°	DN_ _ 33						
PSC63-DDJNR-45065-33	PSC63-DDJNL-45065-33	63	81	190	45.0	65.0	-6°	-7°	DN_ _ 33						
PSC50-DDJNR-35060-43	PSC50-DDJNL-35060-43	50	110	165	35.0	60.0	-6°	-7°	DN_ _ 43	ST-1766	IDSN443	CL-2712	CLB-1696	SP-4295	LH040
PSC63-DDJNR-45065-43	PSC63-DDJNL-45065-43	63	110	190	45.0	65.0	-6°	-7°	DN_ _ 43						

DDNN 63°

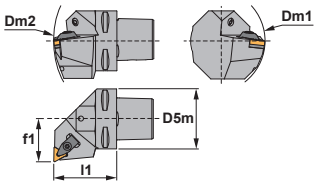
Characteristics:
PSC with internal coolant.



Catalog Number	D5m	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Neutral													
PSC40-DDNNN-00050-33	40	140	0.5	50.0	-5°	-9°	DN_ _ 33	ST-1764	IDSN322	CL-2708	CLB-1695	SP-4294	LH030
PSC50-DDNNN-00060-33	50	165	0.5	60.0	-5°	-9°	DN_ _ 33						
PSC50-DDNNN-00060-43	50	165	0.5	60.0	-5°	-9°	DN_ _ 43	ST-1766	IDSN443	CL-2712	CLB-1696	SP-4295	LH040
PSC63-DDNNN-00065-43	63	190	0.5	65.0	-5°	-9°	DN_ _ 43						

DTFN 90°

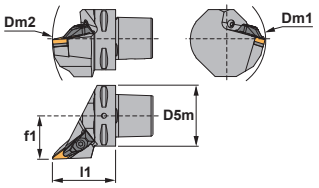
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Right	Left														
PSC63-DTFNR-45065-33	PSC63-DTFNL-45065-33	63	110	190	45.0	65.0	-6°	-6°	TN_ _ 33	ST-1764	ITSN-342	CL-2708	CLB-1695	SP-4294	LH030
PSC50-DTFNR-35060-43	PSC50-DTFNL-35060-43	50	110	165	35.0	60.0	-6°	-6°	TN_ _ 43	ST-1764	ITSN-442	CL-2712	CLB-1696	SP-4295	LH040
PSC63-DTFNR-45065-43	PSC63-DTFNL-45065-43	63	110	190	45.0	65.0	-6°	-6°	TN_ _ 43						

DVJN 93°

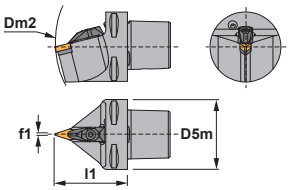
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Right	Left														
PSC40-DVJNR-27062-33	PSC40-DVJNL-27062-33	40	60	152	27.0	62.0	-6°	-13°	VN_ _ 33	ST-1764	IVSN322	CL-2708	CLB-1695	SP-4294	LH030
PSC50-DVJNR-35065-33	PSC50-DVJNL-35065-33	50	65	170	35.0	65.0	-6°	-13°	VN_ _ 33						
PSC63-DVJNR-45065-33	PSC63-DVJNL-45065-33	63	81	190	45.0	65.0	-6°	-13°	VN_ _ 33						

DVVN 72° 30'

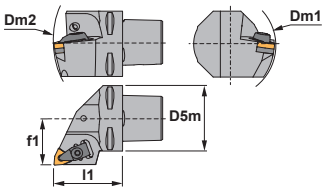
Characteristics:
PSC with internal coolant.



Catalog Number	D5m	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Neutral													
PSC40-DVVNN-00062-33	40	152	0.6	62.0	-4°	-13°	VN_ _ 33	ST-1764	IVSN322	CL-2708	CLB-1695	SP-4294	LH030
PSC50-DVVNN-00065-33	50	170	0.6	65.0	-4°	-13°	VN_ _ 33						
PSC63-DVVNN-00065-33	63	190	0.6	65.0	-4°	-13°	VN_ _ 33						

DWLN 95°

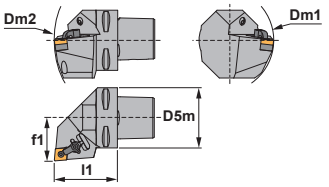
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Right	Left														
PSC32-DWLNR-22040-33	PSC32-DWLNL-22040-33	32	60	116	22.0	40.0	-6°	-6°	WN_ _ 33	ST-1764	IWSN322	CL-2708	CLB-1695	SP-4294	LH030
PSC40-DWLNR-27050-33	PSC40-DWLNL-27050-33	40	60	140	27.0	50.0	-6°	-6°	WN_ _ 33						
PSC50-DWLNR-35060-33	PSC50-DWLNL-35060-33	50	60	165	35.0	60.0	-6°	-6°	WN_ _ 33						
PSC63-DWLNR-45065-33	PSC63-DWLNL-45065-33	63	110	190	45.0	65.0	-6°	-6°	WN_ _ 33						
PSC40-DWLNR-27050-43	PSC40-DWLNL-27050-43	40	110	140	27.0	50.0	-6°	-6°	WN_ _ 43	ST-1766	IWSN433	CL-2712	CLB-1696	SP-4294	LH040
PSC50-DWLNR-35060-43	PSC50-DWLNL-35060-43	50	110	165	35.0	60.0	-6°	-6°	WN_ _ 43						
PSC63-DWLNR-45065-43	PSC63-DWLNL-45065-43	63	110	190	45.0	65.0	-6°	-6°	WN_ _ 43						

MCLN 95°

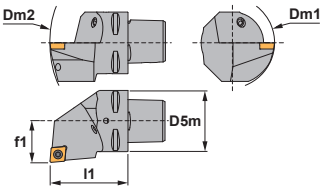
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Wrench	Wrench
Right	Left														
PSC50-MCLNR-35060-64		50	125	165	35.0	60.0	-6°	-6°	CN_ _ 64	ST-1085	ICSN633	CL-2614	PN-1673	LH030	LH040
	PSC63-MCLNL-45065-64	63	125	190	45.0	65.0	-6°	-6°	CN_ _ 64						

SCLC 95°

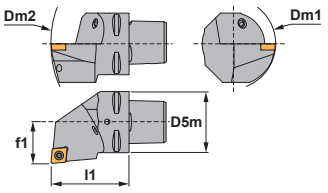
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench	Shim	Shim Screw
Right	Left												
PSC40-SCLCR-27050-32.5	PSC40-SCLCL-27050-32.5	40	80	140	27.0	50.0	0°	0°	CC_ _ 32.5	BFTX0407N	TRX15	-	-
PSC50-SCLCR-35060-32.5	PSC50-SCLCL-35060-32.5	50	80	165	35.0	60.0	0°	0°	CC_ _ 32.5				
PSC63-SCLCR-45065-32.5	PSC63-SCLCL-45065-32.5	63	80	190	45.0	65.0	0°	0°	CC_ _ 32.5				
	PSC63-SCLCL-45065-43	63	110	190	45.0	65.0	0°	0°	CC_ _ 43	BFTX0405	TRX15040	SH-3614	ST-1540

SDJC 93°

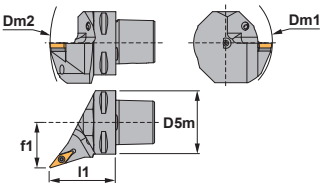
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench	Shim	Shim Screw
Right	Left												
PSC32-SDJCR-22040-32.5	PSC32-SDJCL-22040-32.5	32	110	124	22.0	40.0	0°	0°	DC_ _ 32.5	BFTX03515	TRX15	SH-3714	ST-1750
PSC40-SDJCR-27050-32.5	PSC40-SDJCL-27050-32.5	40	110	140	27.0	50.0	0°	0°	DC_ _ 32.5				
PSC50-SDJCR-35060-32.5	PSC50-SDJCL-35060-32.5	50	110	165	35.0	60.0	0°	0°	DC_ _ 32.5				
PSC63-SDJCR-45065-32.5	PSC63-SDJCL-45065-32.5	63	110	190	45.0	65.0	0°	0°	DC_ _ 32.5				

SVHB 107° 30'

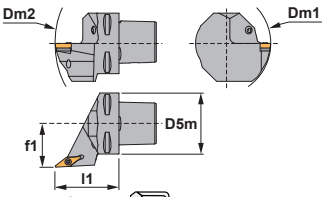
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench	Shim	Shim Screw
Right	Left												
PSC50-SVHBR-35060-33		50	110	165	35.0	60.0	0°	0°	VB_ _ 33	BFTX03515	TRX15	SH-3718	ST-1750

SVJB 93°

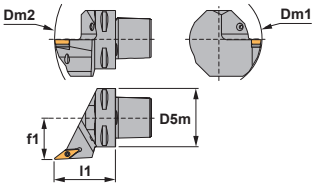
Characteristics:
PSC with internal coolant.



Catalog Number		D5m	Dm1 min. bore	Dm2 min. face relief	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench	Shim	Shim Screw
Right	Left												
PSC40-SVJBR-27050-33	PSC40-SVJBL-27050-33	40	110	145	27.0	50.0	0°	0°	VB_ _ 33	BFTX03515	TRX15	SH-3718	ST-1750
PSC50-SVJBR-35060-33	PSC50-SVJBL-35060-33	50	110	165	35.0	60.0	0°	0°	VB_ _ 33				
PSC63-SVJBR-45065-33	PSC63-SVJBL-45065-33	63	110	190	45.0	65.0	0°	0°	VB_ _ 33				

SVJC 93°

Characteristics:
PSC with internal coolant.

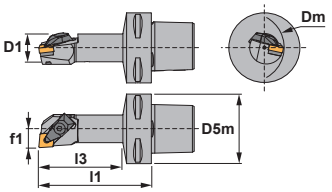


Catalog Number		D5m	Dm1 min. bore	F_1	l_1	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench	Shim	Shim Screw
Right	Left											
PSC40-SVJCR-27050-33	PSC40-SVJCL-27050-33	40	80	27.0	50.0	0°	0°	VC_ _ 33	BFTX03515	TRX15	SH-3718	ST-1750
PSC50-SVJCR-35060-33	PSC50-SVJCL-35060-33	50	80	35.0	60.0	0°	0°	VC_ _ 33				

PSC-Boring Bars

DCLN 95°

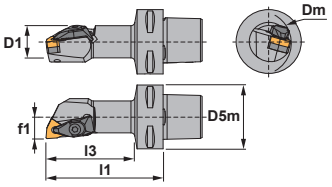
Characteristics:
PSC with internal coolant.



Catalog Number		Dm min. bore	D1	D5m	F_1	l_1	l_3	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Right	Left															
PSC40-DCLNR-13080-32	PSC40-DCLNL-13080-32	25.0	20	40	13.0	80	57	-6°	-6°	CN_ _ 32	ST-1764	ICSN-332	CL-2708	CLB-1695	SP-4294	LH030
PSC40-DCLNR-17090-43	PSC50-DCLNL-17090-43	32.0	25	40	17.0	90	68	-6°	-6°	CN_ _ 43	ST-1766	ICSN-442	CL-2712	CLB-1696	SP-4295	LH040
PSC50-DCLNR-17090-43		32.0	25	50	17.0	90	66	-6°	-6°	CN_ _ 43						
PSC63-DCLNR-17100-43	PSC63-DCLNL-17100-43	32.0	25	63	17.0	100	72	-6°	-6°	CN_ _43						
PSC63-DCLNR-27140-54	PSC63-DCLNL-27140-54	50.0	40	63	27.0	140	114	-6°	-6°	CN_ _54	ST-1768	ICSN533	CL-2716	CLB-1696	SP-4295	LH040

DWLN 95°

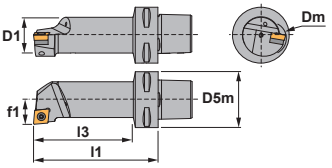
Characteristics:
PSC with internal coolant.



Catalog Number		Dm min. bore	D1	D5m	F_1	l_1	l_3	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
Right	Left															
PSC40-DWLNR-13075-33	PSC40-DWLNL-13075-33	33.0	20	40	13.0	75	52	-6°	-17°	WN_ _ 33	ST-1764	IWSN322	CL-2708	CLB-1695	SP-4294	LH030
PSC40-DWLNR-17090-43	PSC40-DWLNL-17090-43	35.0	25	40	17.0	90	68	-6°	-12°	WN_ _ 43	ST-1766	IWSN433	CL-2712	CLB-1696	SP-4294	LH040
PSC50-DWLNR-17090-43	PSC50-DWLNL-17090-43	35.0	25	50	17.0	90	66	-6°	-12°	WN_ _43						

SCLC 95°

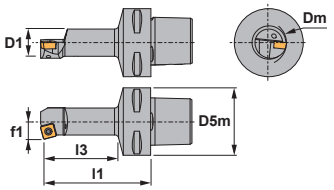
Characteristics:
PSC with internal coolant.



Catalog Number		Dm min. bore	D1	D5m	F_1	l_1	l_3	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench
Right	Left											
	PSC32-SCLCL-11065-32.5	20.0	16.0	32	11.0	65	48	0°	-12°	CC_ _ 32.5	BFTX0407N	TRX15
PSC40-SCLCR-11070-32.5	PSC40-SCLCL-11070-32.5	20.0	16.0	40	11.0	70	47	0°	-12°	CC_ _ 32.5		
PSC40-SCLCR-13080-32.5	PSC40-SCLCL-13080-32.5	25.0	20.0	40	13.0	80	58	0°	-8°	CC_ _ 32.5		
PSC40-SCLCR-17090-32.5	PSC40-SCLCL-17090-32.5	32.0	25.0	40	17.0	90	69	0°	-6°	CC_ _ 32.5		
PSC50-SCLCR-11070-32.5	PSC50-SCLCL-11070-32.5	20.0	16.0	50	11.0	70	46	0°	-12°	CC_ _ 32.5		
PSC50-SCLCR-13080-32.5	PSC50-SCLCL-13080-32.5	25.0	20.0	50	13.0	80	56	0°	-8°	CC_ _ 32.5		
PSC50-SCLCR-17090-32.5	PSC50-SCLCL-17090-32.5	32.0	25	50	17.0	90	67	0°	-6°	CC_ _ 32.5		

SSKC 75°

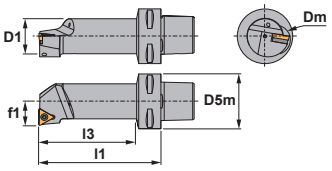
Characteristics:
PSC with internal coolant.



Catalog Number		Dm min. bore	D1	D5m	F_1	l_1	l_3	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench
Right	Left											
PSC40-SSKCR-13080-32.5	PSC40-SSKCL-13080-32.5	25.0	20	40	13.0	80	58	0°	-6°	SC_ _ 32.5	BFTX0407N	TRX15

STFC 90°

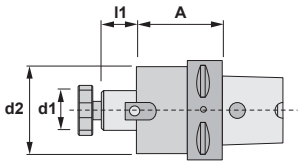
Characteristics:
PSC with internal coolant.



Catalog Number		Dm min. bore	D1	D5m	F_1	l_1	l_3	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench	Shim	Clamp Bolt
Right	Left													
PSC32-STFCR-11065-21.5	PSC32-STFCL-11065-21.5	20.0	16	32	11.0	65.0	48.0	0°	-4°	TC_ _ 21.5	BFTX02507	TRX15040	-	-
PSC32-STFCR-13075-21.5	PSC32-STFCL-13075-21.5	25.0	20	32	13.0	75.0	59.0	0°	-3°	TC_ _ 21.5				
PSC40-STFCR-11070-21.5	PSC40-STFCL-11070-21.5	20.0	16	40	11.0	70.0	47.0	0°	-4°	TC_ _ 21.5				
PSC40-STFCR-13080-21.5	PSC40-STFCL-13080-21.5	25.0	20	40	13.0	80.0	57.0	0°	-3°	TC_ _ 21.5				
PSC50-STFCR-11070-21.5	PSC50-STFCL-11070-21.5	20.0	16	50	11.0	70.0	46.0	0°	-4°	TC_ _ 21.5				
PSC50-STFCR-13080-21.5	PSC50-STFCL-13080-21.5	25.0	20	50	13.0	80.0	56.0	0°	-3°	TC_ _ 21.5				
PSC32-STFCR-17090-32.5	PSC32-STFCL-17090-32.5	32.0	25	32	17.0	90.0	74.0	0°	-3.5°	TC_ _ 32.5	BFTX0407N	TRX15	-	-
PSC40-STFCR-17090-32.5	PSC40-STFCL-17090-32.5	32.0	25	40	17.0	90.0	69.0	0°	-6°	TC_ _ 32.5				
PSC40-STFCR-22110-32.5	PSC40-STFCL-22110-32.5	40.0	32	40	22.0	110.0	89.0	0°	-10°	TC_ _ 32.5	BFTX03515	TRX15	SH-3714	ST-1750
PSC50-STFCR-17090-32.5	PSC50-STFCL-17090-32.5	32.0	25	50	17.0	90.0	67.0	0°	-6°	TC_ _ 32.5	BFTX0407N	TRX15	-	-
PSC50-STFCR-22110-32.5	PSC50-STFCL-22110-32.5	40.0	32	50	22.0	110.0	88.0	0°	-10°	TC_ _ 32.5	BFTX03515	TRX15	SH-3714	ST-1750

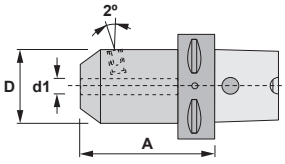
PSC-ADAPTERS

PSC Adapters



PSC Shell Mill Holders

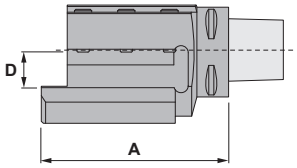
Catalog Number	Dimensions					Cap	Drive Key	Screw
	PSC	D1	L	L1	D2			
PSC50-0.75SMH	50	.750	2.756	0.709	1.693	CAP-10107	DRKEY-86207	ST-11103
PSC50-1.00SMH	50	1.000	0.984	0.709	2.126	CAP-10110	DRKEY-86210	ST-11004
PSC50-1.50SMH	50	1.50	1.772	0.906	3.150	CAP-10115	DRKEY-86215	ST-11006
PSC63-0.75SMH	63	.750	1.181	0.709	2.047	CAP-10107	DRKEY-86207	ST-11103
PSC63-1.00SMH	63	1.000	1.181	0.709	2.480	CAP-10110	DRKEY-86210	ST-11004
PSC63-1.50SMH	63	1.50	1.772	0.906	3.150	CAP-10115	DRKEY-86215	ST-11006



PSC Boring Bar Adapters

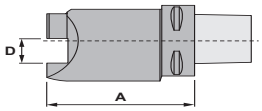
Catalog Number	Dimensions				2 x
	PSC	D1	D	L	Bolt
PSC40-0.75BBA	40	.750	1.752	2.362	BOLT-15407
PSC50-0.75BBA	50	.750	1.752	2.362	BOLT-15407
PSC50-1.00BBA	50	1.000	2.248	3.346	BOLT-15410*
PSC50-1.25BBA	50	1.250	2.480	3.347	BOLT-15410*
PSC63-0.75BBA	63	.7500	1.752	2.560	BOLT-15407
PSC63-1.00BBA	63	1.000	2.248	3.347	BOLT-15410*
PSC63-1.25BBA	63	1.250	2.480	3.347	BOLT-15410*

* has 4 bolts instead of standard 2



PSC Straight Square Shank Toolholder Adapter

Catalog Number		Dimensions					
Right	Left	PSC	Type	D	L	Clamp Bolt	Coolant Bolt
PSC50-0.75THR	PSC50-0.75THL	50	Turning toolholder for square tool left/right hand	.750	3.858	CLB-17207	COB-29708
PSC63-0.75THR	PSC63-0.75THL	63		.750	3.937	CLB-17207	COB-29708
PSC63-1.00THR	PSC63-1.00THL	63		1.000	5.118	CLB-17210	COB-29708



PSC 90° Square Shank Toolholder Adapter

Catalog Number		Dimensions					
Right	Left	PSC	Type	D	L	Clamp Bolt	Coolant Bolt
PSC50-0.75STHR	PSC50-0.75STHL	50	Turning toolholder for square tool left/right hand	.750	3.791	CLB-17207	COB-29708
PSC63-0.75STHR	PSC63-0.75STHL	63		.750	3.870	CLB-17207	COB-29708

SUMITOMO

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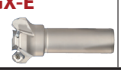
Milling Information

Pages 327-439

Indexable Milling Selection Guide

P Steel **K** Cast Iron **S** Exotic Materials
M Stainless Steel **N** Non-ferrous **H** Hardened Steel

✓: Best ❍: Good **X**: Unsuitable **Blank**: Not recommended

Milling Type	Cutter Type	Series	Insert	Lead Angle	Rake Angle Axial	Rake Angle Radial	Diameter	Application: Face Milling: General Purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Copying	Chamfering	Borning	Finishing	Applicable Work Material: P: General & Carbon Steel Alloy Steel	P: Die Steel - Tempered Steel	M: Stainless Steel	K: Cast Iron - Ductile Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy - Heat Resistant Alloy	H: Hardened Steel 45-55 HRc	Page #
Shoulder Milling	WEX-E 	WEX2000 WEX3000	AXMT12 AXMT17	0°	14° ~ 25° / 16° ~ 24°	10° ~ 18° / 8° ~ 15°	0.500" ~ 2.000"	❍			✓	✓	✓					✓	✓	✓	✓	✓	✓	✓		332
	WEX-R 	WEX2000 WEX3000		0°	23° ~ 25° / 19° ~ 24°	16° ~ 18° / 12° ~ 15°	1.500" ~ 8.000"	❍			✓	✓	✓					✓	✓	✓	✓	✓	✓	✓		-337
	WRX-E 	WRX2000 WRX3000		0°	16° ~ 24° / 20° ~ 22°	13° ~ 16° / 12° ~ 13°	1.000" ~ 2.000"	❍			✓	✓	✓					✓	✓	✓	✓	✓	✓	✓		
	WRX-R 	WRX2000 WRX3000	AXMT12 AXMT17	0°	24° / 22° ~ 24°	16° ~ 17° / 13° ~ 15°	2.500" ~ 3.000"	❍			✓	✓	✓					✓	✓	✓	✓	✓	✓	✓		338-341
	WAX 	WAX3000 WAX4000	AECT16 AECT22	0°	19° ~ 25°	6°	0.750" ~ 1.500"	❍			✓	✓	✓	✓				X	X	X	X	❍	✓		X	342-345
	WAX-E 	WAX3000 WAX4000		0°			2.500" ~ 5.000"	❍			✓	✓	✓	✓				X	X	X	X	❍	✓		X	
	TSX-R 	TSX3000 TSX4000	LNEX08 LNEX13	0°	-6°	-34° ~ -20° / -31° ~ -15°	1.500" ~ 6.000"	❍		✓	✓	✓	✓	✓				✓	✓	✓	✓				✓		346-347
	TSX-E 	TSX3000 TSX4000		0°	-6°	-34° ~ -20° / -31° ~ -15°	0.625" ~ 1.500"	❍		✓	✓	✓	✓	✓				✓	✓	✓	✓				✓		
	PWS 	PWS40000	LNMX17	0°	-5°	-15°	2.000" ~ 6.000"	❍		✓	❍	❍			✓			✓	✓	✓	✓						348-350
	WFX 	WFX4000	SOMT12	0°	8°	-8°	2.000" ~ 8.000"	❍			✓	❍						✓	❍	❍	❍						351-353
	WFX-E 	WFX12000		0°			40mm ~ 80mm	❍			✓	❍						✓	❍	❍	❍						
Face Milling	WGX-R 	WGX4000	SEMT13	45°	20° ~ 22°	-20° ~ -24°	2.000" ~ 8.000"	✓				❍			❍			✓	✓	✓	✓	✓	✓	✓		356-359
	WGX-E 	WGX4000		45°	20° ~ 22°	-20° ~ -24°	2.000" ~ 2.500"	✓				❍			❍			✓	✓	✓	✓	✓	✓	✓		

P Steel
M Stainless Steel
K Cast Iron
N Non-ferrous
S Exotic Materials
H Hardened Steel

✓: Best ❍: Good **X**: Unsuitable **Blank**: Not recommended

Indexable Milling Selection Guide

Milling Type	Cutter Type	Series	Insert	Lead Angle	Rake Angle Axial	Rake Angle Radial	Diameter	Application: Face Milling: General Purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Copying	Chamfering	Boring	Finishing	Applicable Work Material: P: General & Carbon Steel Alloy Steel	P: Die Steel - Tempered Steel	M: Stainless Steel	K: Cast Iron - Ductile Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy - Heat Resistant Alloy	H: Hardened Steel 45-55 HRc	Page #
Face Milling	DGC-R	DGC4000	SNMT13 ONMT05	45°	-5°	-10°	2.000" ~ 10.000"	✓				❍			❍			✓	✓	✓	✓	✓	✓	✓		360-363
	DGC-E	DGC4000		45°	-5°	-10°	2.000"	✓				❍			❍			✓	✓	✓	✓	✓	✓	✓		
	DFC-R	DFC2000	XNMU06	0°	-5°	-9°	2.000" ~ 8.000"	✓		✓								✓	✓	✓	✓			❍		364-367
	DFC-E	DFC2000		0°	-5°	-9°	1.000" ~ 2.500"	✓		✓								✓	✓	✓	✓			❍		
	GOALMILL	GFV5000	LNGX16	0°	-5°	-8°	4.000" ~ 8.000"		✓	✓								X	X	X	✓	X	X	X	X	368-369
	DNX	DNX4000	SNMT12	25°	-5°	-6°	3.000" ~ 8.000"	❍										❍			✓					370-371
	Spider Mill	SDP4000 SDP5000	SNMX12 SNEX15	2°	-5°	-15°	2.000" ~ 6.000"	❍			❍										✓					372
High Feed Milling	MSX-E	MSX2000 MSX3000 MSX4000	WDMT06 WDMT08 WDMT12	70°	8°	-3° ~ -8°	0.750" ~ 6.000"			❍		❍	❍					✓	✓	✓	✓				❍	374-376
	MSX-R	MSX3000 MSX4000 MSX5000	WDMT08 WDMT12 WDMT14	70°	8°	-3° ~ -8°	1.500" ~ 6.000"			❍		❍	❍					✓	✓	✓	✓				❍	
	Metal Slash Mill	MS14000	SDEW14 SDMW14	65°	10°	-5°	2.000" ~ 4.000"			✓								✓	✓	✓	✓		X		❍	377
Face Milling	RSX-R	RSX3000 RSX4000 RSX5000	RDET10 RDET12 RDET16	-	10°	-5.5°	1.000" ~ 6.000"	✓				❍	✓	✓				✓	✓	✓	✓		❍		❍	380-383
	RSX-E	RSX3000 RSX4000	RDET10 RDET12	-	10°	-5.5°	1.000" ~ 1.500"	✓				❍	✓	✓				✓	✓	✓	✓		❍		❍	Also see WRCX pg. 384-385
	WBMR	WBMR	ZNMT	-	-10°	-	0.750" ~ 2.000"					✓		✓				✓	✓	✓	✓			❍	❍	386-388
	WBMF	WBMF	ZPGU	-	0°	-	0.500" ~ 1.250"					✓		✓			✓	✓	✓	✓	✓				❍	389-390
	WMM	WMM10000 WMM16000	APMT10 APMT16	0°	7° ~ 11°	15° ~ 16°	1.000" ~ 1.500"	✓			✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓		391-392

GRADE APPLICATIONS

• for Steel & Stainless Steel

Grade	Coating	Description
ACP100	CVD	Al_2O_3 based ***"Super FF"*** coating with an ultra fine TiCN layer for high speed and wet cutting of steels and stainless steels; super tough substrate for better wear and thermal cracking resistance.
ACP200	PVD	Multi-layered ***"Super ZX"*** coating consisting of nanometer thick TiAlN and AlCrN layers, coupled with fine-grained tough substrate for excellent balance of fracture and wear resistance; for general purpose milling of steels and stainless steels.
ACP300	PVD	Multi-layered ***"Super ZX"*** coating consisting of nanometer thick TiAlN and AlCrN layers, coupled with fine-grained super tough substrate for excellent fracture resistance; ideal for interrupted machining of steels and stainless steels.

• for Cast Iron

Grade	Coating	Description
ACK100	CVD	Al_2O_3 based ***"Super FF"*** coating with an ultra fine TiCN layer provides excellent anti-adhesion and wear resistance in general purpose milling of gray and ductile cast irons.
ACK200	CVD	Al_2O_3 based ***"Super FF"*** coating with an ultra fine TiCN layer provides excellent anti-adhesion and wear resistance in general purpose milling of gray and ductile cast irons.
ACK300	PVD	Multi-layered ***"Super ZX"*** coating consisting of nanometer thick TiAlN and AlCrN layers, coupled with fine-grained super tough substrate for excellent fracture resistance; for general to interrupted machining of gray and ductile cast irons.

• for Superalloys and Stainless Steels

Grade	Coating	Description
ACM100	PVD	Multi-layered ***"Super ZX"*** coating consisting of nanometer thick TiAlN and AlCrN layers, coupled with fine-grained super tough substrate for excellent fracture resistance; for finishing of superalloys and stainless steels; excels in roughing and finishing of titanium
ACM200	CVD	Al_2O_3 based ***"Super FF"*** coating with an ultra fine TiCN layer provides excellent anti-adhesion and wear resistance in general purpose milling of superalloys and stainless steels.
ACM300	PVD	Multi-layered ***"Super ZX"*** coating consisting of nanometer thick TiAlN and AlCrN layers, coupled with fine-grained super tough substrate for excellent fracture resistance; for general to interrupted machining of superalloys and stainless steels.

• for Non-ferrous Material

Grade	Coating	Description
DL1000	DLC	***"Diamond-like Carbon"*** coated grade with exceptional wear resistance and superior surface finish capabilities when milling non-ferrous materials.
H1	J-Polish	Uncoated carbide grade with ***"J-Polish"*** to reduce chip adhesion when finish milling non-ferrous materials

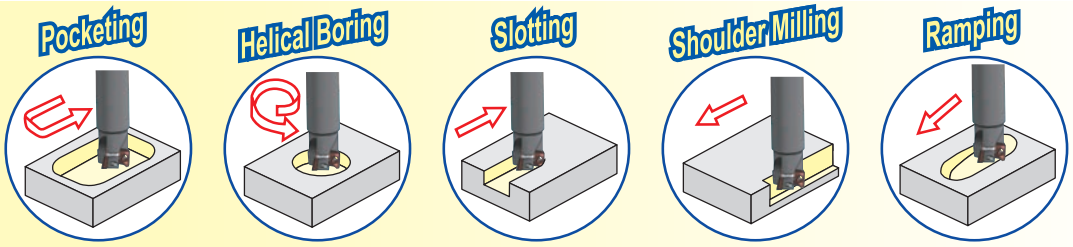
Shoulder Milling

Pages 331-353

Table of Contents

High efficiency machining due to its optimized cutting edge geometry and highly rigid body

For a wide range of applications

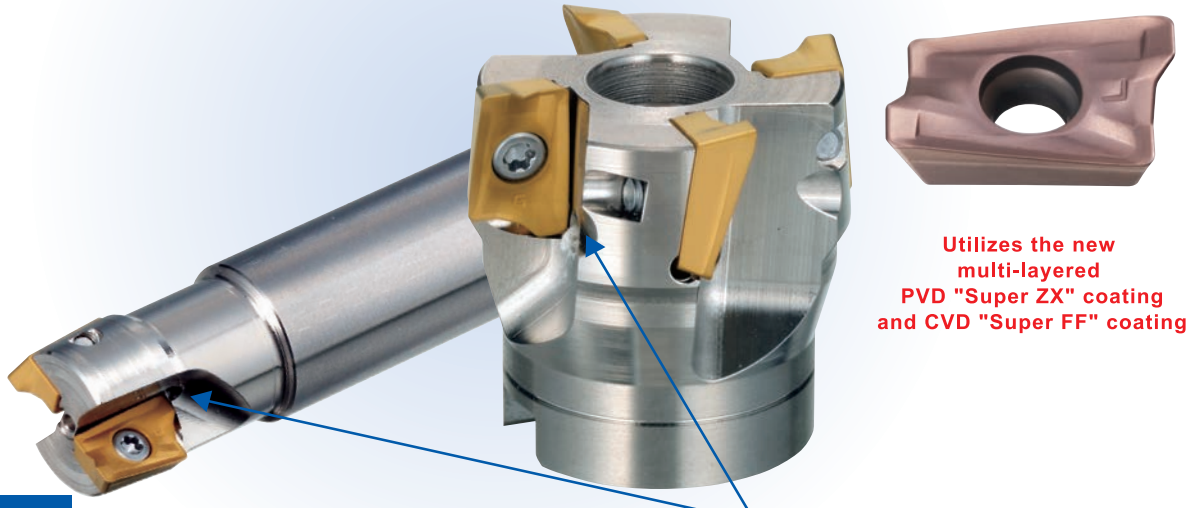


Tough, sharp and highly accurate cutting edge geometry

- The unique shape and strength of the cutting edge has improved resulting in reduced cutting forces
- Insert facet generates high quality surface finishes

Wide selection of insert geometries and grades

- Available in 6 different geometries (L, G, H,E, EH & S)
- 9 milling grades to cover a wide variety of applications



Utilizes the new multi-layered PVD "Super ZX" coating and CVD "Super FF" coating

Highly durable

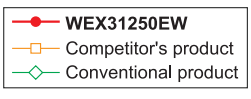
- Cutter body and insert strength provide for high feed rate capabilities

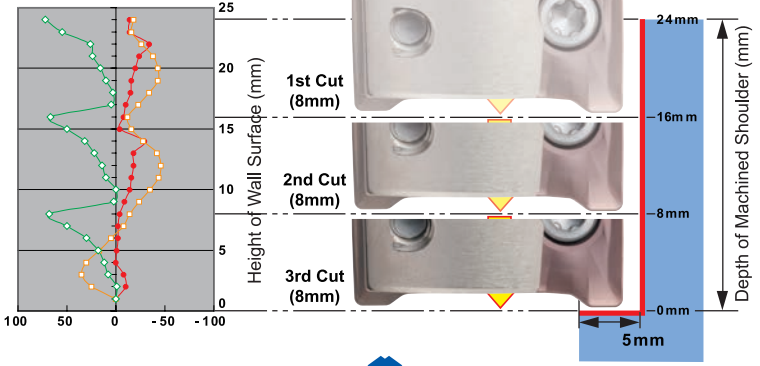
Internal Coolant Holes

- Efficient chip evacuation with coolant hole design

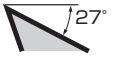
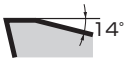
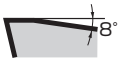
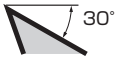
■Cutting Performance

- Shoulder accuracy generated in profile machining





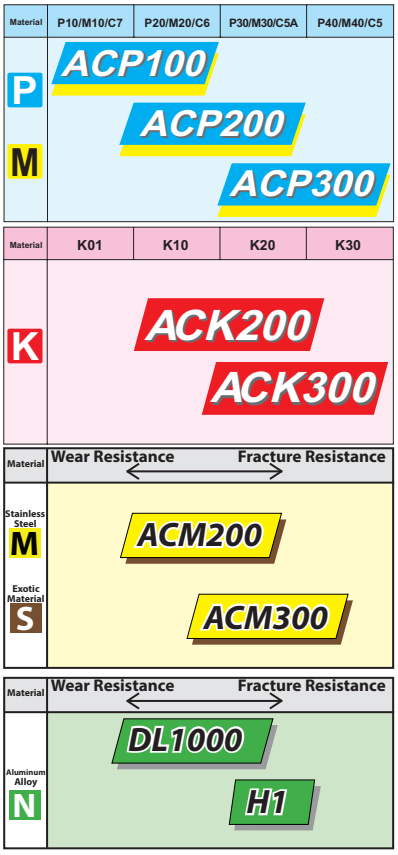
Minimal depth of cut variation due to assembly precision!

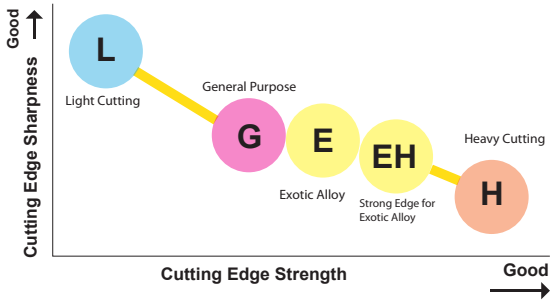
Work Material	P Steel K Cast Iron			M Stainless Steel S Exotic Alloy		N Aluminium Alloy
	L Type	G Type	H Type	E Type	EH Type	S Type
Breaker						
Feature	Low Cutting Force	General Purpose	Strong Edge	General Purpose	Strong Edge	High Rake Type
2000 Type Insert Figure	Not Available					
3000 Type Insert Figure						
Application	Light cut, low rigidity milling and reduce burrs	**Main breaker** General purpose to interrupted milling	Roughing, heavy interrupted and hardened steel milling	Light Cutting to General-Purpose	Heavy Interrupted Machining	Aluminium, Non-Ferrous Metal

■ Recommended Cutting Conditions

ISO	Material		Hardness	Grade	Depth of Cut .002 -.050	Depth of Cut .050 - .125	Depth of Cut .125 & over	Feed per Tooth
P	Low and Medium Carbon Steels		<250 Bhn	ACP100	775-1310	725-1275	675-1225	.006-.0125
				ACP200	721-1213	675-1180	600-1125	.006-.0135
				ACP300	675-1075	650-1025	525-925	.006-.014
	Medium Carbon Alloy Steels		<250 Bhn	ACP100	600-975	575-950	550-900	.006-.0095
				ACP200	550-900	525-900	500-875	.006-.0115
				ACP300	525-875	500-825	475-800	.006-.0115
	Medium-High Carbon Steels		<250 Bhn	ACP100	600-975	575-950	550-900	.006-.011
				ACP200	575-950	550-925	500-875	.006-.012
				ACP300	575-950	550-925	500-875	.006-.012
	Free Machining Steels and Alloys		<250 Bhn	ACP100	725-1300	700-1250	675-1200	.006-.0135
				ACP200	750-1325	725-1275	675-1225	.006-.0135
				ACP300	675-1075	650-1050	650-1025	.006-.014
	Tool Steels		<250 Bhn	ACP100	475-820	450-790	425-750	.0047-.010
				ACP200	450-820	435-790	425-750	.0047-.011
				ACP300	450-820	425-790	400-725	.0047-.012
			bhn 220 - 350	ACP100	400-775	400-735	400-700	.004-.009
				ACP200	425-750	400-725	375-690	.0045-.010
				ACP300	420-700	420-695	375-685	.0047-.012
			>33 Hrc	ACP100	325-650	300-625	300-590	.003-.007
				ACP200	325-650	300-625	300-590	.0045-.0095
M	Stainless Steel	Martensitic and Ferritic	<250 Bhn	ACM300	535-850	520-830	275-820	.004-.011
			>250 Bhn	ACM200	425-740	415-720	375-675	.004-.012
		Austenitic	<250 Bhn	ACM300	325-875	300-850	275-825	.004-.012
		Precipitation Hardening	<250 Bhn	ACM200	525-850	500-825	175-675	.004-.012
K	Grey Cast Iron		>250 Bhn	ACK200	700-1050	625-925	590-900	.004-.014
				ACK300	600-950	575-875	550-850	.004-.014
			<250 Bhn	ACK200	600-950	525-825	490-800	.004-.014
				ACK300	500-850	475-775	450-750	.004-.014
	Ductile Iron		>250 Bhn	ACK200	600-925	550-875	490-800	.004-.012
				ACK300	550-825	550-825	450-750	.004-.012
S	Exotic Alloys: Inconel, Hastalloy, Waspalloy, etc.			ACK200	100-160	70-150	60-135	.003-.0075
				ACK300	100-160	70-150	60-135	.004-.0075
N	Non-Ferrous Material			H1	1500-3800	1300-3700	1200-3600	.004-.014
				DL1000	1500-4500	1475-4200	1275-4100	.004-.014

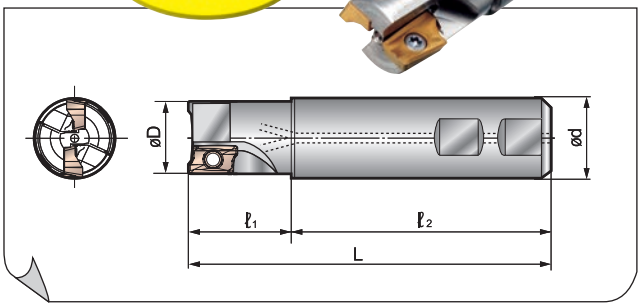
■ Application Range



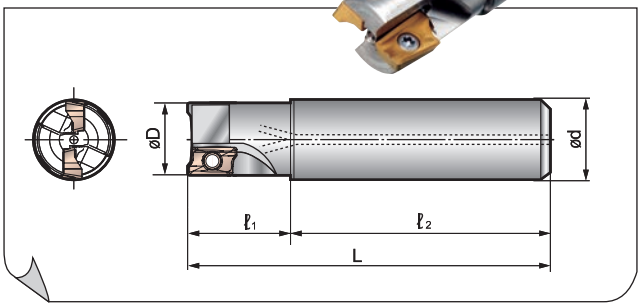


EXPANSION! SEE BELOW

■ Inch



■ Metric



WEX 2000 Endmill

Catalog Number	Stock	Dimensions (inch) D	d	L	ℓ1	ℓ2	Ramp Angle	Insert Qty.
WEX20500EW	●	0.500	0.750	3.325	1.309	2.031	5°	1
WEX20625EW	●	0.625	0.625	3.218	1.312	1.906	4°	2
WEX20625EMW	●	0.625	0.625	3.591	1.685	1.906	4°	2
WEXC20750EW	●	0.750	0.750	3.561	1.530	2.031	4°	2
WEXC20750ELC	●	0.750	0.750	8.000	3.080	6.000	4°	2
WEX20750EW	●	0.750	0.750	3.561	1.530	2.031	4°	3
WEX20750EMW	●	0.750	0.750	4.091	2.060	2.031	4°	3
WEX20750ELW	●	0.750	0.750	5.091	3.060	2.031	4°	3
NEW WEX20750ELC	●	0.750	0.750	10.000	3.080	6.920	4°	3
NEW WEXC21000EW	●	1.000	1.000	3.812	1.531	2.281	2°	3
NEW WEXC21000EMW	●	1.000	1.000	4.841	2.560	2.281	2°	3
WEX21000EW	●	1.000	1.000	3.811	1.530	2.281	2°	4
NEW WEX21000ELC	●	1.000	1.000	10.000	3.157	6.843	2°	4
WEX21250EW	●	1.250	1.250	4.531	2.250	2.281	1°30′	5

WEX2000 Inserts

Insert	P ACP100	P ACP200	P ACP300	K ACK200	K ACK300	M/S ACM200	M/S ACM300	N DL1000	N H1	Dimensions (Inches) L	W	T	R	Facet Width
AXMT123504PEERG	●	●	●	●	●					.472	.260	.138	.016	.061
AXMT123504PEERH	●	●	●	●	●					.472	.260	.138	.016	.061
AXMT123508PEERG	●	●	●	●	●					.472	.260	.138	.031	.061
AXMT123508PEERH	●	●	●	●	●					.472	.260	.138	.031	.061
AXMT123512PEERG	●	●	●	●	●					.472	.260	.138	.047	.061
AXMT123512PEERH	●	●	●	●	●					.472	.260	.138	.047	.061
AXMT123504PEERE						●	●			.472	.260	.138	.016	.061
AXMT123508PEERE						●	●			.472	.260	.138	.031	.061
AXMT123508PEEREH						●	●			.472	.260	.138	.031	.061
AXMT123512PEERE						●	●			.472	.260	.138	.047	.061
AXMT123516PEERE						●	●			.472	.260	.138	.063	.061
AXMT123524PEERE						●	●			.472	.260	.138	.094	.061
AXMT123532PEERE						●	●			.472	.260	.138	.126	.061
AXET123502PEFRS								●	●	.472	.260	.138	.008	.061
AXET123504PEFRS								●	●	.472	.260	.138	.016	.061
AXET123508PEFRS								●	●	.472	.260	.138	.031	.061

Max. Depth of Cut
AXMT12: 10mm (.394″)

• USA stocked item

WEX 2000 Endmill (Standard)

Catalog Number	Stock	Dimensions (mm) D	d	L	ℓ1	ℓ2	Ramp Angle	Insert Qty.
WEX2014E	★	14	16	80	25	55	5°	1
WEX2016E	★	16	16	100	25	75	4°	2
WEX2018E	★	18	16	100	25	75	4°	2
WEX2020E	★	20	20	110	30	80	4°	3
WEX2022E	★	22	20	110	30	80	4°	3
WEX2025E	★	25	25	120	35	85	2°	4
WEX2028E	★	28	25	120	35	85	1°30′	4
WEX2030E	★	30	25	120	35	85	1°30′	4
WEX2032E	★	32	32	130	40	90	1°30′	5
WEX2040E	★	40	32	150	30	120	1°	6
WEX2050E	★	50	32	150	30	120	0°30′	7
WEX2063E	★	63	32	150	30	120	0°30′	8

WEX 2000 Endmill (Long Type)

Catalog Number	Stock	Dimensions (mm) D	d	L	ℓ1	ℓ2	Ramp Angle	Insert Qty.
WEX2014EL	★	14	16	120	25	95	5°	1
WEX2016EL	●	16	16	145	25	120	4°	2
WEX2018EL	★	18	16	145	25	120	4°	2
WEX2020EL	★	20	20	150	40	110	4°	2
WEX2022EL	★	22	20	150	30	120	4°	2
WEX2025EL	★	25	25	170	50	120	2°	2
WEX2028EL	★	28	25	170	30	140	1°30′	2
WEX2030EL	★	30	25	170	30	140	1°30′	2
WEX2032EL	★	32	32	180	60	120	1°30′	2
WEX2040EL	★	40	32	180	30	150	1°	2

★ Worldwide Warehouse item

Hardware

Inch Cutters	Metric Cutters	Insert Screw	Insert Wrench
WEX20500-WEX20625	WEX2014-WEX2018	BFTX0305IP	TRDR08IP
WEX20750-WEX21250	WEX2020-WEX2063	BFTX0306IP	TRDR08IP

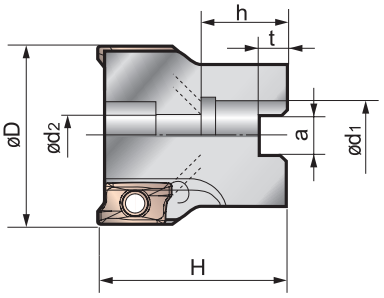
* Torque specifications for insert screw=18-22 in/lbs.

See page 333 for recommended running parameters

INCH & *METRIC*

WEX 2000

APPLICABLE INSERT: AXMT AXET



WEX 2000 Shell Mill (Inch)

Catalog Number	Stock	Dimensions (inch)							Ramp Angle	Insert Qty.
		D	d_1	d_2	a	t	H	h		
WEX21500R	•	1.500	0.750	0.406	0.312	0.187	1.562	0.750	2°	6
WEX22000R	•	2.000	0.750	0.406	0.312	0.187	1.562	0.750	1°	7
WEX22500R	•	2.500	1.000	0.531	0.375	0218	1.562	0.750	0° 30′	8

• USA stocked item

WEX 2000 Shell Mill (Metric)

Catalog Number	Stock	Dimensions (mm)							Ramp Angle	Insert Qty.
		D	d_1	d_2	a	t	H	h		
WEX2040F	★	40	16	9	8.4	5.6	40	18	2°	6
WEX2050F	★	50	22	11	10.4	6.3	40	20	1°	7
WEX2063F	★	63	22	11	10.4	6.3	40	20	0° 30′	8

★ Worldwide Warehouse item

WEX2000 Inserts

Insert	P			K		M / S		N		Dimensions (Inches)				
	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	DL1000	H1	L	W	T	R	Facet Width
AXMT123504PEERG	●	●	●	●	●					.472	.260	.138	.016	.061
AXMT123504PEERH	●	●	●	●	●					.472	.260	.138	.016	.061
AXMT123508PEERG	●	●	●	●	●					.472	.260	.138	.031	.061
AXMT123508PEERH	●	●	●	●	●					.472	.260	.138	.031	.061
AXMT123512PEERG	●	●	●	●	●					.472	.260	.138	.047	.061
AXMT123512PEERH	●	●	●	●	●					.472	.260	.138	.047	.061
AXMT123504PEERE						●	●			.472	.260	.138	.016	.061
AXMT123508PEERE						●	●			.472	.260	.138	.031	.061
AXMT123508PEEREH						●	●			.472	.260	.138	.031	.061
AXMT123512PEERE						●	●			.472	.260	.138	.047	.061
AXMT123516PEERE						●	●			.472	.260	.138	.063	.061
AXMT123524PEERE						●	●			.472	.260	.138	.094	.061
AXMT123532PEERE						●	●			.472	.260	.138	.126	.061
AXET123502PEFRS								●	●	.472	.260	.138	.008	.061
AXET123504PEFRS								●	●	.472	.260	.138	.016	.061
AXET123508PEFRS								●	●	.472	.260	.138	.031	.061

Max. Depth of Cut
AXMT12: 10mm (.394")

• USA stocked item

Hardware

Inch Cutters	Metric Cutters	Insert Screw	Insert Wrench
WEX21500-WEX22500	WEX2040-WEX2063	BFTX0306IP	TRDR08IP

* Torque specifications for insert screw=18-22 in/lbs.

Coolant Through Bolts

Catalog Number	Cutter Size
BFXH 3/8 x 1	**2.00"**
BFXH 1/2 x 1 1/4	**2.50"**
BFXH 1/2 x 1 1/4	**3.00"**
BFXH 5/8 x 1 1/4	**4.00"**
BFXH 3/4 x 1 1/2	**5.00"**

Modifications to the cutter body is required when using inserts with large nose radius (R2.0 & larger)

Modifications to be done on this corner edge.

See page 333 for recommended running parameters

INCH

WEX 3000

APPLICABLE INSERT:
AXMT
AXET

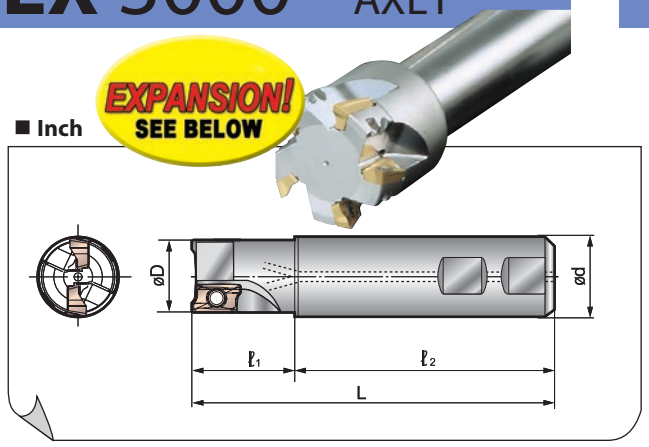
METRIC

WEX 3000

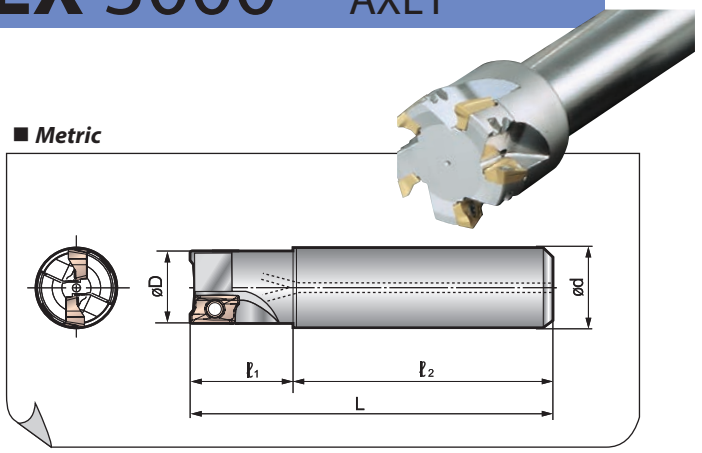
APPLICABLE INSERT:
AXMT
AXET

EXPANSION! SEE BELOW

■ Inch



■ Metric



WEX 3000 Endmill

Catalog Number	Stock	Dimensions (inch) D	d	L	ℓ1	ℓ2	Ramp Angle	Insert Qty.
WEX31000EW	●	1.000	1.000	3.811	1.530	2.281	5°	2
WEX31000EMW	●	1.000	1.000	4.841	2.560	2.281	5°	2
WEX31000ELW	●	1.000	1.000	6.341	4.060	2.281	5°	2
NEW WEX31000ELC	●	1.000	1.000	10.000	3.137	6.863	5°	2
WEX31250EW	●	1.250	1.250	4.531	2.250	2.281	3°	3
WEX31250EMW	●	1.250	1.250	6.381	4.100	2.281	3°	3
NEW WEX31250ELC	●	1.250	1.250	10.000	3.149	6.851	3°	3
NEW WEXC31500EMW	●	1.500	1.250	6.421	4.140	2.281	2°	3
WEX31500EW	●	1.500	1.250	4.531	2.250	2.281	2°	4
NEW WEX31500ELC	●	1.500	1.250	10.000	3.000	7.000	2°	4
WEX32000EW	●	2.000	1.250	4.531	2.250	2.281	2°	5

• USA stocked item

WEX 3000 Endmill (Standard)

Catalog Number	Stock	Dimensions (mm) D	d	L	ℓ1	ℓ2	Ramp Angle	Insert Qty.
WEX3025E	★	25	25	120	35	85	5°	2
WEX3032E	★	32	32	130	40	90	3°	3
WEX3040E	★	40	32	170	50	120	2°	4
WEX3050E	★	50	32	170	50	120	1°	5
WEX3063E	★	63	32	170	50	120	0°30′	6

WEX 3000 Endmill (Short Type)

Catalog Number	Stock	Dimensions (mm) D	d	L	ℓ1	ℓ2	Ramp Angle	Insert Qty.
WEX3050ES	★	50	32	135	25	110	1°	5
WEX3063ES	★	63	32	135	25	110	0°30′	6

WEX 3000 Endmill (Long Type)

Catalog Number	Stock	Dimensions (mm) D	d	L	ℓ1	ℓ2	Ramp Angle	Insert Qty.
WEX3025EL	★	25	25	170	50	120	5°	2
WEX3028EL	★	28	25	170	50	120	5°	2
WEX3030EL	★	30	25	180	60	120	5°	2
WEX3032EL	★	32	32	180	60	120	3°	2
WEX3035EL	★	35	32	180	60	120	2°	2
WEX3040EL	★	40	32	220	80	140	2°	2

WEX 3000 Endmill (Coarse Pitch)

Catalog Number	Stock	Dimensions (mm) D	d	L	ℓ1	ℓ2	Ramp Angle	Insert Qty.
WEX3040E-C	★	40	32	170	50	120	2°	3
WEX3050E-C	★	50	32	170	50	120	1°	3
WEX3063E-C	★	63	32	180	50	120	0°30'	4

WEX 3000 Endmill (Coarse Pitch & Short Type)

Catalog Number	Stock	Dimensions (mm) D	d	L	ℓ1	ℓ2	Ramp Angle	Insert Qty.
WEX3050ES-C	★	50	32	135	25	110	1°	3
WEX3063ES-C	★	63	32	135	25	110	0°30′	4

★ Worldwide Warehouse item

WEX3000 Inserts

Insert	P ACP100	P ACP200	P ACP300	K ACK200	K ACK300	M ACM200 / S	M ACM300 / S	N DL1000	N H1	Dimensions (Inches) L	W	T	R	Facet Width
AXMT170504PEERG	●	●	●	●	●					.689	.402	.219	.016	.118
AXMT170508PEERG	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170508PEERH	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170508PEERL	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170512PEERG	●	●	●	●	●					.689	.402	.219	.047	.118
AXMT170512PEERH	●	●	●	●						.689	.402	.219	.047	.118
AXMT170516PEERG	●	●	●	●	●					.689	.402	.219	.063	.118
AXMT170520PEERG	●	●	●	●	●					.689	.402	.219	.079	.118
AXMT170530PEERG	●	●	●	●	●					.689	.402	.219	.118	.118
AXMT170532PEERG		●								.689	.402	.219	.126	.118
AXMT170504PEERE						●	●			.689	.402	.219	.016	.118
AXMT170508PEERE						●	●			.689	.402	.219	.031	.118
AXMT170508PEEREH						●	●			.689	.402	.219	.031	.118
AXMT170512PEERE						●	●			.689	.402	.219	.047	.118
AXMT170516PEERE						●	●			.689	.402	.219	.063	.118
AXMT170520PEERE						●	●			.689	.402	.219	.079	.118
AXMT170524PEERE						●	●			.689	.402	.219	.094	.118
AXMT170530PEERE						●	●			.689	.402	.219	.118	.118
AXMT170531PEERE						●	●			.689	.402	.219	.122	.118
AXMT170548PEERE						●	●			.689	.402	.219	.189	.118
AXMT170563PEERE						●	●			.689	.402	.219	.248	.118
AXET170502PEFRS								●	●	.689	.402	.219	.008	.118
AXET170504PEFRS								●	●	.689	.402	.219	.016	.118
AXET170508PEFRS								●	●	.689	.402	.219	.031	.118

Max. Depth of Cut
AXMT17: 14mm (.551")

• USA stocked item

Hardware

Inch Cutters	Metric Cutters	Insert Screw	Insert Wrench
WEX31000	WEX3025	BFTX0407IP	TRDR15IP
WEX31250-WEX32000	WEX3032-WEX3063	BFTX0306IP	TRDR08IP

* Torque specifications for insert screw=27-31 in/lbs.

INCH & *METRIC*

WEX 3000

APPLICABLE INSERT: AXMT AXET

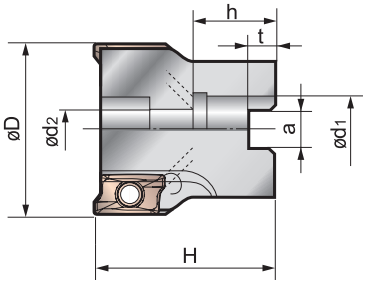
WEX 3000 Shell Mill (Inch)

Catalog Number	Stock	Dimensions (inch)							Ramp Angle	Insert Qty.	Figure
		D	d_1	d_2	a	t	H	h			
WEX32000R	●	2.000	0.750	0.406	0.312	0.187	0.156	0.750	1°	5	1
WEX32500R	●	2.500	1.000	0.531	0.375	0.218	0.156	0.750	0° 30′	6	1
WEXC33000R	●	3.000	1.000	0.531	0.375	0.218	0.156	0.750	0° 30′	5	1
WEX33000R	●	3.000	1.000	0.531	0.375	0.218	1.750	0.750	0° 30′	7	1
WEXC34000R	●	4.000	1.250	0.656	0.500	0.281	1.750	0.750	N/A	6	1
WEXC34000R-150	●	4.000	1.500	0.781	0.625	0.380	2.000	1.535	N/A	6	1
WEX34000R	●	4.000	1.250	0.656	0.500	0.281	2.461	0.750	N/A	8	1
WEX34000R-150	●	4.000	1.500	0.781	0.625	0.380	2.000	1.535	N/A	8	1
WEXC36000R	●	6.000	1.500	1.500	0.625	0.380	2.500	1.060	N/A	8	1
WEX38000R	●	8.000	2.500	2.500	1.000	0.560	2.500	1.250	N/A	12	2

WEX 3000 Shell Mill Standard Type (Metric)

Catalog Number	Stock	Dimensions (mm)							Ramp Angle	Insert Qty.
		D	d_1	d_2	a	t	H	h		
WEX3040F	★	40	16	9	8.4	5.6	40	18	2°	4
WEX3050F	★	50	22	11	10.4	6.3	40	20	1°	5
WEX3063F	★	63	22	11	10.4	6.3	40	20	0° 30′	6
WEX3080F	★	80	25.4	13	9.5	6.0	50	25	0° 30′	4
WEX3100F	★	100	31.75	-	12.7	8.0	63	-	N/A	5
WEX3125F	★	125	38.10	-	15.9	10.0	63	-	N/A	6

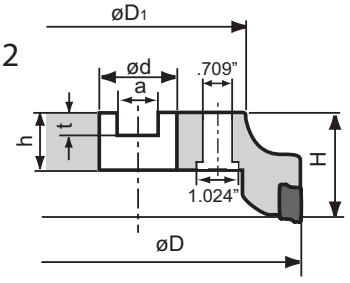
Fig 1



WEX 3000 Shell Mill Fine Pitch (Metric)

Catalog Number	Stock	Dimensions (mm)							Ramp Angle	Insert Qty.
		D	d_1	d_2	a	t	H	h		
WEX3080R	★	80	25.40	13	9.5	6	50	25	0° 30′	7
WEX3100R	★	100	31.75	-	12.7	8	63	-	N/A	8
WEX3125R	★	125	38.10	-	15.9	10	63	-	N/A	9

Fig 2



• USA stocked item

★ Worldwide Warehouse item

WEX3000 Inserts

Insert	P			K		M/S		N		Dimensions (Inches)				
	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	DL1000	H1	L	W	T	R	Facet Width
AXMT170504PEERG	●	●	●	●	●					.689	.402	.219	.016	.118
AXMT170508PEERG	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170508PEERH	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170508PEERL	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170512PEERG	●	●	●	●	●					.689	.402	.219	.047	.118
AXMT170512PEERH	●	●	●	●						.689	.402	.219	.047	.118
AXMT170516PEERG	●	●	●	●	●					.689	.402	.219	.063	.118
AXMT170520PEERG	●	●	●	●	●					.689	.402	.219	.079	.118
AXMT170530PEERG	●	●	●	●	●					.689	.402	.219	.118	.118
AXMT170532PEERG		●								.689	.402	.219	.126	.118
AXMT170504PEERE						●	●			.689	.402	.219	.016	.118
AXMT170508PEERE						●	●			.689	.402	.219	.031	.118
AXMT170508PEEREH						●	●			.689	.402	.219	.031	.118
AXMT170512PEERE						●	●			.689	.402	.219	.047	.118
AXMT170516PEERE						●	●			.689	.402	.219	.063	.118
AXMT170520PEERE						●	●			.689	.402	.219	.079	.118
AXMT170524PEERE						●	●			.689	.402	.219	.094	.118
AXMT170530PEERE						●	●			.689	.402	.219	.118	.118
AXMT170531PEERE						●	●			.689	.402	.219	.122	.118
AXMT170548PEERE						●	●			.689	.402	.219	.189	.118
AXMT170563PEERE						●	●			.689	.402	.219	.248	.118
AXET170502PEFRS								●	●	.689	.402	.219	.008	.118
AXET170504PEFRS								●	●	.689	.402	.219	.016	.118
AXET170508PEFRS								●	●	.689	.402	.219	.031	.118

• USA stocked item

Hardware

Inch Cutters	Metric Cutters	Insert Screw	Insert Wrench
WEX32000-WEX34000	WEX3040-WEX3125	BFTX0409IP	TRDR15IP

* Torque specifications for insert screw=27-31 in/lbs.

Coolant Through Bolts

Catalog Number	Cutter Size
BFXH 3/8 x 1	**2.00"**
BFXH 1/2 x 1 1/4	**2.50"**
BFXH 1/2 x 1 1/4	**3.00"**
BFXH 5/8 x 1 1/4	**4.00"**
BFXH 3/4 x 1 1/2	**5.00"**

Modifications to the cutter body is required when using inserts with large nose radius (R2.0 & larger)

Modifications to be done on this corner edge.

Max. Depth of Cut
AXMT17: 14mm (.551")
• USA stocked item

WRX Series

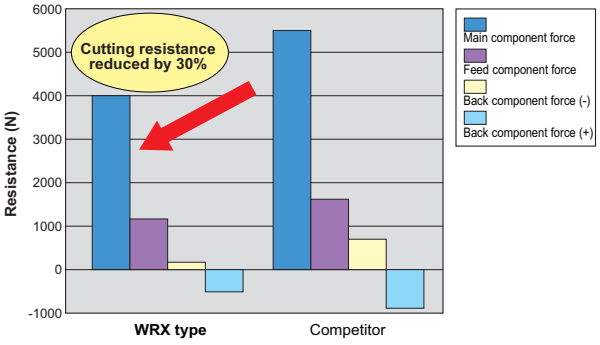
Shoulder Milling Cutters

High Efficiency Deep Shoulder WaveMill

Features & Benefits

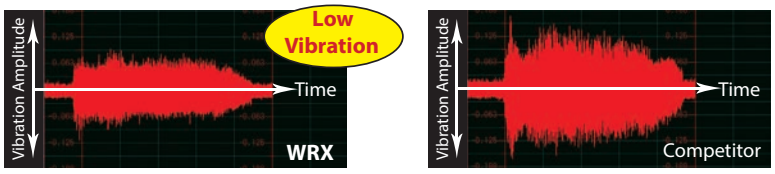
- Long cutting edges are arranged in multiple stages to enable high efficiency milling
- Optimized cutting positions provide low cutting resistance and low vibration
- Dual level cutting edge design reduces number of passes
- Lead groove and special pocket shape offer smooth chip evacuation and high body rigidity
- Low edge supporting face reduces bottom edge breakage and provides high reliability

Cutting Resistance



Material: Medium carbon steel
Tool: WRX2025E2725
SFM=330 IPT=0.006 Cutting Width=0.394
D.O.C.=1.000 Dry

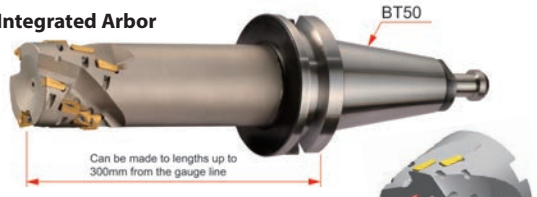
Vibration Comparison



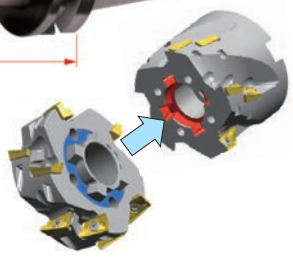
Material: Medium carbon steel
Tool: WRX3080RS5332
SFM=490 IPT=0.008 Cutting Width=0.197
D.O.C.=1.575 Dry

Special Tooling

Integrated Arbor



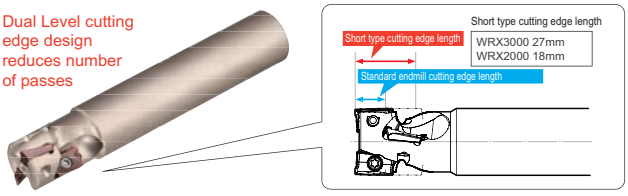
Indexable Head



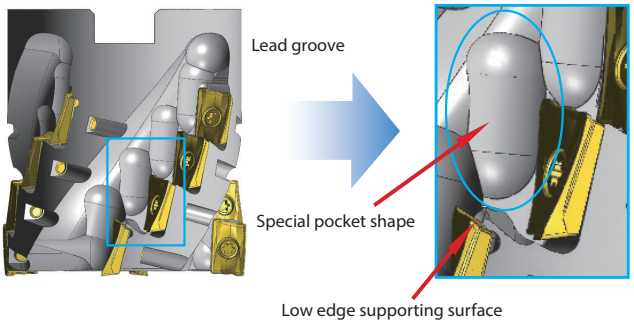
Unique Clamping Design

1) Unique claming combines spigot and drive
2) Easy position adjustment minimizes deterioration of run-out precision
3) Available as an integrated unit with an arbor

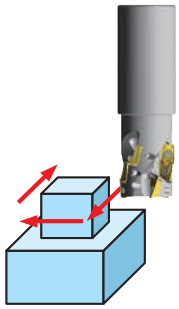
Dual Level cutting edge design reduces number of passes



Characteristics



Application Example



Part/ Work Material	Stainless Steel Part		
Tool	Manufacturer	Sumitomo	Competitor
	Body	WRX3040E4042	ø40
	Insert	AXMT170508PEERG	0.59 in (15mm)
	Grade	ACP300	PVD
	Tool Dia. in (mm)	1.57 (40)	40
	Total Teeth	9	6
	Effective Teeth	3	2
Conditions	Cutting Speed	4.92 sfm (125mm/min)	4.92 sfm (125mm/min)
	Feed	0.008 ipt (0.2 mm/t)	0.008 ipt (0.2 mm/t)
	Axial Cutting Depth	1.575 in (40mm)	1.575 in (40mm)
	Radial Cuting Depth	0.1969 in (5mm)	0.1969 in (5mm)
	Dry/Wet	Wet	Wet
Results	Tool Life/ Corner	20	5 to 10
Evaluation	Stable machining with double the competitor's tool life and no breakage		

Recommended Cutting Conditions

Tool: WRX3050E5342 Insert: AXMT170508PEER-G
D.O.C. = 1.969 in. (50 mm)
Cutting Width = 0.3937 in. (10 mm)
Dry

Classification	Work Material		Hardness (HB)	Chipbreaker	Grades																									
					ACP100			ACP200			ACP300			ACK200			ACK300			DL1000			ACM 200			ACM300		
					Feed Rate - IPT (mm/tooth)																									
					.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008
					Cutting Speed - SFM (m/min)																									
P	Carbon steel		125	G	1049 (320)	984 (300)	918 (280)	984 (300)	918 (280)	853 (260)	918 (280)	853 (260)	787 (240)																		
			190	G	787 (240)	721 (220)	656 (200)	721 (220)	656 (200)	590 (180)	656 (200)	590 (180)	524 (160)																		
	Hardened carbon steel		250	G	656 (200)	590 (180)	524 (160)	590 (180)	524 (160)	459 (140)	524 (160)	459 (140)	393 (120)																		
			270	G	524 (160)	459 (140)	393 (120)	492 (150)	426 (130)	360 (110)	426 (130)	360 (110)	328 (100)																		
			300	G	393 (120)	328 (100)	262 (80)	328 (100)	262 (80)	196 (60)	262 (80)	196 (60)	164 (50)																		
	Low alloy steel		180	G	721 (220)	656 (200)	590 (180)	656 (200)	590 (180)	557 (170)	590 (180)	557 (170)	492 (150)																		
	Hardened alloy steel		275	G	459 (140)	393 (120)	328 (100)	426 (130)	360 (110)	328 (100)	360 (110)	328 (100)	262 (80)																		
			300	G	426 (130)	360 (110)	295 (90)	360 (110)	295 (90)	262 (80)	328 (100)	262 (80)	196 (60)																		
			350	G	341 (104)	262 (80)	209 (64)	288 (88)	236 (72)	183 (56)	236 (72)	183 (56)	131 (40)																		
	High alloy steel		200	G	656 (200)	590 (180)	524 (160)	590 (180)	524 (160)	459 (140)	524 (160)	459 (140)	393 (120)																		
	Hardened high alloy steel		325	G	328 (100)	262 (80)	196 (60)	262 (80)	196 (60)	164 (50)	196 (60)	164 (50)	98 (30)																		
M	Stainless Steel	300 Series	200	G	582 SFM	517 SFM	451 SFM	484 SFM	451 SFM	385 SFM	451 SFM	385 SFM	353 SFM													625 SFM	575 SFM	525 SFM			
			240	G	484 SFM	418 SFM	353 SFM	418 SFM	353 SFM	320 SFM	353 SFM	320 SFM	254 SFM													580 SFM	525 SFM	480 SFM			
			180	G	615 SFM	549 SFM	484 SFM	549 SFM	484 SFM	451 SFM	484 SFM	451 SFM	385 SFM													650 SFM	600 SFM	550 SFM			
		Precipitation Hardening	>240																				300 ~ 800 SFM	275 ~ 775 SFM	250 ~ 750 SFM						
K	Cast iron		200	G										787 (240)	721 (220)	656 (200)	721 (220)	656 (200)	590 (180)											
	Nodular cast iron		280	G										524 (160)	459 (140)	393 (120)	459 (140)	393 (120)	328 (100)											
S	Super alloys			G										164 (50)	98 (30)		164 (50)	98 (30)												
N	Aluminum alloys																			3280 (1000)	2624 (800)	1968 (600)								

WRX Series

Rake Angle		
	Radial	13° to 16°
	Axial	16° to 24°

18 to 36mm | 0°

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminium | S Exotic Alloy | H Hardened Steel

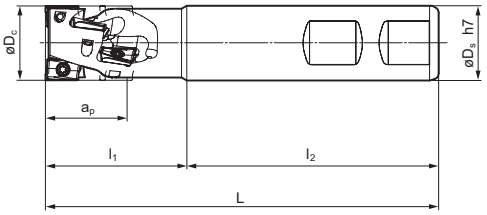
Weldon

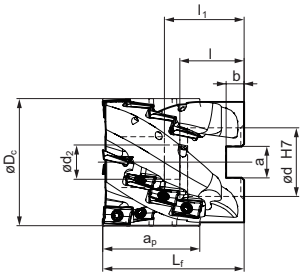
Rake Angle		
	Radial	16° to 17°
	Axial	24°

18 to 36mm | 0°

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminium | S Exotic Alloy | H Hardened Steel

Shell





WRX20000 Endmill Cutter Bodies - Weldon Shank - INCH

Catalog Number	Stock	Dimensions (inch)						Steps	Effective Teeth	Total Teeth	Weight lbs (kg)
		øDc	øDs	L	l1	l2	ap				
WRX21000E100-150	●	1.000	1.000	4.250	1.950	2.300	1.500	4	2	8	1.10 (0.5)
WRX21250E125-175	●	1.250	1.250	4.500	2.200	2.300	1.750	5	3	15	1.48 (0.7)
WRX21500E125-200	●	1.500	1.250	4.800	2.500	2.300	2.126	6	4	24	1.82 (0.8)

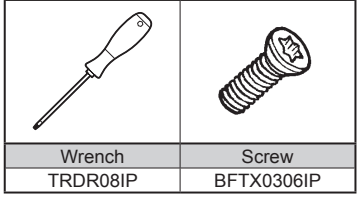
WRX2000 Shell Mill Cutter Bodies - METRIC

Catalog Number	Stock	Dimensions (mm)									Steps	Effective Teeth	Total Teeth	Weight lbs (kg)
		øDc	ød	ød2	L1	l1	l2	a	b	ap				
WRX2040RS1816*	★	40	16	9	50	28	18	8.4	5.6	18	2	5	10	0.66 (0.3)
WRX2040RS3616	★	40	16	9	55	28	18	8.4	5.6	36	4	4	16	1.10 (0.5)
WRX2050RS1822*	★	50	22	11	50	26	20	10.4	6.3	18	2	5	10	0.88 (0.4)
WRX2050RS3622	★	50	22	11	55	26	20	10.4	6.3	36	4	4	16	1.10 (0.5)

WRX2000 Endmill Cutter Bodies - METRIC

Catalog Number	Stock	Dimensions (mm)						Steps	Effective Teeth	Total Teeth	Weight lbs (kg)
		øDc	øDs	L	l1	l2	ap				
WRX2020E1820*	★	20	20	120	40	80	18	2	2	4	0.66 (.03)
WRX2020E3620	★	20	20	130	45	85	36	4	1	4	0.66 (.03)
WRX2025E1825*	★	25	25	130	45	85	18	2	3	6	0.88 (.04)
WRX2025E2725	★	25	25	130	45	85	27	3	2	6	0.88 (.04)
WRX2032E1832*	★	32	32	140	50	90	18	2	4	8	1.76 (.08)
WRX2032E2732	★	32	32	130	45	85	27	3	3	9	1.54 (.07)
WRX2040E1832*	★	40	32	160	40	120	18	2	5	10	2.43 (1.1)
WRX2040E3642	★	40	42	130	45	85	36	4	4	16	2.65 (1.2)

Hardware



Wrench	Screw
TRDR08IP	BFTX0306IP

WEX2000 Inserts

Insert

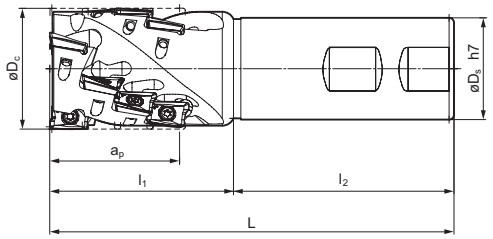
	P			K		M / S		N		Dimensions (Inches)				
	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	DL1000	H1	L	W	T	R	Facet Width
AXMT123504PEERG	●	●	●	●	●					.472	.260	.138	.016	.061
AXMT123504PEERH	●	●	●	●	●					.472	.260	.138	.016	.061
AXMT123508PEERG	●	●	●	●	●					.472	.260	.138	.031	.061
AXMT123508PEERH	●	●	●	●	●					.472	.260	.138	.031	.061
AXMT123512PEERG	●	●	●	●	●					.472	.260	.138	.047	.061
AXMT123512PEERH	●	●	●	●	●					.472	.260	.138	.047	.061
AXMT123504PEERE						●	●			.472	.260	.138	.016	.061
AXMT123508PEERE						●	●			.472	.260	.138	.031	.061
AXMT123508PEEREH						●	●			.472	.260	.138	.031	.061
AXMT123512PEERE						●	●			.472	.260	.138	.047	.061
AXMT123516PEERE						●	●			.472	.260	.138	.063	.061
AXMT123524PEERE						●	●			.472	.260	.138	.094	.061
AXMT123532PEERE						●	●			.472	.260	.138	.126	.061
AXET123502PEFRS								●	●	.472	.260	.138	.008	.061
AXET123504PEFRS								●	●	.472	.260	.138	.016	.061
AXET123508PEFRS								●	●	.472	.260	.138	.031	.061

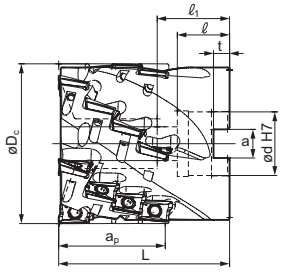
Max. Depth of Cut
AXMT12: 10mm (.394")

• USA stocked item

See page 339 for recommended running parameters

WRX Series





WRX3000 Endmill Cutter Bodies - Weldon Shank - INCH

Catalog Number	Stock	Dimensions (inch)						Steps	Effective Teeth	Total Teeth	Weight lbs (kg)
		øDc	øDs	L	l1	l2	ap				
WRX32000E125-250	●	2.000	1.250	5.000	2.700	2.300	2.500	5	3	15	2.56 (1.2)

WRX30000 Shell Mill Cutter Bodies - INCH

Catalog Number	Stock	Dimensions (inch)							Steps	Effective Teeth	Total Teeth	Weight lbs (kg)
		øDc	øDs	L	l	b	ap	a				
WRX32500R100-250	●	2.500	1.000	2.750	1.023	0.236	2.500	0.375	5	4	20	3.42 (1.6)
WRX33000R125-300	●	3.000	1.250	3.375	1.260	0.315	3.000	0.500	6	5	30	6.24 (2.8)

WRX3000 Endmill Cutter Bodies - METRIC

Catalog Number	Stock	Dimensions (mm)						Steps	Effective Teeth	Total Teeth	Weight lbs (kg)
		øDc	øDs	L	l1	l2	ap				
WRX3040E2732*	★	40	32	180	60	120	27	2	3	6	2.65 (1.2)
WRX3040E4042	★	40	42	150	65	85	40	3	3	9	2.87 (1.3)
WRX3050E2732*	★	50	32	180	60	120	32	2	4	8	3.09 (1.4)
WRX3050E5342	★	50	42	165	75	90	53	4	3	12	3.97 (1.8)

WRX3000 Shell Mill Cutter Bodies - METRIC

Catalog Number	Stock	Dimensions (mm)									Steps	Effective Teeth	Total Teeth	Weight lbs (kg)
		øDc	ød	ød2	Lf	l1	l	a	b	ap				
WRX3050RS2722*	★	50	22	11	50	26	20	10.4	6.3	27	2	4	8	0.88 (.04)
WRX3050RS5322	★	50	22	11	70	26	20	10.4	6.3	53	4	3	12	1.32 (.06)
WRX3063RS2722*	★	63	22	11	50	26	20	10.4	6.3	27	2	5	10	1.54 (.07)
WRX3063RS5327	★	63	27	13.5	70	30	23	12.4	7	53	4	4	16	2.20 (1.0)
WRX3080R27254*	★	80	25.4	13	50	31	25	9.5	6	27	2	6	12	2.43 (1.1)
WRX3080RS5332	★	80	32	17	85	36	26	14.4	8	53	4	5	20	4.85 (2.2)
WRX3100R27317*	★	100	31.75	17	63	39.5	32.5	12.7	8	27	2	7	14	4.41 (2.0)
WRX3100RS5340	★	100	40	21	85	36	30	16.4	9.5	53	4	6	24	7.72 (3.5)

WEX3000 Inserts

Insert	P			K		M/S		N		Dimensions (Inches)				
	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	DL1000	H1	L	W	T	R	Facet Width
AXMT170504PEERG	●	●	●	●	●					.689	.402	.219	.016	.118
AXMT170508PEERG	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170508PEERH	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170508PEERL	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170512PEERG	●	●	●	●	●					.689	.402	.219	.047	.118
AXMT170512PEERH	●	●	●	●						.689	.402	.219	.047	.118
AXMT170516PEERG	●	●	●	●	●					.689	.402	.219	.063	.118
AXMT170520PEERG	●	●	●	●	●					.689	.402	.219	.079	.118
AXMT170530PEERG	●	●	●	●	●					.689	.402	.219	.118	.118
AXMT170532PEERG		●								.689	.402	.219	.126	.118
AXMT170504PEERE						●	●			.689	.402	.219	.016	.118
AXMT170508PEERE						●	●			.689	.402	.219	.031	.118
AXMT170508PEEREH						●	●			.689	.402	.219	.031	.118
AXMT170512PEERE						●	●			.689	.402	.219	.047	.118
AXMT170516PEERE						●	●			.689	.402	.219	.063	.118
AXMT170520PEERE						●	●			.689	.402	.219	.079	.118
AXMT170524PEERE						●	●			.689	.402	.219	.094	.118
AXMT170530PEERE						●	●			.689	.402	.219	.118	.118
AXMT170531PEERE						●	●			.689	.402	.219	.122	.118
AXMT170548PEERE						●	●			.689	.402	.219	.189	.118
AXMT170563PEERE						●	●			.689	.402	.219	.248	.118
AXET170502PEFRS								●	●	.689	.402	.219	.008	.118
AXET170504PEFRS								●	●	.689	.402	.219	.016	.118
AXET170508PEFRS								●	●	.689	.402	.219	.031	.118

• USA stocked item

Max. Depth of Cut
AXMT17: 14mm (.551")

Hardware

Wrench	Screw
TRDR15IP	BFTX0409IP

● = USA Stocked Item ★ = Worldwide Warehouse Item

*Short Cutting Edge Type

See page 339 for recommended running parameters

Features & Benefits

WAX WaveMill cutters are high speed and high efficiency endmills capable of rough milling to finishing of non-ferrous metals such as Aluminium alloys.

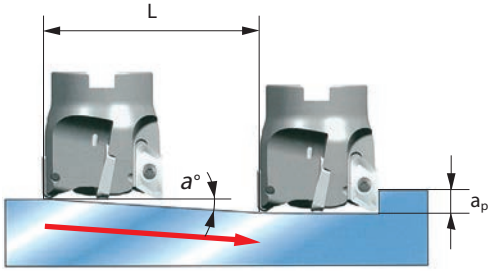
■ Characteristics

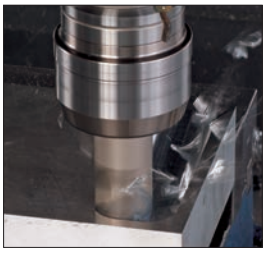
- Ideal for ramping (slant milling) and helical milling
- Safety-oriented design prevents dislodging of inserts caused by centrifugal forces
- Coolant holes are a standard feature for the WAX series
- Excellent adhesion resistance
- Top rake face of the insert has a polished finish
- DLC Coat inserts are available for improved adhesion resistance

■ Ramping (Slant Milling)

Maximum ramping angle (α° max.) depends on cutter diameter. Minimum milling length (L min) is the ramping distance required to reach the maximum cutting depth (a_p max) at the maximum ramping angle of that cutter.
Minimum milling length (L) for any depth can be calculated by the equation below:

$$L = \frac{a_p}{\tan a} \text{ (mm)}$$

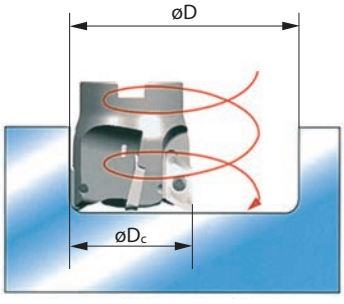




■ Ramping (Slant Milling) Angles

Cutter Diameter øDc(mm)	Max. Ramping Angle α° max	
	WAX3000 Type	WAX4000 Type
20	8°	
25	17°	6°
32	12°	18°30′
40	9°	13°
50	7°	9°30′
63	5°	7°
80	3°	5°
100	3°	4°
125	2°	3°

■ Helical Milling



■ Helical Milling Diameter

Cutter Diameter øDc(mm)	WAX3000 Type		WAX4000 Type	
	Minimum Diameter	Maximum Diameter	Minimum Diameter	Maximum Diameter
20	22	33		
25	29	43	24	43
32	43	57	38	57
40	59	73	54	73
50	79	93	74	93
63	105	119	100	119
80	139	153	134	153
100	179	193	174	193
125	229	243	224	243

Max. Allowable Spindle Speed

Cutter Diameter øDc(mm)	WAX3000 Type		WAX4000 Type	
	n max(min⁻¹)	vc(m/min)	n max(min⁻¹)	vc (m/min)
20	14,000	880		
25	29,000	2,200	11,000	860
32	25,000	2,500	9,000	900
40	23,000	2,900	20,000	2,500
50	20,000	3,100	18,000	2,800
63	18,000	3,500	16,000	3,100
80	16,000	4,000	14,000	3,500
100	14,000	4,400	12,000	3,700
125	13,000	5,100	11,000	4,300

The n max speeds are set to prevent the inserts from dislodging by centrifugal forces.

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min.- **Optimum** -Max.	Feed Rate f_z (mm/t) Min.- **Optimum** -Max.	Grade
N	Aluminium Alloy	-	600-**900**-1200	0.05-**0.15**-0.25	DL1000

WAX 3000 Series

Rake Angle		
	Radial	6°
	Axial	19° to 25°

16 to 18mm, 0°

P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Mtl	N Aluminum	S Exotic Alloy	H Hardened Steel
X	X	X	○	●		X

WAX 4000 Series

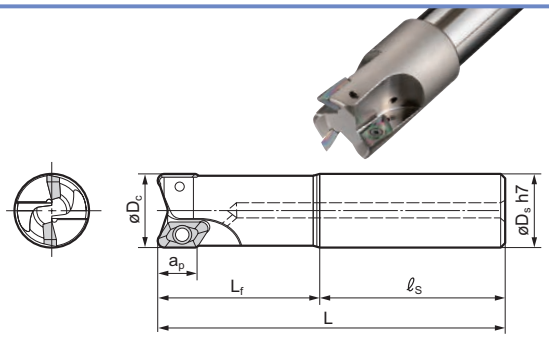
Rake Angle		
	Radial	6°
	Axial	19° to 25°

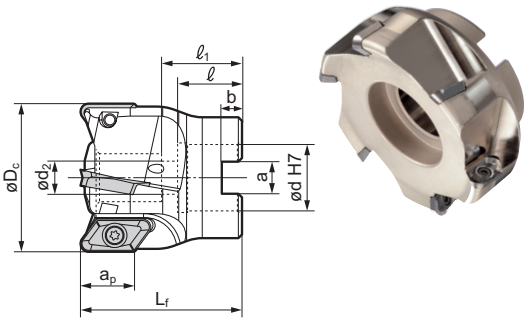
22 to 24mm, 0°

P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Mtl	N Aluminum	S Exotic Alloy	H Hardened Steel
X	X	X	○	●		X

WAX 3000/4000/INCH

Applicable Insert: AECT





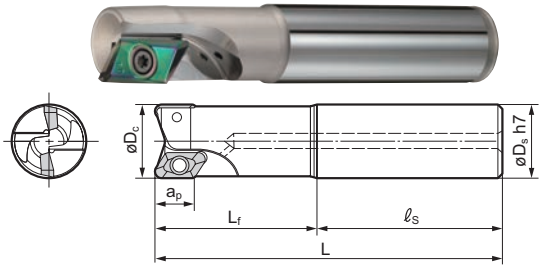
WAX 3000 Endmill Cutter Bodies - INCH

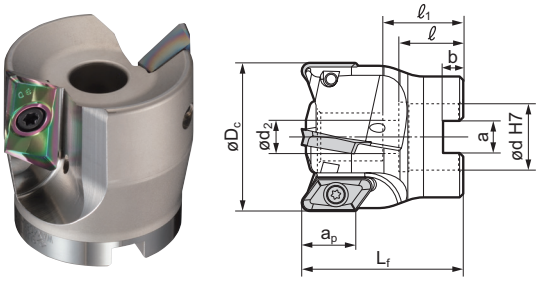
Catalog Number	Dc	Ds	OAL	Lf	ls	No. of teeth
WAX30750EW-3.2	0.750	0.750	4.281	2.000	2.281	1
WAX30750ELC-3.2	0.750	0.750	8.000	2.000	6.000	1
WAX31000EW-3.2	1.000	1.000	4.781	2.500	2.281	2
WAX31000ELC-3.2	1.000	1.000	10.000	2.500	7.500	2
WAX31250EW-3.2	1.250	1.250	4.781	2.500	2.281	2
WAX31250ELC-3.2	1.250	1.250	10.000	2.500	7.500	2
WAX31500EW-3.2	1.500	1.500	4.781	2.500	2.281	3
WAX31500ELC-3.2	1.500	1.500	10.000	2.500	7.500	3
WAX30750EW-4.0	0.750	0.750	4.281	2.000	2.281	1
WAX30750EW-4.0	0.750	0.750	8.000	2.000	6.000	1
WAX31000EW-4.0	1.000	1.000	4.281	2.000	2.281	2
WAX31000ELC-4.0	1.000	1.000	10.000	2.500	7.500	2
WAX31250EW-4.0	1.250	1.250	4.781	2.500	2.281	2
WAX31250ELC-4.0	1.250	1.250	10.000	2.500	7.500	2
WAX31500EW-4.0	1.500	1.500	4.781	2.500	2.281	3
WAX31500ELC-4.0	1.500	1.500	10.000	2.500	7.500	4

WAX 3000 Shell Mill Cutter Bodies - INCH

Catalog Number	φDc	Φd	φd2	φd1	L1	a	b	l	No. of teeth
WAX32000-3.2	2.000	0.750	0.406	0.630	1.750	0.312	0.220	0.787	4
WAX32500-3.2	2.500	1.000	0.531	0.630	1.750	0.375	0.220	0.787	5
WAX33000-3.2	3.000	1.000	0.531	1.260	2.000	0.375	0.248	0.866	5
WAX34000-3.2	4.000	1.250	0.656	1.220	2.500	0.500	0.394	1.181	6
WAX35000-3.2	5.000	1.500	0.656	1.220	2.500	0.625	0.394	1.181	7
WAX32000-4.0	2.000	0.750	0.406	0.630	1.750	0.312	0.220	0.787	4
WAX32500-4.0	2.500	1.000	0.531	0.630	1.750	0.375	0.220	0.787	4
WAX33000-4.0	3.000	1.000	0.531	1.260	2.000	0.375	0.248	0.866	5
WAX34000-4.0	4.000	1.250	0.656	1.220	2.500	0.500	0.394	1.181	6
WAX35000-4.0	5.000	1.500	0.656	1.220	2.500	0.625	0.394	1.181	7

All WAX inch size cutters and applicable inserts are USA stocked items (please see page 344 for inserts).
Holders with -3.2 suffix are for inserts with a radius of 3.2mm and below.
Holders with -4.0 suffix are for inserts with a radius of 4.0mm and above.





WAX 4000 Endmill Cutter Bodies - INCH

Catalog Number	Dc	Ds	OAL	Lf	ls	No. of teeth
WAX41000EW-3.2	1.000	1.000	4.781	2.500	2.281	1
WAX41000ELC-3.2	1.000	1.000	10.000	2.500	7.500	1
WAX41250EW-3.2	1.250	1.250	4.781	2.500	2.281	1
WAX41250ELC-3.2	1.250	1.250	10.000	2.500	7.500	1
WAX41500EW-3.2	1.500	1.500	4.781	2.500	2.281	2
WAX41500ELC-3.2	1.500	1.500	10.000	2.500	7.500	2
WAX41000EW-4.0	1.000	1.000	4.781	2.500	2.281	1
WAX41000ELC-4.0	1.000	1.000	10.000	2.500	7.500	1
WAX41250EW-4.0	1.250	1.250	4.781	2.500	2.281	1
WAX41250ELC-4.0	1.250	1.250	10.000	2.500	7.500	1
WAX41500EW-4.0	1.500	1.500	4.781	2.500	2.281	2
WAX41500ELC-4.0	1.500	1.500	10.000	2.500	7.500	2

WAX4000 Shell Mill Cutter Bodies - INCH

Catalog Number	φDc	Φd	φd2	φd1	L1	a	b	l	No. of teeth
WAX42000-3.2	2.000	0.750	0.406	0.630	2.000	0.312	0.220	0.787	2
WAX42500-3.2	2.500	1.000	0.531	0.630	2.000	0.375	0.220	0.787	3
WAX43000-3.2	3.000	1.000	0.531	1.260	2.000	0.375	0.248	0.866	4
WAX44000-3.2	4.000	1.250	0.656	1.220	2.500	0.500	0.394	1.181	5
WAX45000-3.2	5.000	1.500	0.656	1.220	2.500	0.625	0.394	1.181	6
WAX42000-4.0	2.000	0.750	0.406	0.630	2.000	0.312	0.220	0.787	2
WAX42500-4.0	2.500	1.000	0.531	0.630	2.000	0.375	0.220	0.787	3
WAX43000-4.0	3.000	1.000	0.531	1.260	2.000	0.375	0.248	0.866	4
WAX44000-4.0	4.000	1.250	0.656	1.220	2.500	0.500	0.394	1.181	5
WAX45000-4.0	5.000	1.500	0.656	1.220	2.500	0.625	0.394	1.181	6

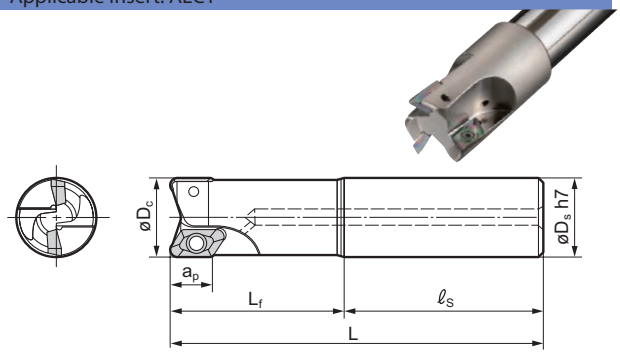
All WAX inch size cutters and applicable inserts are USA stocked items (please see page 344 for inserts).

WAX 3000/METRIC

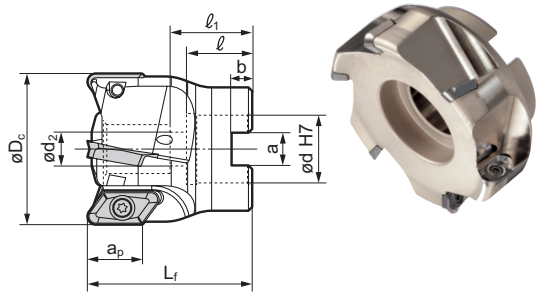
Applicable Insert: AECT

Shoulder Milling Cutters

High Speed & Efficiency Non-ferrous WaveMill



See insert table for "a_p".



See insert table for "a_p".

WAX 3000E/3000EL *(For inserts with nose radius 3.2mm and below)*

Catalog Number	Stock	Dimensions (mm) øDc	øDs	L	Lf	ℓs	No. of Teeth	Weight (kg)
WAX 3020E-3.2	★	20	20	130	60	70	1	0.25
WAX 3025E-3.2	★	25	25	140	60	80	2	0.42
WAX 3025EL-3.2	★	25	25	200	60	140	2	0.63
WAX 3032E-3.2	★	32	32	150	70	80	2	0.75
WAX 3032EL-3.2	★	32	32	220	70	150	2	1.2
WAX 3040E-3.2	★	40	32	160	70	90	3	1.0
WAX 3040EL-3.2	★	40	32	220	70	150	3	1.4

★ = Worldwide Warehouse Item

WAX 3000E/3000EL *(For inserts with nose radius 4.0mm and above)*

Catalog Number	Stock	Dimensions (mm) øDc	øDs	L	Lf	ℓs	No. of Teeth	Weight (kg)
WAX 3020E-4.0	★	20	20	130	60	70	1	0.25
WAX 3025E-4.0	★	25	25	140	60	80	2	0.42
WAX 3025EL-4.0	★	25	25	200	60	140	2	0.63
WAX 3032E-4.0	★	32	32	150	70	80	2	0.75
WAX 3032EL-4.0	★	32	32	220	70	150	2	1.2
WAX 3040E-4.0	★	40	32	160	70	90	3	1.0
WAX 3040EL-4.0	★	40	32	220	70	150	3	1.4

★ = Worldwide Warehouse Item

WAX 3000 *(For inserts with nose radius 3.2mm and below)*

Catalog Number	Stock	Dimensions (mm) øDc	ød	Lf	ød2	a	b	ℓ	ℓ1	No. of Teeth	Weight (kg)
WAX 3050-3.2	★	50	22	50	11	10.4	6.3	21	26	4	0.34
WAX 3063-3.2	★	63	22	50	11	10.4	6.3	21	26	5	0.6
WAX 3080-3.2	★	80	25.4	50	14	9.5	6	25	31	5	1.0
WAX 3100-3.2	★	100	31.75	63	17	12.7	8	32	39	6	2.2
WAX 3125-3.2	★	125	38.1	63	21	15.9	10	35	40	7	3.5

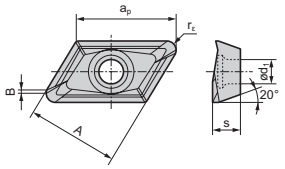
★ = Worldwide Warehouse Item

WAX 3000 *(For inserts with nose radius 4.0mm and above)*

Catalog Number	Stock	Dimensions (mm) øDc	ød	Lf	ød2	a	b	ℓ	ℓ1	No. of Teeth	Weight (kg)
WAX 3050-4.0	★	50	22	50	11	10.4	6.3	21	26	4	0.34
WAX 3063-4.0	★	63	22	50	11	10.4	6.3	21	26	4	0.6
WAX 3080-4.0	★	80	25.4	50	14	9.5	6	25	31	5	1.0
WAX 3100-4.0	★	100	31.75	63	17	12.7	8	32	39	6	2.2
WAX 3125-4.0	★	125	38.1	63	21	15.9	10	35	40	7	3.5

★ = Worldwide Warehouse Item

Inserts (for all WAX 3000 Endmills)



● = USA Stocked Item

Catalog Number	Carbide H1	DLC DL1000	Dimensions - In. *(mm)* ap	A	B	rε	s	ød1
AECT 160404PEFRA	●	●	0.708 *(18)*	0.6456 *(16.4)*	0.055 *(1.4)*	0.016 *(0.4)*	0.1968 *(5)*	0.1732 *(4.4)*
AECT 160408PEFRA	●	●	0.708 *(18)*	0.6456 *(16.4)*	0.039 *(1.0)*	0.031 *(0.8)*	0.1968 *(5)*	0.1732 *(4.4)*
AECT 160412PEFRA	●	●	0.708 *(18)*	0.6456 *(16.4)*	0.023 *(0.6)*	0.047 *(1.2)*	0.1968 *(5)*	0.1732 *(4.4)*
AECT 160416PEFRA	●	●	0.689 *(17.5)*	0.6456 *(16.4)*	0.020 *(0.5)*	0.063 *(1.6)*	0.1968 *(5)*	0.1732 *(4.4)*
AECT 160420PEFRA	●	●	0.689 *(17.5)*	0.6456 *(16.4)*	0.020 *(0.5)*	0.079 *(2.0)*	0.1968 *(5)*	0.1732 *(4.4)*
AECT 160430PEFRA	●	●	0.669 *(17)*	0.6456 *(16.4)*	0.028 *(0.7)*	0.118 *(3.0)*	0.1968 *(5)*	0.1732 *(4.4)*
AECT 160432PEFRA	●	●	0.669 *(17)*	0.6456 *(16.4)*	0.020 *(0.5)*	0.126 *(3.2)*	0.1968 *(5)*	0.1732 *(4.4)*
AECT 160440PEFRA	●	●	*16.5*	0.6456 *(16.4)*	0.020 *(0.5)*	**0.157 *(4.0)***	0.1968 *(5)*	0.1732 *(4.4)*
AECT 160450PEFRA	●	●	0.630 *(16)*	0.6456 *(16.4)*	0.016 *(0.4)*	**0.197 *(5.0)***	0.1968 *(5)*	0.1732 *(4.4)*

rε=4.0 or greater are for use with bodies that have a -4.0 cat. no. suffix.

Hardware (for all WAX 3000 Endmills)

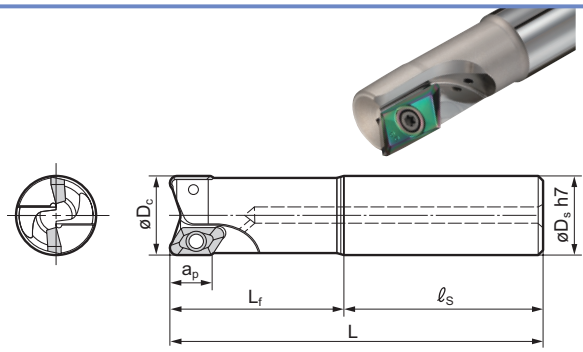
Screw	Spanner	Anti-seize Paste	Recommended Tightening Torque (N-m)	Applicable Endmill
			3.0	
BFTX0408	TRD15	SUMI-P		WAX3000 WAX3000E/EL

See page 342 for recommended running parameters

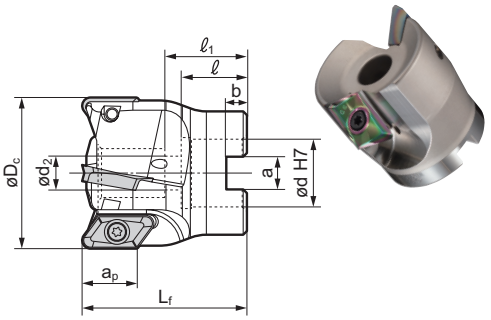
NOTE: 3.2 bodies / .125 Radius or less
4.0 bodies / over .125 Radius
on inserts

WAX 4000/METRIC

Applicable Insert: AECT



See insert table for "a_p".



See insert table for "a_p".

WAX 4000E/4000EL *(For inserts with nose radius 3.2mm and below)*

Cat. No.	Stock	Dimensions (mm) øDc	øDs	L	Lf	ℓs	No. of Teeth	Weight (kg)
WAX 4025E-3.2	★	25	25	140	60	80	1	0.41
WAX 4025EL-3.2	★	25	25	200	60	140	1	0.63
WAX 4032E-3.2	★	32	32	150	70	80	1	0.72
WAX 4032EL-3.2	★	32	32	220	70	150	1	1.2
WAX 4040E-3.2	★	40	32	160	70	90	2	0.88
WAX 4040EL-3.2	★	40	32	220	70	150	2	1.2

★ = Worldwide Warehouse Item

WAX 4000 *(For inserts with nose radius 3.2mm and below)*

Cat. No.	Stock	Dimensions (mm) øDc	ød	Lf	ød2	a	b	ℓ	ℓ1	No. of Teeth	Weight (kg)
WAX 4050-3.2	★	50	16	50	9	8.4	5.6	18	23	2	0.37
WAX 4063-3.2	★	63	22	50	11	10.4	6.3	21	26	3	0.54
WAX 4080-3.2	★	80	25.4	50	14	9.5	6	25	31	4	0.81
WAX 4100-3.2	★	100	31.75	63	17	12.7	8	32	39	5	1.7
WAX 4125-3.2	★	125	38.1	63	21	15.9	10	35	40	6	2.6

★ = Worldwide Warehouse Item

WAX 4000E/4000EL *(For inserts with nose radius 4.0mm and above)*

Cat. No.	Stock	Dimensions (mm) øDc	øDs	L	Lf	ℓs	No. of Teeth	Weight (kg)
WAX 4025E-4.0	★	25	25	140	60	80	1	0.41
WAX 4025EL-4.0	★	25	25	200	60	140	1	0.63
WAX 4032E-4.0	★	32	32	150	70	80	1	0.72
WAX 4032EL-4.0	★	32	32	220	70	150	1	1.2
WAX 4040E-4.0	★	40	32	160	70	90	2	0.88
WAX 4040EL-4.0	★	40	32	220	70	150	2	1.2

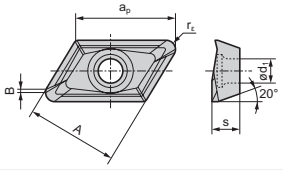
★ = Worldwide Warehouse Item

WAX 4000 *(For inserts with nose radius 4.0mm and above)*

Cat. No.	Stock	Dimensions (mm) øDc	ød	Lf	ød2	a	b	ℓ	ℓ1	No. of Teeth	Weight (kg)
WAX 4050-4.0	★	50	16	50	9	8.4	5.6	18	23	2	0.37
WAX 4063-4.0	★	63	22	50	11	10.4	6.3	21	26	3	0.54
WAX 4080-4.0	★	80	25.4	50	14	9.5	6	25	31	4	0.81
WAX 4100-4.0	★	100	31.75	63	17	12.7	8	32	39	5	1.7
WAX 4125-4.0	★	125	38.1	63	21	15.9	10	35	40	6	2.6

★ = Worldwide Warehouse Item

Inserts (for all WAX 4000 Endmills)



● = USA Stocked Item

Catalog Number	Carbide H1	DLC DL1000	Dimensions - In. (mm) ap	A	B	rε	s	ød1
AECT 220604PEFRA	●	●	0.945 (24)	0.8563 (21.8)	0.059 (1.5)	0.016 (0.4)	0.250 (6.35)	0.236 (6.0)
AECT 220608PEFRA	●	●	0.945 (24)	0.8563 (21.8)	0.047 (1.2)	0.031 (0.8)	0.250 (6.35)	0.236 (6.0)
AECT 220612PEFRA	●	●	0.945 (24)	0.8563 (21.8)	0.031 (0.8)	0.047 (1.2)	0.250 (6.35)	0.236 (6.0)
AECT 220616PEFRA	●	●	0.945 (24)	0.8563 (21.8)	0.016 (0.4)	0.063 (1.6)	0.250 (6.35)	0.236 (6.0)
AECT 220620PEFRA	●	●	0.945 (24)	0.8563 (21.8)	0.020 (0.5)	0.079 (2.0)	0.250 (6.35)	0.236 (6.0)
AECT 220630PEFRA	●	●	0.905 (23)	0.8563 (21.8)	0.023 (0.6)	0.118 (3.0)	0.250 (6.35)	0.236 (6.0)
AECT 220632PEFRA	●	●	0.905 (23)	0.8563 (21.8)	0.016 (0.4)	0.126 (3.2)	0.250 (6.35)	0.236 (6.0)
AECT 220640PEFRA	●	●	0.866 (22)	0.8563 (21.8)	0.047 (1.2)	**0.157 (4.0)**	0.250 (6.35)	0.236 (6.0)
AECT 220650PEFRA	●	●	0.866 (22)	0.8563 (21.8)	0.016 (0.4)	**0.197 (5.0)**	0.250 (6.35)	0.236 (6.0)

r_ε =4.0 or greater are for use with bodies that have a -4.0 cat. no. suffix.

Hardware (for all WAX 4000 Endmills)

Screw	Spanner	Anti-seize Paste	Recommended Tightening Torque (N·m)	Applicable Endmill
			5.0	
BFTX0509N	TRD20	SUMI-P		ø25 to ø32
BFTX0511N	TRD20	SUMI-P		ø40 to ø125

See page 342 for recommended running parameters

TSX Series

Applicable Insert: LNEX

NEW

8 mm	0°	12 mm	0°			
LNEX 08		LNEX13		Rake Angle LNEX08	Radial	−34°−20°
					Axial	−6°
				Rake Angle LNEX13	Radial	−31°−15°
					Axial	−6°

P Steel ● M Stainless Steel ● K Cast Iron ● N Non-ferrous Metal ● N Aluminum ● S Exotic Alloy ● H Hardened Steel

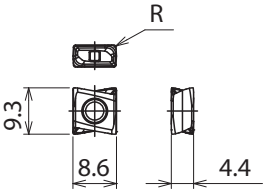
Features & Benefits

- TSX provides superior metal removal rates
- Employs a cost effective 4-corner tough, tangentially mounted insert
- Tangentially mounted insert achieves excellent edge sharpness and cutting ability with optimized chip breaker
- TSX is available in two series offering a max DOC of 8mm (.315") and 12mm (.473") with a variety of body diameter choices
- TSX provides the strength required for increased depths of cut ranging from a small job to a heavy duty roughing application

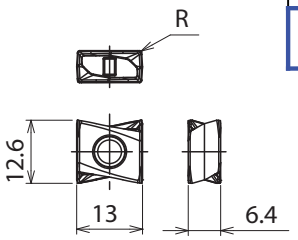
Inserts

Inserts	P			K		M	S	
Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	R
LNEX080404PNER-L	○	○	○	○	○	○	○	.016
LNEX080404PNER-G	○	○	○	○	○	○	○	.016
LNEX080408PNER-L	○	○	○	○	○	○	○	.031
LNEX080408PNER-G	○	○	○	○	○	○	○	.031
LNEX080412PNER-G	○	○	○	○	○	○	○	.047
LNEX080416PNER-G	○	○	○	○	○	○	○	.063
LNEX130604PNER-L	○	○	○	○	○	○	○	.016
LNEX130604PNER-G	○	○	○	○	○	○	○	.016
LNEX130608PNER-L	○	○	○	○	○	○	○	.031
LNEX130608PNER-G	○	○	○	○	○	○	○	.031
LNEX130608PNER-H	○	○	○	○	○	○	○	.031
LNEX130616PNER-G	○	○	○	○	○	○	○	.063
LNEX130616PNER-H	○	○	○	○	○	○	○	.063
LNEX130624PNER-G	○	○	○	○	○	○	○	.094
LNEX130624PNER-H	○	○	○	○	○	○	○	.094
LNEX130632PNER-G	○	○	○	○	○	○	○	.126
LNEX130632PNER-H	○	○	○	○	○	○	○	.126

LNEX08
Max. DOC 8mm (.315")



LNEX13
Max. DOC 12 mm (.473")



○ Available 1st Quarter 2017

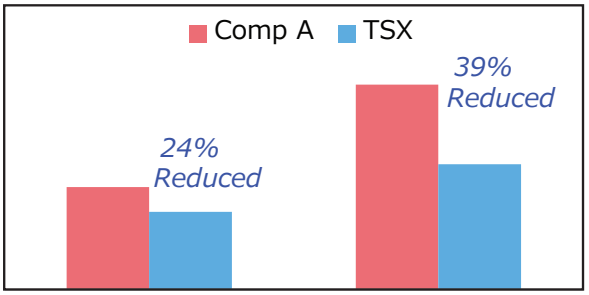
Toughness Comparison

[Cutting Condition]
Material: 1049 Steel, Dry
Vc 490 SFM
fz .024 ipt
ap .118"
ae 1.58"

Fz .024 ipt	4th pass	8th pass	12th pass
Comp A (Tangential)	Brakeage		
Comp B (Tangential)		Breakage	
TSX (LNEX)			No Breakage

Cutting Force Comparison

[Cutting Condition]
Material: 1049 Steel, Dry
Vc 490 SFM
fz .006 ipt
ap .236" & .472"
ae .118"



DOC=6mm (.236") DOC=12mm (.472")

Recommended Running Conditions

ISO	Work Material	Hardness	Cutting Speed v_c(sfm)Min-Max	Feed Rate f_z(ipt) Min-Max	Recommended Grade
P	Carbon Steel	180-280 HB	500-1000	.004-.014	ACP200 ACP300 ACP100
P		> 280 HB	250-750	.004-.014	
P	Alloy Steel	180-280HB	330-815	.004-.012	
M	Stainless Steel	220-280HB	300-600	.004-.010	ACM300 ACM200
M		> 280HB	250-550	.004-.010	
S	Exotic Material	-	100-300	.004-.008	ACM300 ACM200
K	Cast Iron/Ductile Cast Iron	250HB	330-815	.004-.014	ACK300 ACK200

NOTE: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.

Hardware

Insert Size	Catalog Number	Insert Screw	Wrench	Recommended Tightening Torque
TSX3000 (LNEX08)	TSX□30625□~TSX□30750□	BFTX0306IP	TRDR08IP	2.0Nm
	TSX□31000□~TSX□32500□	BFTX0308IP		
TSX4000 (LNEX13)	TSX□41000□~TSX□44000□	BFTX03510IP	TRDR15IP	3.0Nm

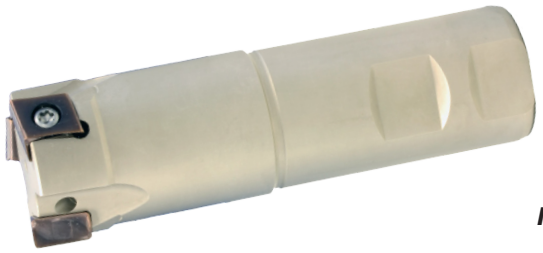
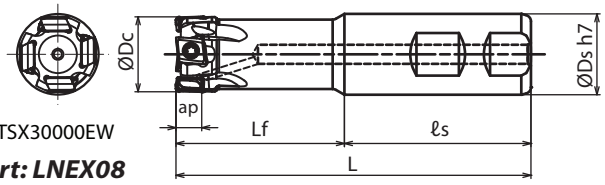


Fig. 1



TSX30000EW

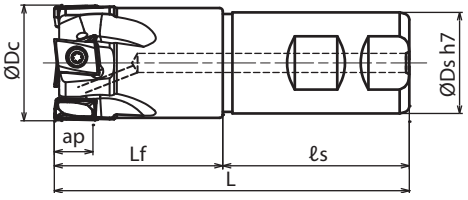
Insert: LNEX08

○ Available 1st Quarter 2017

TSX Endmill - INCH — Insert: LNEX08 Type

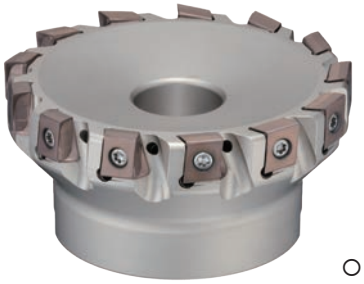
Cat. No.	Stock	Dimensions (in.) øDc	øDs	Lf	ℓs	L	No. of Teeth	Weight (lbs)	Fig.
TSX30625EW	○	0.625	0.625	1.312	1.906	3.218	2	0.22	1
TSX30750EW	○	0.750	0.750	1.534	2.030	3.563	2	0.35	1
TSX31000EW	○	1.000	1.000	2.060	2.281	4.341	3	0.88	1
TSX31250EW	○	1.250	1.250	2.060	2.281	4.341	3	1.32	1
TSX31500EW	○	1.500	1.250	2.060	2.281	4.341	4	1.54	1
TSXF30750EW	○	0.750	0.750	1.534	2.030	3.563	3	0.44	1
TSXF31000EW	○	1.000	1.000	2.060	2.281	4.341	4	0.88	1
TSXF31250EW	○	1.250	1.250	2.060	2.281	4.341	5	1.32	1
TSXF31500EW	○	1.500	1.250	2.060	2.281	4.341	6	1.54	1
TSX Endmill - INCH									**Insert: LNEX13 Type**
TSX41000EW	○	1.000	1.000	2.060	2.281	4.341	2	0.66	2
TSX41250EW	○	1.250	1.250	2.060	2.281	4.341	2	1.32	2
TSX41500EW	○	1.500	1.250	2.060	2.281	4.341	3	1.54	2
TSXF41250EW	○	1.250	1.250	2.060	2.281	4.341	3	1.32	2
TSXF41500EW	○	1.500	1.250	2.060	2.281	4.341	4	1.54	2

Fig. 2



TSX40000EW

Insert: LNEX13



○ Available 1st Quarter 2017

Fig. 1

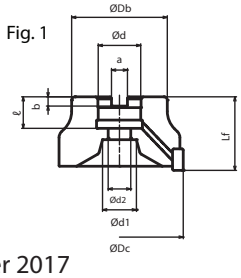
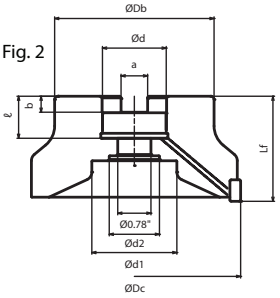


Fig. 2



TSX Shell Mill - INCH — Insert: LNEX08 Type

Cat. No.	Stock	Dimensions (in.) øDc	øDb	Lf	ød	a	b	ℓ	ød1	ød2	No. of Teeth	Weight (lbs)	Fig.
TSX31500R	○	1.500	1.339	1.750	0.750	0.312	0.190	0.750	0.609	0.406	4	0.44	1
TSX32000R	○	2.000	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	5	0.88	1
TSX32500R	○	2.500	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	6	1.10	1
TSXF31500R	○	1.500	1.339	1.750	0.750	0.312	0.190	0.750	0.609	0.406	6	0.44	1
TSXF32000R	○	2.000	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	8	0.88	1
TSXF32500R	○	2.500	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	10	1.10	1
TSX Shell Mill - INCH													**Insert: LNEX13 Type**
TSX41500R	○	1.500	1.339	1.750	0.750	0.312	0.190	0.750	0.609	0.406	4	0.44	1
TSX42000R	○	2.000	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	5	0.66	1
TSX42500R	○	2.500	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	6	1.10	1
TSX43000R	○	3.000	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	7	1.76	1
TSX44000R	○	4.000	2.870	2.000	1.500	0.625	0.380	1.000	2.000	0.781	9	4.85	2
TSX45000R	○	5.000	3.750	2.500	1.500	0.625	0.380	1.000	2.000	0.781	12	7.50	2
TSX46000R	○	6.000	4.380	2.500	1.500	0.625	0.380	1.000	2.000	0.781	14	11.0	2
TSXF41500R	○	1.500	1.339	1.750	0.750	0.312	0.190	0.750	0.609	0.406	5	0.44	1
TSXF42000R	○	2.000	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	6	0.66	1
TSXF42500R	○	2.500	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	8	1.10	1
TSXF43000R	○	3.000	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	10	1.76	1
TSXF44000R	○	4.000	2.870	2.000	1.500	0.625	0.380	1.000	2.000	0.781	13	4.85	2

PWS Series

Rake Angle		
	Radial	−15°
	Axial	−6°

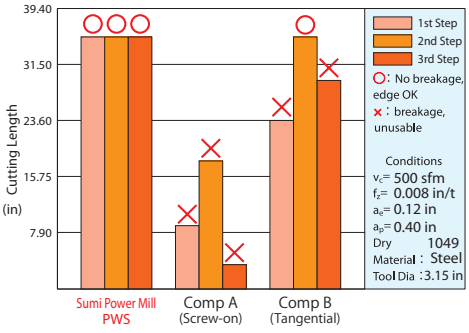
16mm 0°

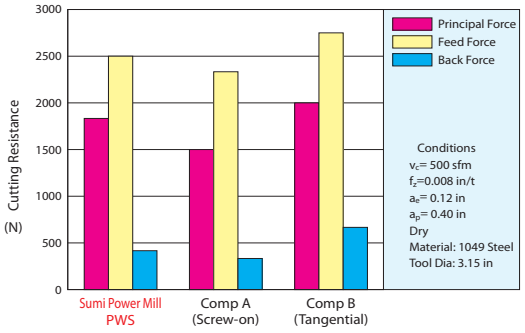
P Steel ● M Stainless Steel ○ K Cast Iron ○ N Nonferrous Metal N Aluminum S Exotic Alloy H Hardened Steel

Features & Benefits

- Highly reliable shoulder mill tangentially mounted for never-before-possible cutting edge strength and sharp cutting edges.
- A two-step insert array structure creates a **PWSR Type** to meet deep cutting needs
- Tangentially mounted inserts for outstanding cutting edge strength combined with optimized breaker for excellent edge sharpness and cutting ability.
- Serrated insert design created with high-precision molding technology provides stable millng, even in applications with large tool overhang
- New ACP and ACK milling grades are used to meet the needs of various types of work material

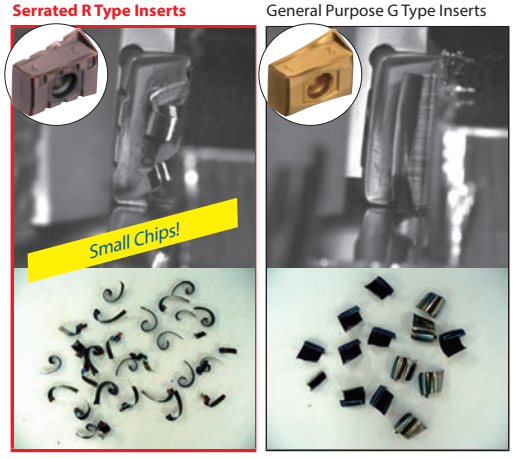
Performance





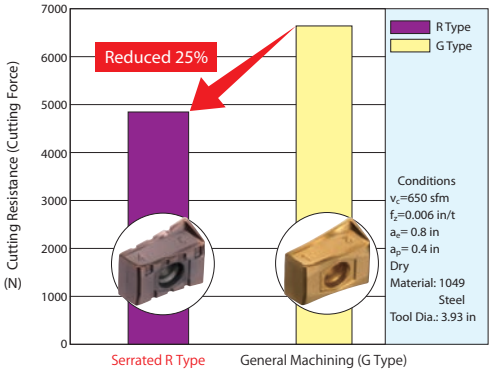
Performance Comparison

Serrated R Type Inserts | General Purpose G Type Inserts

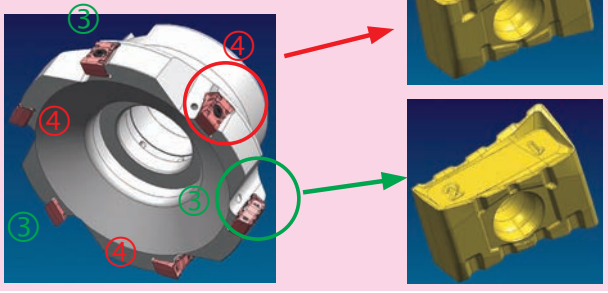


Comparison of Cutting Forces

Reduced cutting force and excellent vibration resistance!



⚠ Caution when using Serrated R Type Inserts



1) Installation Precautions

When using R type serrated indexable inserts, attach them so the serrated grooves alternate as shown in the image to the left.

2) Cutting Condition Precautions

When set up as shown in the image to the left, the feed rate per tooth is doubled compared to that when attaching the same-shaped inserts on all teeth. This means that feed adjustments should be made so the upper feed limit is as shown below.

f_z = 0.010 IPT

Example: Use at f_z = 0.008 IPT

Feed when all teeth are normal

Feed when serrated 0.016 IPT

Any incorrect use of insert may damage tools.

PWS Series

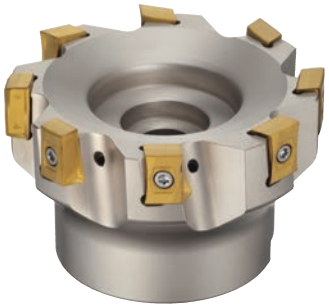


Fig1

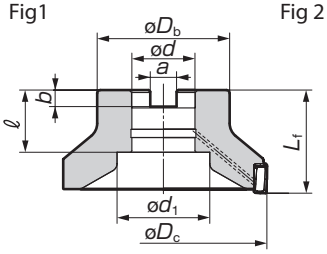
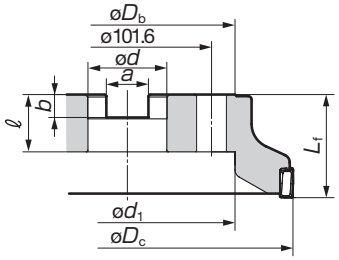
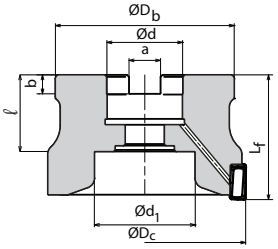


Fig 2





PWS Cutter Bodies - Standard Pitch - Inch

Catalog Number	Stock	Dimensions								# of Teeth	Weight (lbs)	Fig.
		φDc	φDb	Lf	φd	φD1	a	b	ℓ			
PWS43000R	●	3.000	2.250	1.750	1.000	0.797	0.375	0.220	1.020	5	2.10	1
PWS44000R-1.25	●	4.000	2.870	2.000	1.250	1.000	0.500	0.280	1.020	6	5.29	1
PWS44000R-1.50	●	4.000	3.540	2.500	1.500	2.000	0.625	0.380	2.400	6	5.40	3
PWS45000R	●	5.000	3.750	2.500	1.500	2.000	0.625	0.380	1.535	7	5.29	1
PWS46000R	●	6.000	4.380	2.500	1.500	2.000	0.625	0.380	1.535	8	8.81	1
PWS48000R	●	8.000	5.118	2.500	2.500	-	1.000	0.560	1.594	10	14.33	2
PWS410000R	●	10.000	7.087	2.756	2.500	-	1.000	0.560	1.594	12	27.11	2

PWS Cutter Bodies - Fine Pitch - Inch

Catalog Number	Stock	Dimensions								# of Teeth	Weight (lbs)	Fig.
		φDc	φDb	Lf	φd	φD1	a	b	ℓ			
PWSF43000R	●	3.000	2.250	1.750	1.000	0.797	0.375	0.220	1.020	7	1.95	1
PWSF44000R-1.25	●	4.000	2.870	2.000	1.250	1.000	0.500	0.280	1.020	9	5.07	1
PWSF44000R-1.50	●	4.000	3.540	2.500	1.500	2.000	0.625	0.380	2.400	9	5.10	3
PWSF45000R	●	5.000	3.750	2.500	1.500	2.000	0.625	0.380	1.535	10	5.07	1
PWSF46000R	●	6.000	4.380	2.500	1.500	2.000	0.625	0.380	1.535	13	8.59	1
PWSF48000R	●	8.000	5.118	2.500	2.500	-	1.000	0.560	1.594	16	14.10	2
PWSF410000R	●	10.000	7.087	2.756	2.500	-	1.000	0.560	1.594	20	26.90	2

*Cutters with sizes of φ8.000 inches or above come with seats (no coolant holes). Inserts are not included.

Inserts

P Steel M Stainless Steel K Cast Iron N Non-ferrous S Super Alloy H Hardened Material

Grade		Coated Carbide				
Application	High speed/Light	P			K	
	General Purpose		P M	M	K	
	Roughing		P M	P M		K

Catalog Number	ACP100	ACP200	ACP300	ACK200	ACK300	Application	Fig.
LNMX170808PNSR-L	●	●	●	●	●	Light Cut	10
LNMX170808PNSR-G	●	●	●	●	●	General Purpose	10
LNMX170808PNSR-R	●	●	●	●	●	Heavy Cut	11

Fig 10

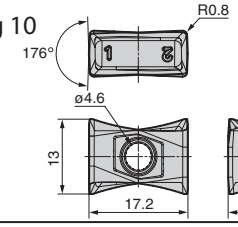
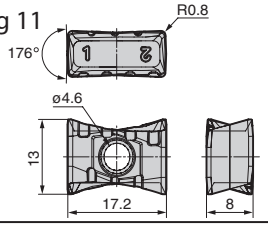


Fig 11



Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c(sfm) Min-Max	Feed Rate f_z(ipt) Min-Max	Recommended Grade
P	Carbon Steel	180-280HB	500–1,500	0.004–0.014	ACP200
	Alloy Steel	180-280HB	330–815	0.004–0.010	ACP200
M	Stainless Steel	-	330–650	0.006–0.010	ACP300
K	Cast Iron/Ductile Cast Iron	250HB	330–815	0.004–0.014	ACK200

NOTE: The cutting conditions above are a guide. Actual Conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.

PWS Series

Rake Angle		
	Radial	−15°
	Axial	−6°

16mm 0°

P Steel | M Stainless Steel | K Cast Iron | N Nonferrous Metal | N Aluminum | S Exotic Alloy | H Hardened Steel

Fig1

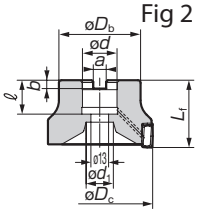


Fig 2

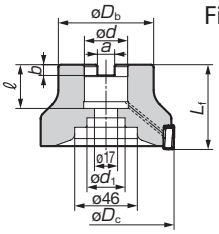


Fig 3

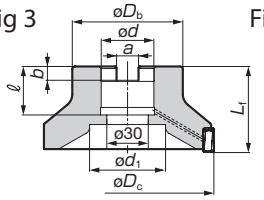


Fig 4

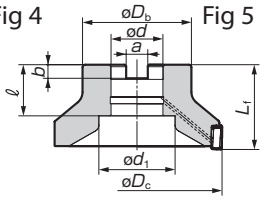
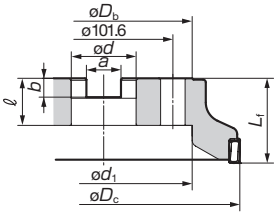


Fig 5

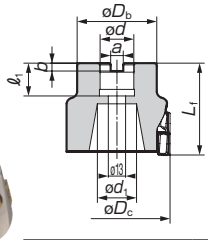


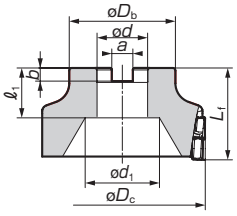
PWS Cutter Bodies - Standard Pitch - Metric

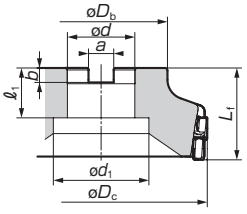
Catalog Number	Stock	Dimensions								# of Teeth	Weight (kg)	Fig.
		φD_c	φD_b	L_f	φd	φd_1	a	b	ℓ			
PWS 4080R	●	80	60	50	25.4	20	9.5	6	25	4	1.0	1
PWS 4100R	●	100	70	63	31.75	28	12.7	8	32.5	6	1.8	2
PWS 4125R	●	125	80	63	38.1	55	15.9	10	35.5	6	2.4	3
PWS 4160R	●	160	100	63	50.8	72	19.0	11	38	8	4.0	4
PWS 4200R	●	200	130	63	50.8	130	25.4	14	35	10	6.5	5
PWS 4250R	●	250	130	63	50.8	160	25.4	14	35	12	12.3	5

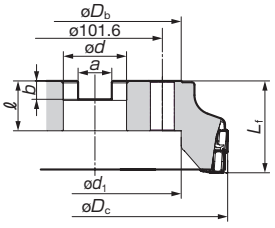
PWS Cutter Bodies - Fine Pitch - Metric

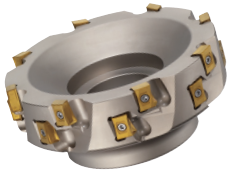
Catalog Number	Stock	Dimensions								# of Teeth	Weight (kg)	Fig.
		φD_c	φD_b	L_f	φd	φd_1	a	b	ℓ			
PWSF4080R	●	80	60	50	25.4	20	9.5	6	25	6	0.9	1
PWSF4100R	●	100	70	63	31.75	28	12.7	8	32.5	8	1.7	2
PWSF4125R	●	125	80	63	38.1	55	15.9	10	35.5	8	2.3	3
PWSF4160R	●	160	100	63	50.8	72	19.0	11	38	10	3.9	4
PWSF4200R	●	200	130	63	50.8	130	25.4	14	35	12	6.4	5
PWSF4250R	●	250	130	63	50.8	160	25.4	14	35	14	12.2	5











PWS Cutter Bodies - 2-step Type - Metric

Catalog Number	Stock	Dimensions								# of Teeth	Effective Teeth	Weight	Fig.
		φD_c	φD_b	L_f	φd	φd_1	a	b	ℓ				
PWSR4080R		80	60	70	25.4	29.5	9.5	6	25	8	4	0.9	1
PWSR4100R		100	70	70	31.75	46	12.7	8	32	12	6	1.7	2
PWSR4125R		125	80	70	38.1	56	15.9	10	38	12	6	2.3	3
PWSR4160R		160	100	70	50.8	72	19.0	11	38	16	8	3.9	4
PWSR4200R		200	130	70	50.8	160	25.4	14	38	20	10	6.4	5

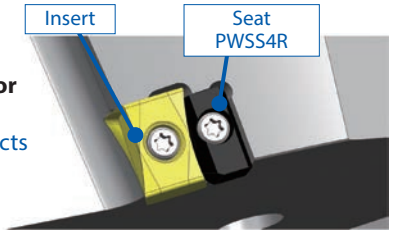
*Cutters with sizes of φ200 or above come with seats (no coolant holes). Inserts are not included.
Please use JIS B1176 hexagonal bolt (ø80: M12x30 to 35mm, ø100: M16x40 to 45mm) for securing ø80/ø100 cuttor to the arbor.

Spare Parts

Insert Screw	Wrench	Anti-seize Paste	Seat*	Recommended Tightening Torque
				
BFTX0412IP	TRDR15IP	SUMI-P	PWSS4R	**26 in./lbs.**

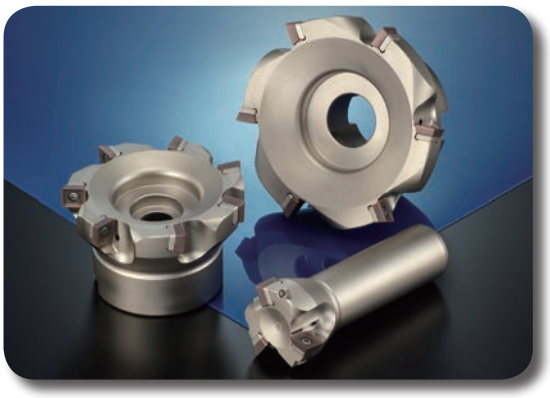
*Included with ø200mm or larger

Large diameter (ø200 or above) body structure
Safety seat design protects body



WFX Series

Applicable Insert: SOMT



Features & Benefits

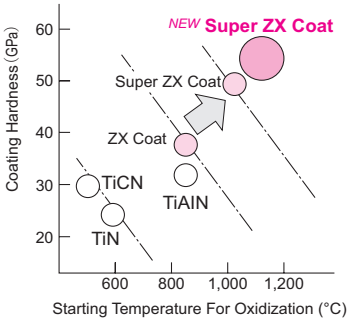
WFX WaveMill is a screw-down type cutter capable of using 4-cornered inserts. Ideal cutting edge design offers exceptional squareness.

■ Characteristics

The insert shape is optimized for shoulder milling; when combined with a high-precision body it leaves a superior machined surface finish.

- Maximum depth of cut (a_p) = 0.394" *(10.0mm)*
- With oil hole = ø5" or less *(125 mm)*
- 3 types of edge preparations

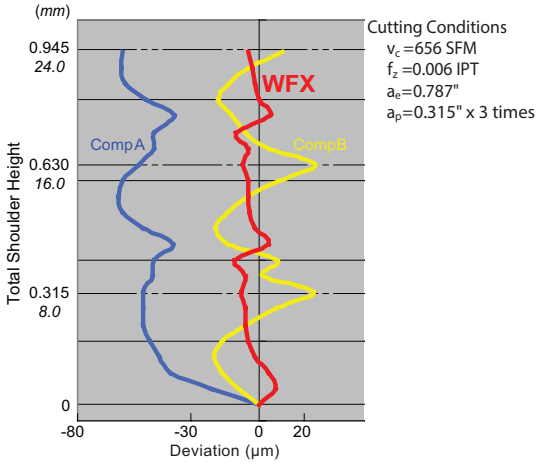
The WFX type is the first series to offer the newly developed multi-layer PVD coating structure on these grades: **ACP200**, **ACP300**, **ACK300 and ACM 300**. With excellent resistance against wear, fracture, and adhesion, the grades achieve 1.5 times longer tool life than conventional coating.



■ Performance

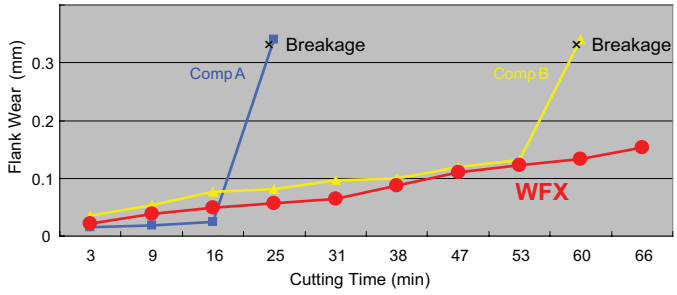
(1) Squareness

Work material:1049 Tool: WFX12100R (ø3.94" x 5 flutes)



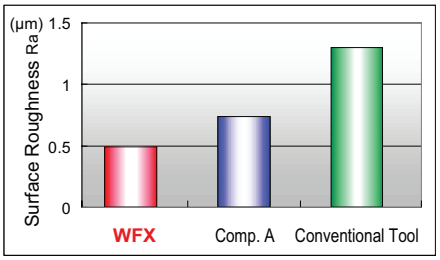
(2) Wear Resistance

Work material: 4140 Tool: WFX12100R (ø3.94" x 1 flute test)
Cutting Conditions v_c =656 SFM f_z =0.006 IPT a_e=1.181" a_p=0.1969"



(3) Surface Finish

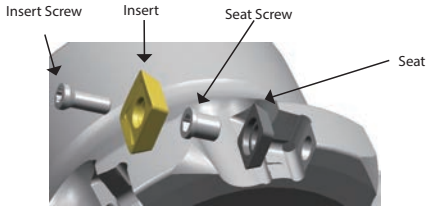
Work material: 4140
Tool: WFX12100R
(ø3.94" x 5 flutes)
Cutting Conditions
v_c =656 SFM
f_z =0.004 IPT
a_e=3.543"
a_p=0.118"



Spare Parts

Applicable Cutters	Seat	Seat Screw	Insert Screw	Torque	Wrench (insert)	Wrench (seat)
WFX12040E	-	-	BFTX03512IP	3.0N*m	TRDR15IP	-
Other WFX types	WFXS4R	BW0507F	BFTX03512IP	3.0N*m	TRDR15IP	LH035

Coolant Through Bolts	
Catalog Number	Cutter Size
BFXH 3/8 x 1	**2.00"**
BFXH 1/2 x 1 1/4	**2.50"**
BFXH 1/2 x 1 1/4	**3.00"**
BFXH 5/8 x 1 1/4	**4.00"**
BFXH 3/4 x 1 1/2	**5.00"**



Recommended Cutting Conditions

ISO	Work Material	Cutting Speed v_c (SFM/*m/min*) Min.-**Optimum**-Max	Feed Rate f_z (IPT/*mm/t*) Min.-**Optimum**-Max	D.O.C. (In/*mm*)	Grades
P	General Steel	492-**656**-820	0.004-**0.006**-0.008	< 0.394	ACP200
		*150-**200**-250*	*0.10-**0.15**-0.20*	*< 10.0*	ACP300
	Soft Steel	591-**869**-1148	0.004-**0.006**-0.008	< 0.394	ACP200
		*180-**265**-350*	*0.10-**0.15**-0.20*	*< 10.0*	ACP300
	Die Steel	328-**492**-656	0.004-**0.006**-0.008	< 0.236	ACP200
		*100-**150**-200*	*0.10-**0.15**-0.20*	*< 6.0*	ACP300
M	Stainless Steel	175-**425**-675	.004-**.006**-.008	< 0.394	ACM200
		55-**130**-300	0.10-**0.15**-0.20	*< 10.0*	ACM200
		525-**650**-820	.004-**.006**-.008	< 0.394	ACM300
		160-**200**-250	0.10-**0.15**-0.20	*< 10.0*	ACM300
		525-**672**-820	0.004-**0.006**-0.008	< 0.394	ACP300
		*160-**205**-250*	*0.10-**0.15**-0.20*	*< 10.0*	
K	Cast Iron	328-**574**-820	0.004-**0.006**-0.008	< 0.394	ACK200
		*100-**175**-250*	*0.10-**0.15**-0.20*	*< 10.0*	ACK300

Fig 1

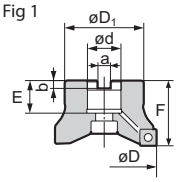


Fig 2

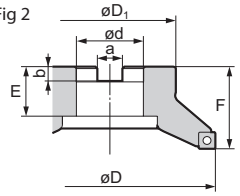
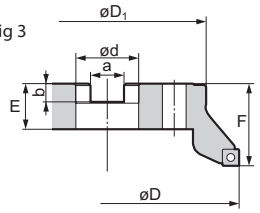


Fig 3



WFX Cutter Bodies - INCH

Cat. No.	Stock	Dimensions (inch)							No. of Teeth	Pitch	Fig
		øD	øD1	F	ød	a	b	E			
WFX42000R	●	2.000	1.500	1.750	0.750	0.312	0.187	0.750	3	Coarse	1
WFX42500R	●	2.500	1.750	1.750	1.000	0.375	0.218	0.750	4		1
WFX43000R	●	3.000	2.250	1.750	1.000	0.375	0.218	0.750	4		1
WFX44000R	●	4.000	2.870	2.000	1.250	0.500	0.280	0.750	5		1
WFX44000R-1.50	●	4.000	4.000	2.500	1.500	0.625	0.380	1.000	5		3
WFX45000R	●	5.000	3.750	2.500	1.500	0.625	0.380	1.000	6		1
WFX46000R	●	6.000	4.380	2.500	1.500	0.625	0.380	1.060	8		2
WFX48000R	●	8.000	5.120	2.500	2.500	1.000	0.560	1.595	10		3
WFXF42000R	●	2.000	1.500	1.750	0.750	0.312	0.187	1.020	4	Fine	1
WFXF42500R	●	2.500	1.750	1.750	1.000	0.375	0.218	1.020	5		1
WFXF43000R	●	3.000	2.250	1.750	1.000	0.375	0.218	1.020	6		1
WFXF44000R	●	4.000	2.870	2.000	1.250	0.500	0.280	1.060	7		1
WFXF44000R-1.50	●	4.000	4.000	2.500	1.500	0.625	0.380	1.000	7		3
WFXF45000R	●	5.000	3.750	2.500	1.500	0.625	0.380	1.060	8		1
WFXF46000R	●	6.000	4.380	2.500	1.500	0.625	0.380	1.060	12		2
WFXF48000R	●	8.000	5.120	2.500	2.500	1.000	0.560	1.595	16		3
WFXX42000R	●	2.000	1.500	1.750	0.750	0.312	0.187	1.020	5	Super Fine	1
WFXX42500R	●	2.500	1.750	1.750	1.000	0.375	0.218	1.020	6		1
WFXX43000R	●	3.000	2.250	1.750	1.000	0.375	0.218	1.020	8		1
WFXX44000R	●	4.000	2.870	2.000	1.250	0.500	0.280	1.060	10		1
WFXX44000R-1.50	●	4.000	4.000	2.500	1.500	0.625	0.380	1.000	10		3
WFXX45000R	●	5.000	3.750	2.500	1.500	0.625	0.380	1.060	12		1

-1.50 is Arbor Ø

Fig 4

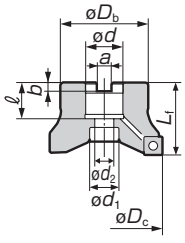


Fig 5

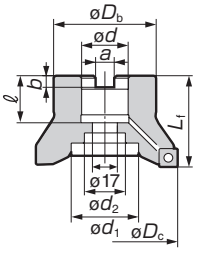


Fig 6

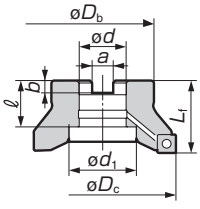


Fig 7

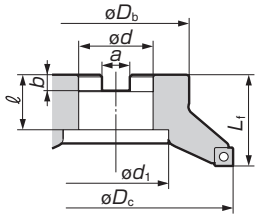
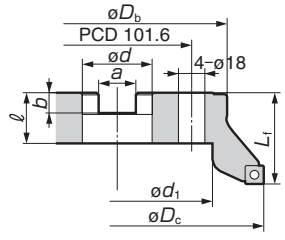


Fig 8



WFX Cutter Bodies - METRIC (Coarse Pitch)

Cat. No.	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig
		øDc	øDb	Lf	ød	a	b	ℓ	ød1	ød2			
WFX12050RS	★	50	40	40	22	10.4	6.3	20	18	11	3	0.2	4
WFX12063RS	★	63	50	40	22	10.4	6.3	20	18	11	4	0.4	4
WFX12080RS	★	80	60	50	27	12.4	7	25	20	13.5	4	0.9	4
WFX12100RS	★	100	70	50	32	14.4	8.5	32	46	-	5	1.3	6
WFX12080R	★	80	60	50	25.4	9.5	6	25	20	13	4	0.9	4
WFX12100R	★	100	70	63	31.75	12.7	8	32.5	46	28	5	1.7	5
WFX12125R	★	125	80	63	38.1	15.9	10	35.5	55	30	6	2.4	4
WFX12160R	★	160	100	63	50.8	19	11	38	72	-	8	3.7	7
WFX12200R	★	200	150	63	47.625	25.4	14	35	130	-	10	6.3	8
WFX12250R	★	250	190	63	47.625	25.4	14	35	150	-	12	11.0	8

★: Worldwide Warehouse Item

WFX Series

Applicable Insert: SOMT

Fig 4

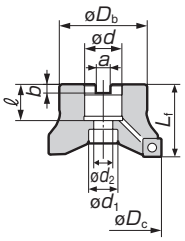


Fig 5

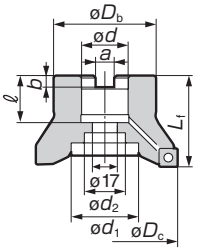


Fig 6

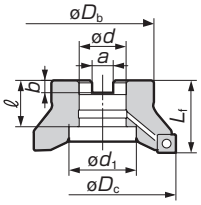


Fig 7

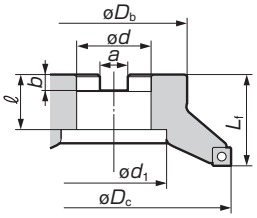
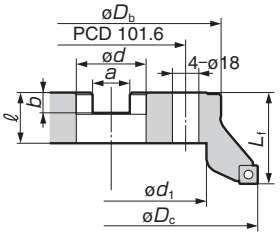


Fig 8



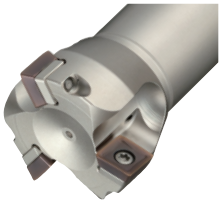
WFX Cutter Bodies - METRIC (Fine Pitch)

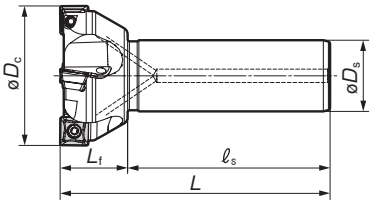
Cat. No.	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig
		øDc	øDb	Lf	ød	a	b	ℓ	ød1	ød2			
WFXF12050RS	★	50	40	40	22	10.4	6.3	20	18	11	4	0.2	1
WFXF12063RS	★	63	50	40	22	10.4	6.3	20	18	11	5	0.4	1
WFXF12080RS	★	80	60	50	27	12.4	7	25	20	13.5	6	0.9	1
WFXF12100RS	★	100	70	50	32	14.4	8.5	32	46	-	7	1.2	3
WFXF12080R	★	80	60	50	25.4	9.5	6	25	20	13	6	0.9	1
WFXF12100R	★	100	70	63	31.75	12.7	8	32.5	46	28	7	1.6	2
WFXF12125R	★	125	80	63	38.1	15.9	10	35.5	55	30	8	2.4	1
WFXF12160R	★	160	100	63	50.8	19	11	38	72	-	12	3.5	4
WFXF12200R	★	200	150	63	47.625	25.4	14	35	130	-	16	6.2	5
WFXF12250R		250	190	63	47.625	25.4	14	35	150	-	18	10.9	5

★: Worldwide Warehouse Item

Inserts are not included. * Cutters ø160 mm or above do not have coolant holes.

Please use JISB1176 "hexagonal bolt" (ø80: M12 × 30-35mm, ø100: M16 × 40-45mm) for securing the ø80 or ø100 cutter to the arbor.





Body (Shank Type)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth
		øDc	øDs	Lf	ℓs	L	
WFX12040E	★	40	32	30	90	120	3
WFX12050E	★	50	32	30	90	120	3
WFX12063E	★	63	32	30	90	120	4
WFX12080E	★	80	32	30	90	120	4

ø40 mm cutters do not have a seat.

Body (Shank, Fine Pitched Type)

Cat. No.	Stock	Dimensions (mm)					No. of Teeth
		øDc	øDs	Lf	ℓs	L	
WFXF12050E	★	50	32	30	90	120	4
WFXF12063E	★	63	32	30	90	120	5
WFXF12080E	★	80	32	30	90	120	6

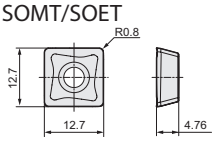
★: Worldwide Warehouse Item

See page 351 for recommended running parameters

Inserts

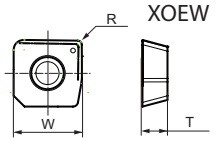
Cat. No.	P				K		M		N		Dim. (mm)			Fig
	ACP100	ACP200	ACP300	T4500A	ACK200	ACK300	ACM200	ACM300	DL1000	H1	W.	T	R	
SOMT120408PDER-L	●	●	●		●	●	●	●			12.7	4.76	0.8	
SOMT120404PDER-G	●	●	●		●	●	●	●					0.4	
SOMT120408PDER-G	●	●	●	★	●	●	●	●					0.8	
SOMT120412PDER-G	●	●	●		●	●	●	●					1.2	
SOMT120416PDER-G	●	●	●		●	●	●	●					1.6	
SOMT120408PDER-H	●	●	●		●	●	●	●					0.8	
SOET120408PDFR-S									●	●				
XOEW120408PDTR-AW				●		●					12.85	4.76		

SOMT/SOET



Note: Dimple corner should be on cutting edge.

XOEW



SUMITOMO

CARBIDE - CBN - DIAMOND

1-800-950-5202

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Face Milling

Pages 355-372

WGX Series

Rake Angle	Radial	−20° to −24°
	Axial	20° to 22°

6 mm 45°

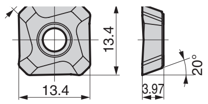
P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	N Aluminium	S Exotic Alloy	H Hardened Steel
●	○	○				

Features & Benefits

Stable Machining
Special chipbreaker designed for WGX Type ensures low cutting resistance
High Quality
Improved run-out precision and unique wiper edge shape ensure excellent surface finish quality
Optimized chamfer shape reduces burrs and edge chipping
Long Tool Life
Features high-precision technology that reduces insert run-out variation and a new coating to provide stable and long tool life

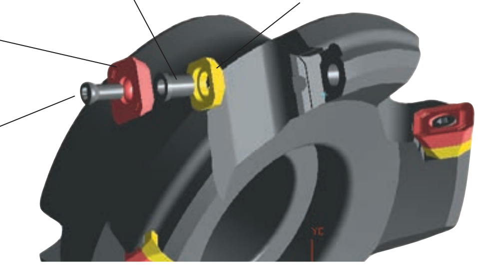
- New Super ZX, Super FF and DLC coated grades available
- Available in Standard, Fine Pitch and Extra-Fine Pitch cutters

Insert Information



Inserts	P ACP100	P ACP200	P ACP300	P T4500A	K ACK200	K ACK300	M/S ACM200	M/S ACM300	N DL1000	N H1	Dimensions IC	Thickness	Facet Width
SEMT13T3AGSR-L	●	●	●		●	●	●	●			0.528	0.156	0.0787
SEMT13T3AGSR-G	●	●	●		●	●	●	●					
SEMT13T3AGSR-H	●	●	●		●	●	●	●					
SEMT13T3AGSR-FG	●	●	●		●	●	●	●					
SEET13T3AGSR-L	●	●	●	★	●	●	●	●					
SEET13T3AGSR-G	●	●	●	★	●	●	●	●					
SEET13T3AGFR-L									●	●			
XEEW13T3AGER-AWR		●		●		●							0.320

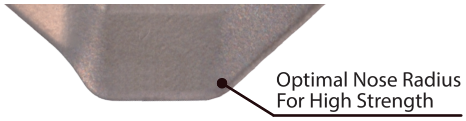
Parts Diagram



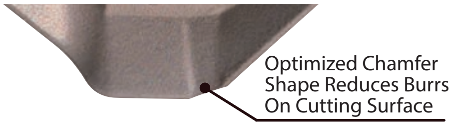
Parts

Applicable Cutters	Seat	Seat Screw	Insert Screw	Spanner (For Insert)	Recommended Tightening Torque Inch / LBs	Spanner (For Seat)
WGX cutters except for model below	WGCS13R	BW0507F	BFTX03512IP	TRDR15IP	25	LH035
WGX13032EW	—	—	BFTX03512IP	TRDR15IP	25	—

General Purpose G Type Chipbreaker



Low-Burr Design FG Type Chipbreaker

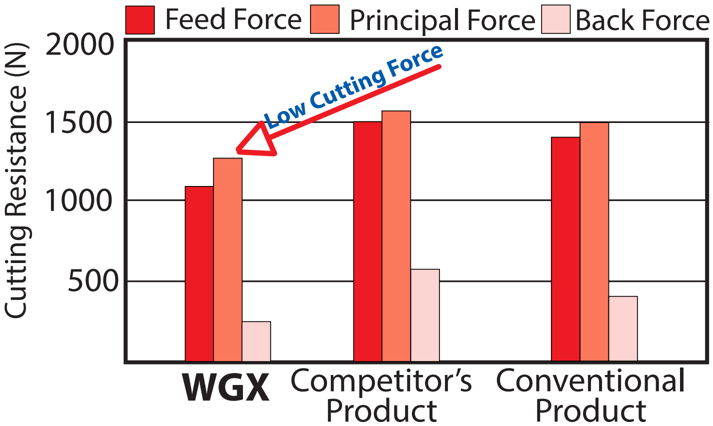


Part Exit Comparison

Competitor A leaves burrs

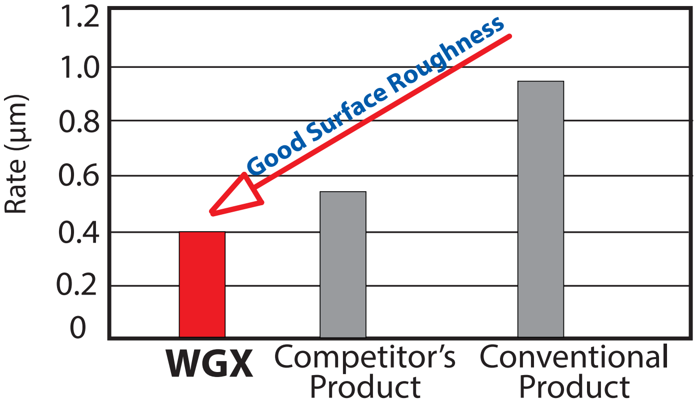
WGX leaves no burr

Cutting Resistance Comparison



Workpiece Material: 1049 Steel Cutter Diameter: 4.000″
Cutting Conditions: V_c : 650 SFM f_z: 0.0079 ipt a_p = .118 in

Finishing Surface Roughness Comparison



Workpiece Material: 1049 Steel Cutter Diameter: 4.000″
Cutting Conditions: V_c : 650 SFM f_z: .00079ipt a_p = .118 in

WGX Series

Fig 1

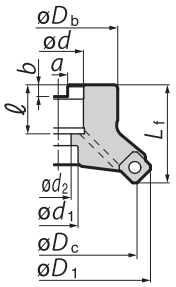


Fig 2

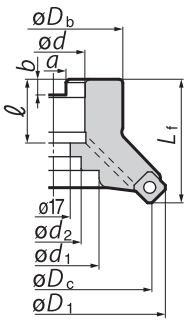


Fig 3

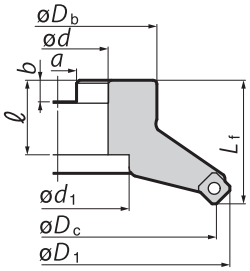


Fig 4

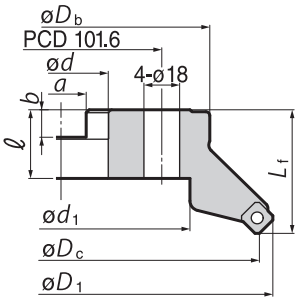
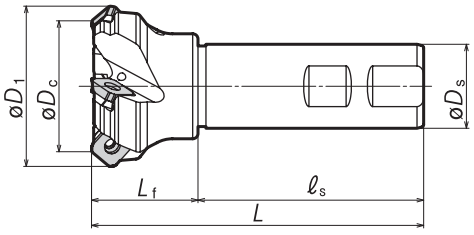


Fig 5



WGX Cutter Bodies- Standard Pitch-INCH

Catalog No.	Stock	φDc	φD1	φDb	Lf	φd	φd1	a	b	ℓ	Teeth	Weight (lbs)	Fig.
WGX42000R	●	2.000	2.461	1.500	1.750	0.750	0.609	0.312	0.190	0.750	3	0.9	1
WGX42500R	●	2.500	3.008	1.750	1.750	1.000	0.797	0.375	0.220	0.750	4	1.3	1
WGX43000R	●	3.000	3.504	2.250	1.750	1.000	0.787	0.375	0.220	0.750	4	2.2	1
WGX44000R	●	4.000	4.500	2.870	2.000	1.250	1.000	0.500	0.280	0.750	5	3.5	2
WGX44000R-1.50	●	4.000	4.500	3.750	2.500	1.500	2.000	0.625	0.380	1.000	5	4.5	3
WGX45000R	●	5.000	5.496	3.750	2.500	1.500	2.000	0.625	0.380	1.000	6	7.2	1
WGX46000R	●	6.000	6.496	4.380	2.500	1.500	2.000	0.625	0.380	1.060	7	9.5	3
WGX48000R	●	8.000	8.496	5.906	2.500	2.500	5.118	1.000	0.560	1.594	8	15.6	4
WGX410000R	●	10.000	10.492	7.480	2.756	2.500	6.299	1.000	0.531	1.575	10	23.5	4

WGX Cutter Bodies-Fine Pitch-INCH

Catalog No.	Stock	φDc	φD1	φDb	Lf	φd	φd1	a	b	ℓ	Teeth	Weight (lbs)	Fig.
WGXM42000R	●	2.000	2.461	1.500	1.750	0.750	0.609	0.312	0.190	0.750	4	0.9	1
WGXM42500R	●	2.500	3.008	1.750	1.750	1.000	0.797	0.375	0.220	0.750	5	1.9	1
WGXM43000R	●	3.000	3.504	2.250	1.750	1.000	0.787	0.375	0.220	0.750	6	3.1	1
WGXM44000R	●	4.000	4.500	2.870	2.000	1.250	1.000	0.500	0.280	0.750	7	4.8	2
WGXM44000R-1.50	●	4.000	4.500	3.750	2.500	1.500	2.000	0.625	0.380	1.000	7	5.5	3
WGXM45000R	●	5.000	5.496	3.750	2.500	1.500	2.000	0.625	0.380	1.000	8	7.2	1
WGXM46000R	●	6.000	6.496	4.380	2.500	1.500	2.000	0.625	0.380	1.060	10	9.5	3
WGXM48000R	●	8.000	8.496	5.906	2.500	2.500	5.118	1.000	0.560	1.594	12	15.6	4

WGX Cutter Bodies-Extra Fine Pitch-INCH

Catalog No.	Stock	φDc	φD1	φDb	Lf	φd	φd1	a	b	ℓ	Teeth	Weight (lbs)	Fig.
WGXF42000R	●	2.000	2.461	1.500	1.750	0.750	0.609	0.312	0.190	0.750	5	0.9	1
WGXF42500R	●	2.500	3.008	1.750	1.750	1.000	0.797	0.375	0.220	0.750	6	1.5	1
WGXF43000R	●	3.000	3.504	2.250	1.750	1.000	0.787	0.375	0.220	0.750	8	3.1	1
WGXF44000R	●	4.000	4.500	2.870	2.000	1.250	1.000	0.500	0.280	0.750	10	4.7	2
WGXF44000R-1.50	●	4.000	4.500	3.750	2.500	1.500	2.000	0.625	0.380	1.000	10	6.5	3
WGXF45000R	●	5.000	5.496	3.750	2.500	1.500	2.000	0.625	0.380	1.000	12	8.2	1
WGXF46000R	●	6.000	6.496	4.380	2.500	1.500	2.000	0.625	0.380	1.060	16	10.5	3
WGXF48000R	●	8.000	8.496	5.906	2.500	2.500	5.118	1.000	0.560	1.594	20	15.2	4

Cutter diameters 6.000" and above do not have coolant holes

WGX Cutter Bodies - Shank - INCH

Catalog No.	Stock	φDc	φD1	φDs	Lf	ℓs	L	Teeth	Fig.
WGX42000EW	●	2.000	2.461	1.250	1.591	2.379	3.970	4	5
WGX42500EW	●	2.500	3.008	1.250	1.591	2.379	3.970	5	5

Identification Details - Shell (Inch)

WGX F 4 2000 R

1 Cutter Series | 2 M : Fine Pitched, F : Extra-Fine Pitched | 3 Insert Series | 4 Diameter (2.000") | 5 Cutter Type

Identification Details - Shank (Inch)

WGX 4 2000 EW

1 Cutter Series | 2 Insert Series | 3 Diameter (2.000") | 4 Endmill Type

WGX Series

Rake Angle		
	Radial	−20° to −24°
	Axial	20° to 22°

6 mm 45°

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum | S Exotic Alloy | H Hardened Steel

Fig 1

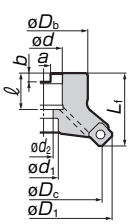


Fig 2

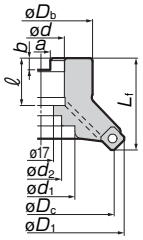


Fig 3

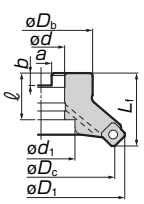


Fig 4

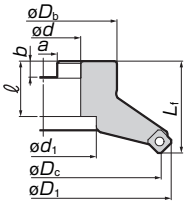


Fig 5

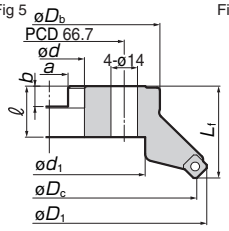
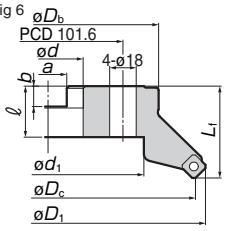


Fig 6



Body (Standard Pitch) - Metric

Cat. No.	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig.
		øDc	øD1	øDb	Lf	ød	a	b	ℓ	ød1	ød2			
WGX13040RS	★	**40**	52	32	40	16	8.4	5.6	18	14	9	3	0.3	1
WGX13050RS	★	**50**	62	40	40	22	10.4	6.3	20	18	11	3	0.4	1
WGX13063RS	★	**63**	76	50	40	22	10.4	6.3	20	18	11	4	0.6	1
WGX13080R	★	**80**	93	60	50	25.4	9.5	6	25	20	13	4	1.2	1
WGX13100R	★	**100**	113	70	63	31.75	12.7	8	32.5	46	28	5	2.3	2
WGX13125R	★	**125**	138	80	63	38.1	15.9	10	35.5	55	30	6	2.9	1
WGX13160R	★	**160**	173	100	63	50.8	19	11	38	72	-	7	4.5	4
WGX13200R	★	**200**	213	150	63	47.625	25.4	14	35	130	-	8	7.1	6
WGX13250R	★	**250**	263	190	63	47.625	25.4	14	35	150	-	10	11.2	6

Body (Fine Pitch) - Metric

Cat. No.	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig.
		øDc	øD1	øDb	Lf	ød	a	b	ℓ	ød1	ød2			
WGXM13050RS	★	**50**	62	40	40	22	10.4	6.3	20	18	11	4	0.4	1
WGXM13063RS	★	**63**	77	50	40	22	10.4	6.3	20	18	11	5	0.6	1
WGXM13080R	★	**80**	94	60	50	25.4	9.5	6	25	20	13	6	1.1	1
WGXM13100R	★	**100**	114	70	63	31.75	12.7	8	32.5	46	28	7	2.2	2
WGXM13125R	★	**125**	139	80	63	38.1	15.9	10	35.5	55	30	8	2.9	1
WGXM13160R	★	**160**	174	100	63	50.8	19	11	38	72	-	10	4.5	4
WGXM13200R	★	**200**	214	150	63	47.625	25.4	14	35	130	-	12	7.0	6
WGXM13250R	★	**250**	264	190	63	47.625	25.4	14	35	150	-	14	11.1	6

Body (Extra- Fine Pitch) - Metric

Cat. No.	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig.
		øDc	øD1	øDb	Lf	ød	a	b	ℓ	ød1	ød2			
WGXF13050RS	★	**50**	62	40	40	22	10.4	6.3	20	18	11	5	0.4	1
WGXF13063RS	★	**63**	77	50	40	22	10.4	6.3	20	18	11	6	0.6	1
WGXF 13080R	★	**80**	94	60	50	25.4	9.5	6	25	20	13	8	1.1	1
WGXF13100R	★	**100**	114	70	63	31.75	12.7	8	32.5	46	28	10	2.1	2
WGXF13125R	★	**125**	139	80	63	38.1	15.9	10	35.5	55	30	12	2.8	1
WGXF13160R	★	**160**	174	100	63	50.8	19	11	38	72	-	16	4.5	4
WGXF13200R	★	**200**	214	150	63	47.625	25.4	14	35	130	-	20	6.9	6
WGXF13250R	★	**250**	264	190	63	47.625	25.4	14	35	150	-	24	11.0	6

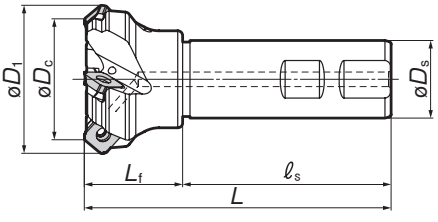
★: Worldwide Warehouse Item

Sizes ø160 mm or above do not have coolant holes

Body (Shank Type)

Cat. No.	Stock	Dimensions (mm)						No. of Teeth
		øDc	øD1	øDs	Lf	ℓs	L	
WGX13032EW	★	32	44	32	40	85	125	3
WGX13040EW	★	40	52	32	40	85	125	3
WGX13050EW	★	50	62	32	40	85	125	4
WGX13063EW	★	63	76	32	40	85	125	5

★: Worldwide Warehouse Item



Indentification Details:

WGX M 13 050 R S

1	2	3	4	5	6
Cutter Series	M: Fine Pitched F : Extra-Fine Pitched	Insert Size	Cutter	Direction	Metric Bore

WGX Series

WGX Recommended Cutting Conditions							
ISO	Material	Hardness	Grade	Depth of Cut			Feed per Tooth
				.002 -.050	.050 - .125	.125 & over	
P	Low and Medium Carbon Steels	<250 Bhn	ACP100	775-1300	725-1250	675-1200	.006-.015
			ACP200	725-1200	675-1150	600-1125	.006-.015
			ACP300	675-1075	650-1025	525-925	.006-.015
	Medium Carbon Alloy Steels	<250 Bhn	ACP100	600-975	575-950	550-900	.006-.015
			ACP200	550-900	525-900	500-875	.006-.015
			ACP300	525-875	500-825	475-800	.006-.015
	Medium-High Carbon Steels	<250 Bhn	ACP100	600-975	575-950	550-900	.006-.015
			ACP200	575-950	550-925	500-875	.006-.015
			ACP300	550-925	525-900	525-850	.006-.015
	Free Machining Steels and Alloys	<250 Bhn	ACP100	775-1300	700-1250	675-1200	.006-.015
			ACP200	750-1275	675-1225	650-1150	.006-.015
			ACP300	675-1075	650-1050	650-1025	.006-.015
	Tool Steels	<250 Bhn	ACP100	475-820	450-790	425-750	.006-.012
			ACP200	450-800	435-775	400-725	.006-.012
			ACP300	435-785	425-760	400-715	.006-.012
		Bhn 220 - 350	ACP100	425-775	400-735	400-700	.004-.012
			ACP200	415-750	400-725	375-690	.004-.012
			ACP300	405-700	410-690	375-680	.004-.012
		>33 Hrc	ACP100	325-650	300-630	300-590	.004-.012
			ACP200	315-640	300-625	300-580	.004-.012
M	Martensitic and Ferritic Stainless Steels	<250 Bhn	ACM300	535-850	520-820	275-800	.004-.012
			ACM300	525-825	515-800	250-775	.004-.012
		>250 Bhn	ACM200	350-800	325-775	300-750	.004-.012
			ACM300	300-750	275-725	250-700	.004-.012
	Austenitic and Precipitation Hardending Stainless Steels	<250 Bhn >250Bhn	ACM300	500-740	475-720	450-675	.004-.012
			ACM200	250-750	225-725	200-700	.004-.012
K	Grey Cast Iron	>250 Bhn	ACK200	600-950	525-825	490-800	.004-.012
			ACK300	500-850	475-775	450-750	.004-.012
		<250 Bhn	ACK200	700-1050	625-925	590-900	.004-.015
			ACK300	600-950	575-875	550-850	.004-.015
	Ductile Iron	>250 Bhn	ACK200	600-925	550-875	490-800	.004-.012
			ACK300	550-825	500-775	450-750	.004-.012
S	Exotic Alloys: Inconel, Hastalloy, Waspalloy, etc.	>300Bhn	ACM200	125-550	110-500	95-450	.004-.010
			ACM300	100-160	70-150	60-135	.004-.010
N	Non-Ferrous Material		H1 DL1000	1000-4000	1000-4000	1000-4000	.006-.015

WGX + DGC Comparison

Needs	Surface Finish	Cutting Force	High Feed Rate	Insert Strength	Chip Evacuation	Cost Per Edge	General Versatility
Recommend	WGX	WGX	DGC	DGC	WGX	DGC	WGX

DualMill DGC Series

Double-sided 45° Lead Face Mill

■ Features & Benefits

Improved reliability and quality
Improved coating and insert runout provides stability of life for production
An excellent lineup of Inserts with optimized chamfers to prevent burrs improves surface finish

Superior economy
With the same sharpness at 3mm or less of similar one-sided inserts, you get twice the corners. Also, the cutter body holds both the ONMT & SNMT inserts, allowing up to 16 corners.

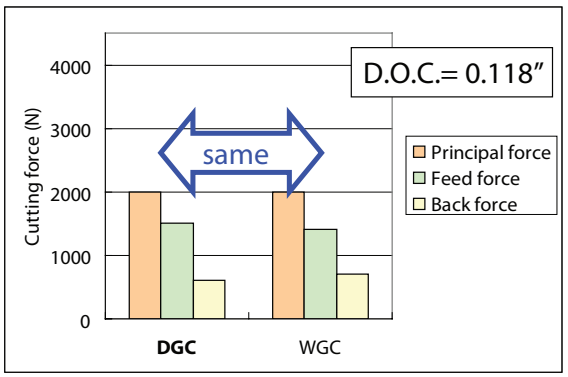
Extensive Lineup
A wide range of diameters (2.000" to 10.000") and pitches (Normal, Fine, Extra Fine), inch and metric sizes, allows you to choose what you need for your application.

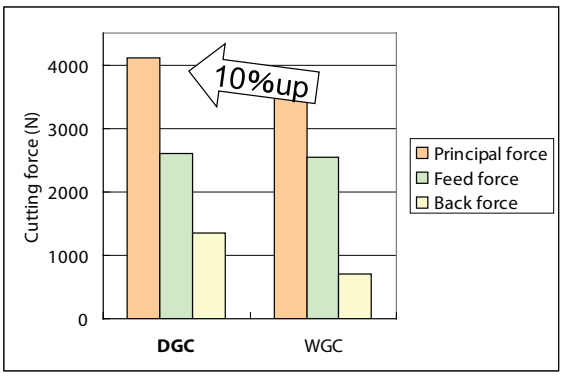
WGX + DGC Comparison

Needs	Surface Finish	Cutting Force	High Feed Rate	Insert Strength	Chip Evacuation	Cost Per Edge	General Versatility
Recommend	WGX	WGX	DGC	DGC	WGX	DGC	WGX

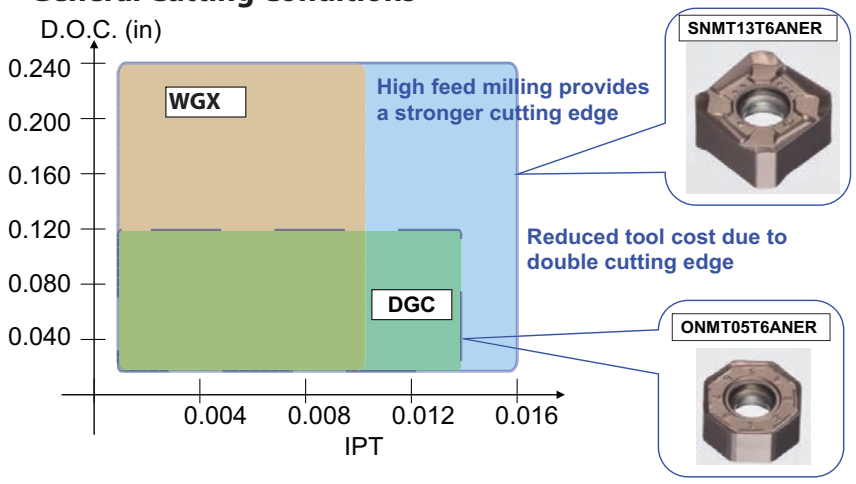
Cutting performance: DGC vs. WGC

Work material : Cr-Mo Steel(SCM435)
Cutting conditions : vc= 500 SFM fz=.012 IPT
Tool dia: 4.00"

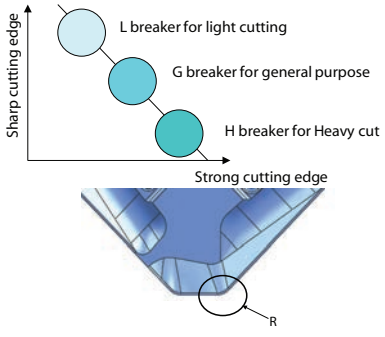


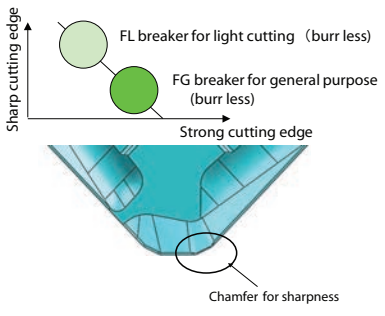


General Cutting Conditions



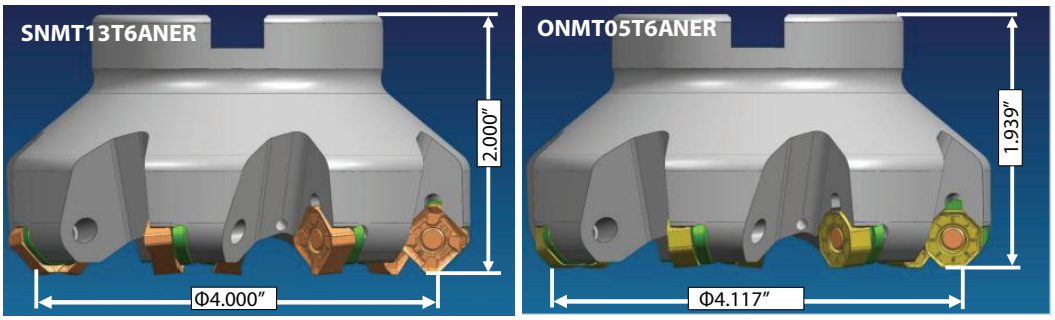
Edge Preparations





DGC Variation of Diameter of Insert

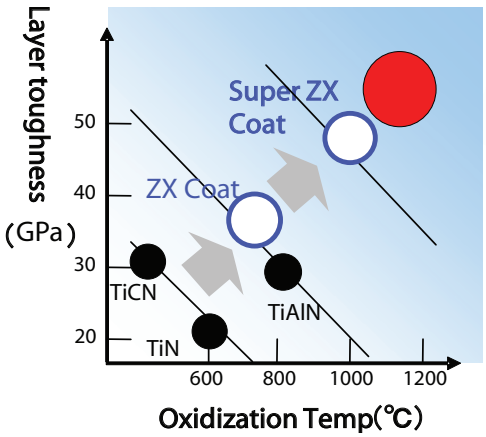
Both SNMT and ONMT inserts can be used on the same cutter body

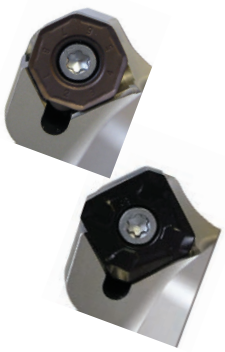


EX. φ 4.000”	# of cutting edges	Tool dia.	Cutter height	Max D.O.C
SNMT	8	4”	2”	6mm 0.236”
ONMT	16	4.117”	1.939”	3mm 0.118”

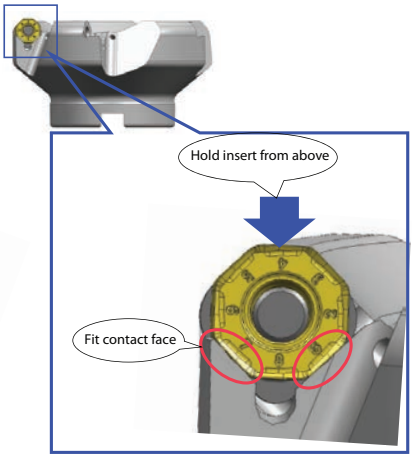
Machining stability with new Super ZX coating

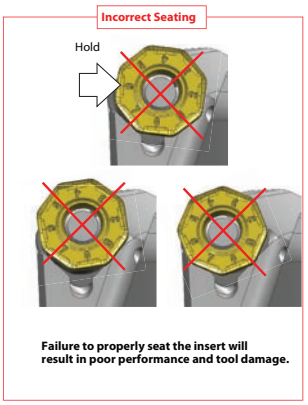
Super multi-layered new super ZX coating improves wear resistance, toughness, and anti-adhesion.



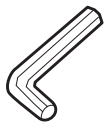
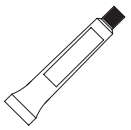


Proper Seating of the ONMT Insert





■ Parts

Seat	Seat Screw	L Type Wrench	Insert Screw	Spanner	Anti-seizure Cream	(Optional) Insert Screw(*)
						
DGCS13R	BW0609F	LH040	BFTX0412IP	TRDR15IP	SUMI-P	BFTX0418IP

*Corners can be changed simply by loosening the screw. (Only applies to DGC / DGCM types with body size ϕ80 or above.

DGC4000 - *INCH*

DualMill DGC Series

Double-sided 45° Lead Face Mill

Fig. 1

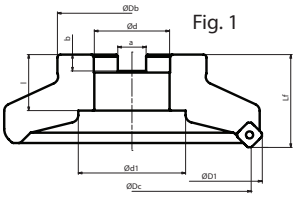


Fig. 2

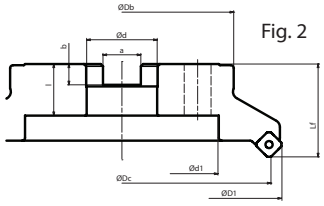


Fig. 3

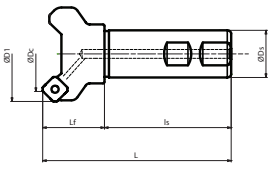
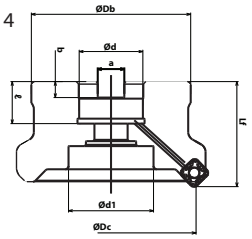


Fig. 4



Rake Angle: Radial: -10° Axial: -5°

DGC Cutter Bodies - Coarse Pitch - INCH												
Catalog Number	Stock	φDc	φD1	φDb	Lf	φD	φd1	a	b	ℓ	Teeth	Fig.
DGC42000R	●	2.000	2.567	1.500	1.750	0.750	0.609	0.312	0.190	0.750	3	1
DGC42500R	●	2.500	3.067	1.750	1.750	1.000	0.797	0.375	0.220	0.750	4	1
DGC43000R	●	3.000	3.567	2.250	1.750	1.000	0.787	0.375	0.220	0.750	4	1
DGC44000R	●	4.000	4.567	2.870	2.000	1.250	1.000	0.500	0.280	0.750	5	1
DGC44000R-1.50	●	4.000	4.000	3.750	2.500	1.500	2.000	0.625	0.380	1.000	5	4
DGC45000R	●	5.000	5.567	3.750	2.500	1.500	2.000	0.625	0.380	1.000	6	1
DGC46000R	●	6.000	6.567	4.380	2.500	1.500	2.000	0.625	0.380	1.060	7	2
DGC48000R	●	8.000	8.567	5.906	2.500	2.500	5.118	1.000	0.560	1.594	8	2
DGC410000R	●	10.000	10.567	7.480	2.756	2.500	6.299	1.000	0.531	1.575	10	2

DGC Cutter Bodies - Fine Pitch - INCH												
Catalog Number	Stock	φDc	φD1	φDb	Lf	φD	φd1	a	b	ℓ	Teeth	Fig.
DGCM42000R	●	2.000	2.567	1.500	1.750	0.750	0.609	0.312	0.190	0.750	4	1
DGCM42500R	●	2.500	3.067	1.750	1.750	1.000	0.797	0.375	0.220	0.750	5	1
DGCM43000R	●	3.000	3.567	2.250	1.750	1.000	0.787	0.375	0.220	0.750	6	1
DGCM44000R	●	4.000	4.567	2.870	2.000	1.250	1.000	0.500	0.280	0.750	7	1
DGCM44000R-1.50	●	4.000	4.000	3.750	2.500	1.500	2.000	0.625	0.380	1.000	7	4
DGCM45000R	●	5.000	5.567	3.750	2.500	1.500	2.000	0.625	0.380	1.000	8	1
DGCM46000R	●	6.000	6.567	4.380	2.500	1.500	2.000	0.625	0.380	1.060	10	2
DGCM48000R	●	8.000	8.567	5.906	2.500	2.500	5.118	1.000	0.560	1.594	12	2

DGC Cutter Bodies - Extra Fine Pitch - INCH												
Catalog Number	Stock	φDc	φD1	φDb	Lf	φD	φd1	a	b	ℓ	Teeth	Fig.
DGCF42000R	●	2.000	2.567	1.500	1.750	0.750	0.609	0.312	0.190	0.750	5	1
DGCF42500R	●	2.500	3.067	1.750	1.750	1.000	0.797	0.375	0.220	0.750	6	1
DGCF43000R	●	3.000	3.567	2.250	1.750	1.000	0.787	0.375	0.220	0.750	8	1
DGCF44000R	●	4.000	4.567	2.870	2.000	1.250	1.000	0.500	0.280	0.750	10	1
DGCF44000R-1.50	●	4.000	4.000	3.750	2.500	1.500	2.000	0.625	0.380	1.000	10	4
DGCF45000R	●	5.000	5.567	3.750	2.500	1.500	2.000	0.625	0.380	1.000	12	1
DGCF46000R	●	6.000	6.567	4.380	2.500	1.500	2.000	0.625	0.380	1.060	14	2
DGCF48000R	●	8.000	8.567	5.906	2.500	2.500	5.118	1.000	0.560	1.594	16	2

DGC Cutter Bodies - Shank - INCH									
Catalog Number	Stock	φDc	φD1	φDb	Lf	ℓs	L	Teeth	Fig.
DGC42000EW	●	2.000	2.567	1.250	1.591	2.379	3.970	4	3
DGC42500EW	●	2.000	2.567	1.250	1.591	2.379	3.970	5	

PLEASE NOTE: For 40, 50 and 63mm, arbor hole is standard in metric sizes, not inch sizes.

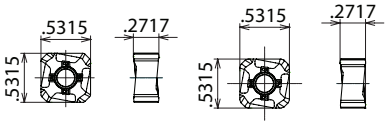
Inserts	*P*				*K*		*M*		*H*	
Catalog Number	ACP100	ACP200	ACP300	T4500A	ACK200	ACK300	ACM200	ACM300	H1	DL1000
SNMT13T6ANER-L	●	●	●		●	●				
SNMT13T6ANER-G	●	●	●	●	●	●				
SNMT13T6ANER-H	●	●	●		●	●				
SNMT13T6ANER-FL	●	●	●		●	●				
SNMT13T6ANER-FG	●	●	●		●	●				
SNET13T6ANER-L							●	●		
SNET13T6ANER-G							●	●		
SNET13T6ANER-FL							●	●		
SNET13T6ANER-FG							●	●		
SNET13T6ANFR-S									●	●
ONMT05T6ANER-L	●	●	●		●	●				
ONMT05T6ANER-G	●	●	●		●	●				
ONET05T6ANER-L							●	●		
ONET05T6ANER-G							●	●		
XNEU13T6ANEN-W		●		●		●				

●: USA Stocked Item

Max. Depth of Cut
SNMT: 6mm (.236")
ONMT: 3mm (.188")

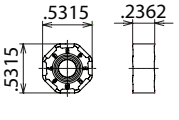
See pages 613-615 for recommended running parameters

SNMT

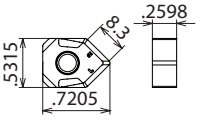


F,L,H FG,FL

ONMT



XNEU (wiper)



DGC13000 - METRIC

Rake Angle		
	Radial	−10°
	Axial	−5 °

6 mm 45° (SNMT Type) 3 mm 45° (ONMT Type)

P Steel M Stainless Steel K Cast Iron N Non-Ferrous Iron N Aluminum S Exotic Alloy H Hardened Steel

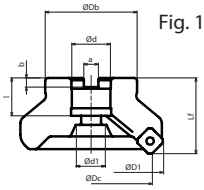


Fig. 1

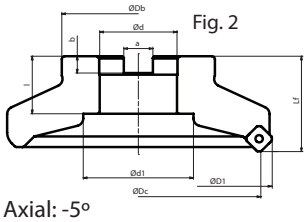


Fig. 2

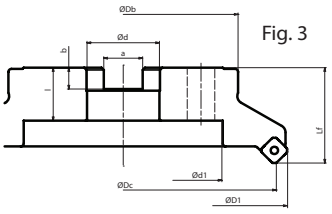


Fig. 3

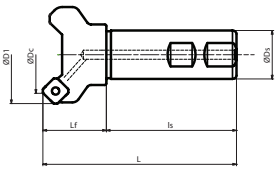


Fig. 4

Rake Angle: Radial: -10° Axial: -5°

DGC Cutter Bodies - Coarse Pitch - METRIC

Catalog Number	Stock	φDc	φD1	φDb	Lf	φD	φD1	a	b	ℓ	Teeth	Fig.
DGC13040RS	●	40	54	36	40	16	13.5	8.4	5.6	18	3	1
DGC13050RS	●	50	64	40	40	22	18	10.4	6.3	20	3	1
DGC13063RS	●	63	77	50	40	22	18	10.4	6.3	20	4	1
DGC13080R	●	80	94	60	50	25.4	20	9.5	7	25	4	1
DGC13100R	●	100	114	70	63	31.75	28	12.7	8.5	32.5	5	1
DGC13125R	●	125	139	80	63	38.1	55	15.9	9.5	35.5	6	1
DGC13160R	●	160	174	100	63	50.8	72	19	9.5	38	7	2
DGC13200R	●	200	214	150	63	47.625	130	25.4	14	35	8	3
DGC13250R	●	250	264	190	63	47.625	150	25.4	14	35	10	3

DGC Cutter Bodies - Fine Pitch - METRIC

Catalog Number	Stock	φDc	φD1	φDb	Lf	φD	φD1	a	b	ℓ	Teeth	Fig.
DGCM13050RS	●	50	64	40	40	22	18	10.4	6.3	20	4	1
DGCM13063RS	●	63	77	50	40	22	18	10.4	6.3	20	5	1
DGCM13080R	●	80	94	60	50	25.4	20	9.5	7	25	6	1
DGCM13100R	●	100	114	70	63	31.75	28	12.7	8.5	32.5	7	1
DGCM13125R	●	125	139	80	63	38.1	55	15.9	9.5	35.5	8	1
DGCM13160R	●	160	174	100	63	50.8	72	19	9.5	38	10	2
DGCM13200R	●	200	214	150	63	47.625	130	25.4	14	35	12	3
DGCM13250R	●	250	264	190	63	47.625	150	25.4	14	35	14	3

DGC Cutter Bodies - Extra Fine Pitch - METRIC

Catalog Number	Stock	φDc	φD1	φDb	Lf	φD	φD1	a	b	ℓ	Teeth	Fig.
DGCF13050RS	●	50	64	40	40	22	18	10.4	6.3	20	5	1
DGCF13063RS	●	63	77	50	40	22	18	10.4	6.3	20	6	1
DGCF13080R	●	80	94	60	50	25.4	20	9.5	7	25	8	1
DGCF13100R	●	100	114	70	63	31.75	28	12.7	8.5	32.5	10	1
DGCF13125R	●	125	139	80	63	38.1	55	15.9	9.5	35.5	12	1
DGCF13160R	●	160	174	100	63	50.8	72	19	9.5	38	14	2
DGCF13200R	●	200	214	150	63	47.625	130	25.4	14	35	16	3
DGCF13250R	●	250	264	190	63	47.625	150	25.4	14	35	18	3

DGC Cutter Bodies - Shank - METRIC

Catalog Number	Stock	φDc	φD1	φDb	Lf	ℓs	L	Teeth	Fig.
DGC13040EW	●	40	54	32	40	85	125	3	4
DGC13050EW	●	50	64	32	40	85	125	3	
DGC13063EW	●	63	77	32	40	85	125	4	

See pages 613-615 for recommended running parameters

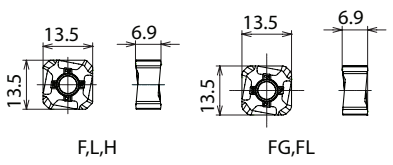
PLEASE NOTE: For 40, 50 and 63mm, arbor hole is standard in metric sizes, not inch sizes.

Inserts	P				K		M		H	
Catalog Number	ACP100	ACP200	ACP300	T4500A	ACK200	ACK300	ACM200	ACM300	H1	DL1000
SNMT13T6ANER-L	●	●	●		●	●				
SNMT13T6ANER-G	●	●	●	●	●	●				
SNMT13T6ANER-H	●	●	●		●	●				
SNMT13T6ANER-FL	●	●	●		●	●				
SNMT13T6ANER-FG	●	●	●		●	●				
SNET13T6ANER-L							●	●		
SNET13T6ANER-G							●	●		
SNET13T6ANER-FL							●	●		
SNET13T6ANER-FG							●	●		
SNET13T6ANFR-S									●	●
ONMT05T6ANER-L	●	●	●		●	●				
ONMT05T6ANER-G	●	●	●		●	●				
ONET05T6ANER-L							●	●		
ONET05T6ANER-G							●	●		
XNEU13T6ANEN-W		●		●		●				

Max. Depth of Cut
SNMT: 6mm (.236")
ONMT: 3mm (.188")

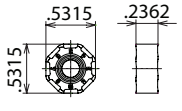
●: USA Stocked Item

SNMT

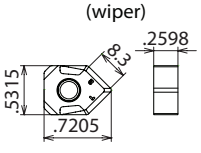


F,L,H FG,FL

ONMT



XNEU (wiper)

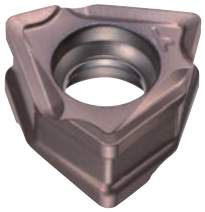


NEW

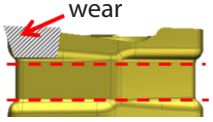
DFC Mill Features & Benefits

- High toughness insert design enables stable cutting and high efficiency machining with high feed rate
- Optimized machining accuracy by separating the insert contact areas and the cutting edges
- Large lineup for DFC available from 1" through 8" in standard, fine pitch and extra-fine pitch styles

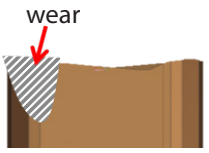
Insert Characteristics



Precise repositioning of inserts due to thick supporting area



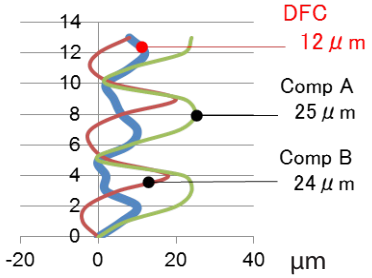
XNMU side view



conventional insert side view

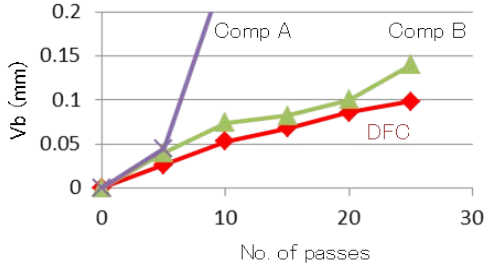
Optimized cutting edge yields excellent machining accuracy

Squareness Performance



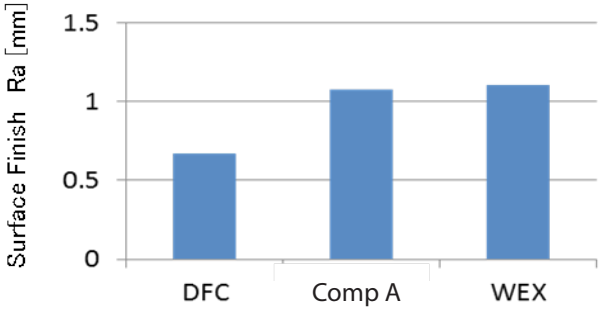
Work material : 1049 steel
Cutting Conditions: v_C=650 SFM f_Z=.0039 IPT
D_C= 63mm
a_p= .197" x 3 pass, a_e=.197"

Wear Resistance Chart



Work material: 1049 steel
Cutting Conditions: v_C=650 SFM f_Z=.0079 IPT
D_C= 100mm cutter
a_p= .118", a_e=3.346"

Surface Finish Graph



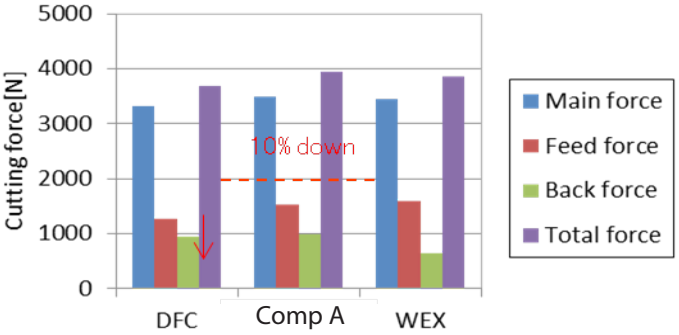
Work material: 1049 steel
Cutting Conditions: v_C=650 SFM f_Z=.0079 IPT
D_C= 100mm cutter
a_p= .118", a_e=3.346"

Cutting Edge Strength

	Feed Per Tooth (in/t)		
	0.012	0.016	0.020
DFC	•	•	•
Comp A	•	damage	
Comp B	damage		

Work material: 1049 steel with holes
Cutting Conditions: v_C=650 SFM f_Z=.0079 IPT
D_C= 100mm cutter
a_p= .118", a_e=2.047" x 3 pass

Cutting Force

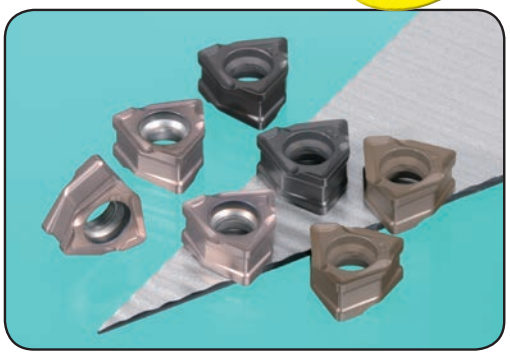


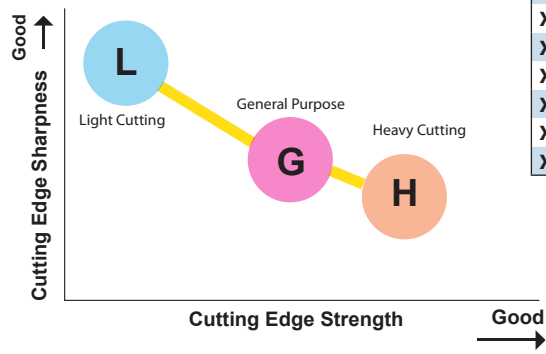
Work material: 1049 steel
Cutting Conditions: v_C=650 SFM f_Z=.0079 IPT
D_C= 100mm cutter
a_p= .118", a_e=2.953"

DFC Series

Inserts

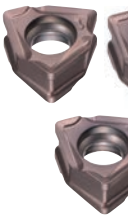
NEW

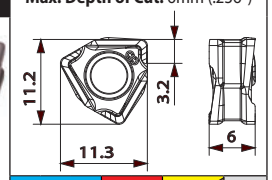




XNMU Inserts

Max. Depth of Cut: 6mm (.236")





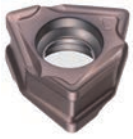
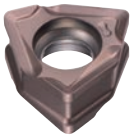
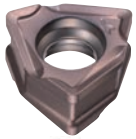
Catalog Number	P ACP100	P ACP200	P ACP300	K ACK200	K ACK300	M/S ACM200	M/S ACM300	Radius
XNMU060604PNER-L		●	●		●		●	.016
XNMU060608PNER-L		●	●		●		●	.031
XNMU060604PNER-G	●	●	●	●	●	●	●	.016
XNMU060608PNER-G	●	●	●	●	●	●	●	.031
XNMU060612PNER-G	●	●	●	●	●	●	●	.047
XNMU060616PNER-G	●	●	●	●	●	●	●	.063
XNMU060608PNER-H	●	●	●	●	●	●	●	.031
XNMU060612PNER-H	●	●	●	●	●	●	●	.047
XNMU060616PNER-H	●	●	●	●	●	●	●	.063

● USA stocked item

Material	P10/M10/C7	P20/M20/C6	P30/M30/C5A	P40/M40/C5
P Steel / M Stainless Steel	ACP100	ACP200	ACP300	

Material	K01	K10	K20	K30
K Cast Iron	ACK200	ACK300		

Material	Wear Resistance ⟷ Fracture Resistance
M Stainless Steel / S Exotic Material	ACM200, ACM300

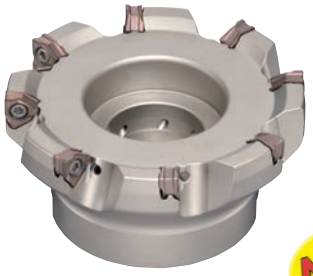
Work Material	Steel, Cast Iron		
	L type	G type	H type
Chip breaker			
Feature	Low cutting force	General purpose	Strong edge
Cutting edge figure			
Application	Light cut, low rigidity milling and reduced burr formation	Main breaker, General purpose to interrupted milling	Roughing, heavy interrupted and hardness steel milling.

Running Conditions

ISO	Work Material	Hardness	Cutting Speed (SFM) Min. - Optimum - Max.	Feed Rate (in./t) Min. - Optimum - Max.	D.O.C. (in.)	Grade
P	General Steel	180 ~ 280HB	500 - 650 - 820	0.004 - 0.008 - 0.012	<0.236	ACP200 ACP300
P	Soft Steel	<180HB	600 - 820 - 1,150	0.006 - 0.010 - 0.014	< 0.236	ACP200 ACP300
P	Die Steel	200 ~ 220HB	330 - 500 - 650	0.004 - 0.007 - 0.010	< 0.157	ACP200 ACP300
M	PH Stainless Steel	>220HB	300 - 500 - 750	0.004 - 0.007 - 0.010	<0.196	ACM200
M	Austenitic Stainless	<250HB	525 - 675 - 820	0.005 - 0.007 - 0.010	<0.236	ACM300
K	Cast Iron	250HB	500 - 750 - 1150	0.004 - 0.008 - 0.012	<0.236	ACK200 ACK300

DFC - Inch Lineup

High Efficiency, Double-sided 90° Milling Cutter



NEW

Figure 1

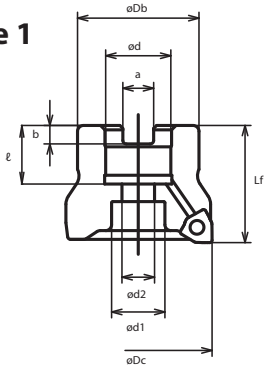
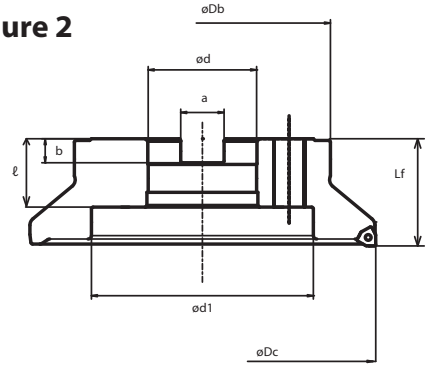


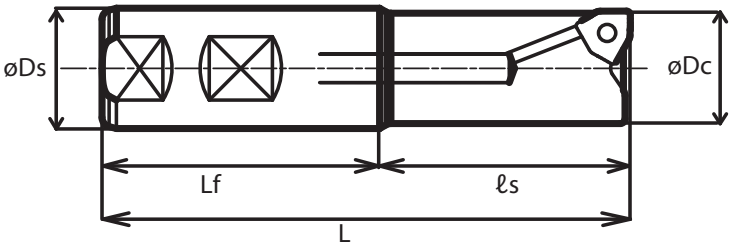
Figure 2



Cat. No.	Stock	Dimensions (in.) øDc	øDb	Lf	ød	a	b	ℓ	ød1	ød2	No. of Teeth	Weight (lbs)	Fig.
Body (Standard Pitch) - Inch													
DFC22000R	●	2.000	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	4	0.75	1
DFC22500R	●	2.500	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	5	1.08	1
DFC23000R	●	3.000	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	6	1.81	1
DFC24000R	●	4.000	2.870	2.000	1.250	0.500	0.280	0.750	1.000	0.656	6	3.84	1
DFC24000R-1.50	●	4.000	3.150	2.500	1.500	0.625	0.380	1.000	2.000	1.181	6	4.76	1
DFC25000R	●	5.000	3.750	2.500	1.500	0.625	0.380	1.000	2.000	1.181	7	7.87	1
DFC26000R	●	6.000	4.380	2.500	1.500	0.625	0.380	1.000	2.000	1.181	8	11.64	1
DFC28000R	●	8.000	5.906	2.500	2.500	1.000	0.560	1.594	5.118	-	10	15.00	2
Body (Fine Pitch) - Inch													
DFCM22000R	●	2.000	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	5	0.75	1
DFCM22500R	●	2.500	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	6	1.05	1
DFCM23000R	●	3.000	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	8	1.79	1
DFCM24000R	●	4.000	2.870	2.000	1.250	0.500	0.280	0.750	1.000	0.656	10	3.79	1
DFCM24000R-1.50	●	4.000	3.150	2.500	1.500	0.625	0.380	1.000	2.000	1.181	10	4.67	1
DFCM25000R	●	5.000	3.750	2.500	1.500	0.625	0.380	1.000	2.000	1.181	12	7.78	1
DFCM26000R	●	6.000	4.380	2.500	1.500	0.625	0.380	1.000	2.000	1.181	14	11.55	1
DFCM28000R	●	8.000	5.906	2.500	2.500	1.000	0.560	1.594	5.118	-	15	14.79	2
Body (Extra-Fine Pitch) - Inch													
DFCF22000R	●	2.000	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	6	0.71	1
DFCF22500R	●	2.500	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	7	1.03	1
DFCF23000R	●	3.000	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	9	1.76	1
DFCF24000R	●	4.000	2.870	2.000	1.250	0.500	0.280	0.750	1.000	0.656	11	3.64	1
DFCF24000R-1.50	●	4.000	3.150	2.500	1.500	0.625	0.380	1.000	2.000	1.181	11	4.54	1
DFCF25000R	●	5.000	3.750	2.500	1.500	0.625	0.380	1.000	2.000	1.181	14	7.54	1
DFCF26000R	●	6.000	4.380	2.500	1.500	0.625	0.380	1.000	2.000	1.181	16	11.29	1
DFCF28000R	●	8.000	5.906	2.500	2.500	1.000	0.560	1.594	5.118	-	20	14.59	2

● USA stocked item

DFC Endmill Inch Lineup

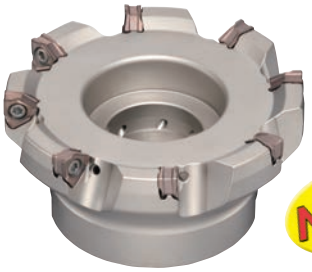


Cat. No.	Stock	Dimensions (in.) øDc	øDs	Lf	ℓs	L	No. of Teeth	Weight (lbs)
Body (Shank Type)								
DFC21000EW	●	1.000	1.000	2.060	2.281	4.341	2	0.77
DFC21250EW	●	1.250	1.250	2.060	2.281	4.341	3	1.26
DFC21500EW	●	1.500	1.250	2.060	2.281	4.341	3	1.52
DFC22000EW	●	2.000	1.250	2.060	2.281	4.341	4	1.72
DFC22500EW	●	2.500	1.250	2.060	2.281	4.341	5	2.12
DFCM21500EW	●	1.500	1.250	2.060	2.281	4.341	4	1.50
DFCM22000EW	●	2.000	1.250	2.060	2.281	4.341	5	1.70
DFCM22500EW	●	2.500	1.250	2.060	2.281	4.341	7	2.07

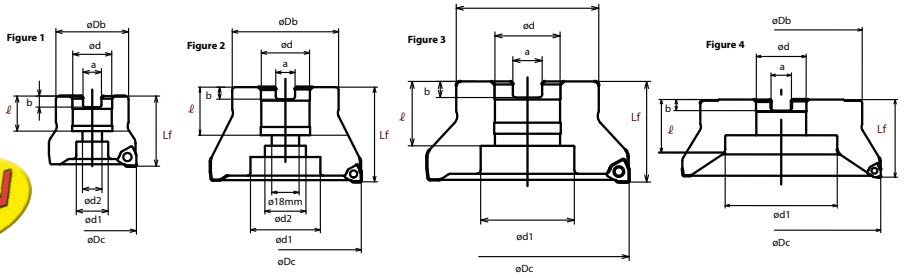
Hardware

Insert Screw	Insert Wrench	Coolant Through Bolts	
		Catalog Number	Cutter Size
		BFXH 3/8 x 1	**2.00"**
		BFXH 1/2 x 1 1/4	**2.50"**
BFTX03512IP	TRDR15IP Torque: 3.0 N•m	**BFXH 1/2 x 1 1/4**	**3.00"**
		BFXH 5/8 x 1 1/4	**4.00"**
		BFXH 3/4 x 2	**5.00"**

High Efficiency, Double-sided 90° Milling Cutter



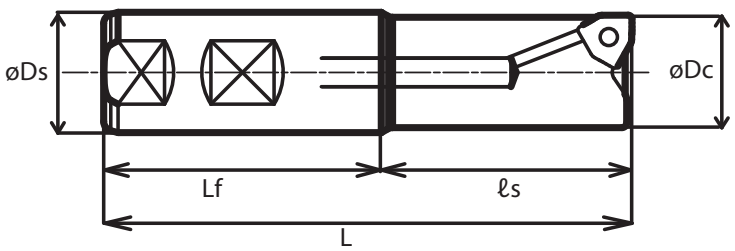
NEW



Cat. No.	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig.
		$øD_c$	$øD_b$	L_f	ød	a	b	ℓ	$ød_1$	$ød_2$			
Body (Standard Pitch) - Metric													
DFC09050RS	★	50	41	40	22	10.4	6.3	20	18	11	4	0.3	1
DFC09063RS	★	63	50	40	22	10.4	6.3	20	18	11	4	0.5	1
DFC09080RS	★	80	55	50	27	12.4	7	22	20	14	5	1	1
DFC09100RS	★	100	70	50	32	14.4	8	26	46	32	6	1.4	3
DFC09125RS	★	125	80	63	40	16.4	9	29	52	29	7	2.8	1
DFC09160RS	★	160	100	63	40	16.4	9	29	90	-	8	4.6	4
DFC09080R	★	80	55	50	25.4	9.5	6	25	20	14	5	1	1
DFC09100R	★	100	70	63	31.75	12.7	8	32	27	18	6	2	2
DFC09125R	★	125	80	63	38.1	15.9	10	35.5	55	30	7	2.8	1
DFC09160R	★	160	100	63	50.8	19.1	11	38	72	-	8	3.6	4
Body (Fine Pitch) - Metric													
DFCM09050RS	★	50	41	40	22	10.4	6.3	20	18	11	5	0.3	1
DFCM09063RS	★	63	50	40	22	10.4	6.3	20	18	11	6	0.5	1
DFCM09080RS	★	80	55	50	27	12.4	7	22	20	14	7	0.9	1
DFCM09100RS	★	100	70	50	32	14.4	8	26	46	32	8	1.4	3
DFCM09125RS	★	125	80	63	40	16.4	9	29	52	29	11	2.7	1
DFCM09160RS	★	160	100	63	40	16.4	9	29	90	-	12	4.5	4
DFCM09080R	★	80	55	50	25.4	9.5	6	25	20	14	7	0.9	1
DFCM09100R	★	100	70	63	31.75	12.7	8	32	27	18	8	1.9	2
DFCM09125R	★	125	80	63	38.1	15.9	10	35.5	55	30	11	2.7	1
DFCM09160R	★	160	100	63	50.8	19.1	11	38	72	-	12	3.5	4
Body (Extra-Fine Pitch) - Metric													
DFCF09050RS	★	50	41	40	22	10.4	6.3	20	18	11	6	0.3	1
DFCF09063RS	★	63	50	40	22	10.4	6.3	20	18	11	7	0.5	1
DFCF09080RS	★	80	55	50	27	12.4	7	22	20	14	9	0.9	1
DFCF09100RS	★	100	70	50	32	14.4	8	26	46	32	11	1.3	3
DFCF09125RS	★	125	80	63	40	16.4	9	29	52	29	14	2.6	1
DFCF09160RS	★	160	100	63	40	16.4	9	29	90	-	16	4.6	4
DFCF09080R	★	80	55	50	25.4	9.5	6	25	20	14	9	0.9	1
DFCF09100R	★	100	70	63	31.75	12.7	8	32	27	18	11	1.9	2
DFCF09125R	★	125	80	63	38.1	15.9	10	35.5	55	30	14	2.7	1
DFCF09160R	★	160	100	63	50.8	19.1	11	38	72	-	16	3.5	4

★ worldwide warehouse item

DFC Endmill Metric Lineup



Cat. No.	Stock	Dimensions (mm)					No. of Teeth
		$øD_c$	$øD_s$	L_f	$ℓ_s$	L	
Body (Shank Type)							
DFC09025E	★	25	25	40	80	120	2
DFC09032E	★	32	32	50	80	130	2
DFC09040E	★	40	32	50	80	130	3
DFC09050E	★	50	32	50	80	130	3
DFC09050E-42	★	50	42	50	100	150	3
DFC09063E	★	63	32	50	80	130	4
DFC09063E-42	★	63	42	50	100	150	4
DFC09080E	★	80	32	50	80	130	5
DFC09080E-42	★	80	42	50	100	150	5
DFCM09032E	★	32	32	50	80	130	3
DFCM09040E	★	40	32	50	80	130	4
DFCM09050E	★	50	32	50	80	130	5
DFCM09050E-42	★	50	42	50	100	150	5
DFCM09063E	★	63	32	50	80	130	6
DFCM09063E-42	★	63	42	50	100	150	6
DFCM09080E	★	80	32	50	80	130	7
DFCM09080E-42	★	80	42	50	100	150	7

GOALMILL

Applicable Insert: LNGX

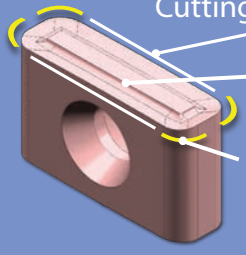
SumiMill GOALMILL

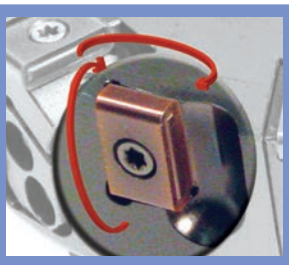
Cast Iron Roughing & Finishing Face Mill

Features & Benefits

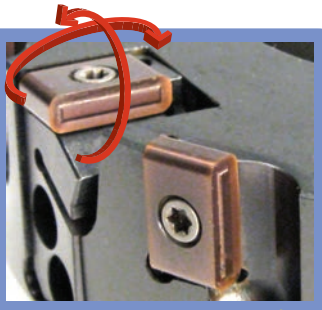
- Excellent surface finish capabilities
- Consists of fixed pocket inserts on the periphery
- Cartridges adjust easily and use the same insert as the periphery pockets
- All LNGX inserts have 8 cutting edges (12 when used with both right and left hand cutters)

Insert Features

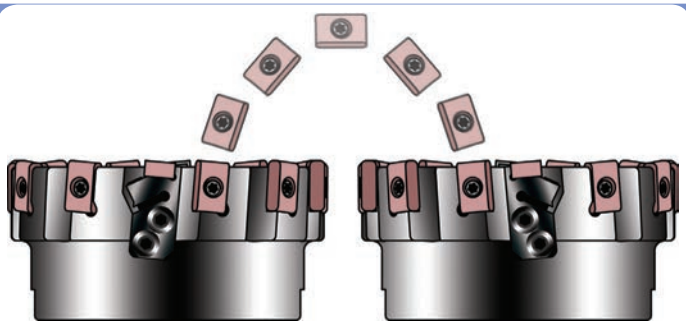




Four indexes can be used in the periphery pocket if the insert is rotated.



Flip the insert on its side and four indexes can also be used in the finishing cartridge.



By switching the insert to a left hand cutter, FOUR MORE ROUGHING EDGES can now be used. A total of 12 indexes are possible when using both right and left hand cutters.*

*Left-handed cutters are made to order

MASTER TOOLING SPECIALISTS TOOL
Sumitomo Electric Carbide Manufacturing, Inc.

Master Tool can provide custom-made milling cutters to accommodate your specific applications.

Roughing	Semi-finishing	Finishing
<50Rz	<18Rz	<12.5Rz
45° 	45° w/wiper 	90° 

SumiMill
GOALMILL
Applicable Insert: LNGX

Fig. 1

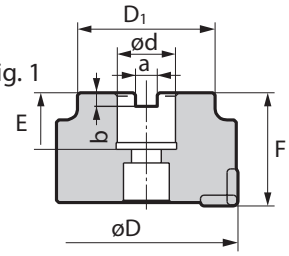


Fig. 2

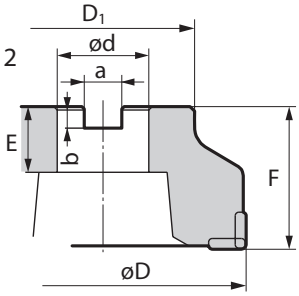
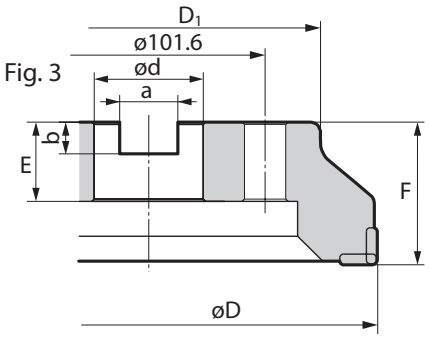


Fig. 3

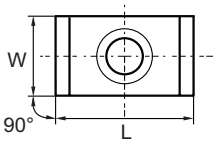


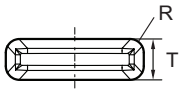
GOALMILL Cutter Bodies

Catalog Number	Stock	Dimensions (inch)							# of Teeth		Fig.	Effective Cutting Dia.
		øD	øD1	ød	a	b	E	F	Roughing	Wiper		
GFV53000R	●	3.000	2.900	1.000	0.375	0.220	1.060	2.000	6	2	1	2.352
GFV54000R	●	4.000	3.380	1.500	0.625	0.385	1.060	2.000	10	2	1	3.342
GFV56000R	●	6.000	4.880	2.000	0.761	0.438	1.000	2.500	12	4	2	5.342
GFV58000R	●	8.000	6.040	2.500	1.00	0.560	1.595	2.500	20	4	3	7.342

NOTE: Left-handed cutters are made to order

GOALMILL Inserts & Hardware

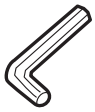




Catalog Number	Stock	Dimensions (inch)				Insert Screw*	Insert Wrench
		L	W	T	R		
LNGX160516PNFN-W-K244L9	●	0.625	0.375	0.187	0.063	BFTX03588	TTX15W
LNGX160516PNFN-W-K246L9	●						
LNGX160516PNFN-W-SN2100K	●						

*Torque specifications for insert screw= 26.5 in/lbs.

Cartridge & Hardware



Wiper Cartridge*	Cartridge Mount Screw	Wrench for Cartridge Mount Screw	Axial Adjustment Screw	Wrench for Adjustment Screw
GFVK5R	BX0418	LT15	ED090225E	TTX15W

*Insert not included with cartridge

Micro Adjustment:

- Check each of the fixed pocket milling inserts to find the one at the highest setting.
- Load the wiper cartridges into the face mill body and torque the cartridge mount screw
- Adjust the wiper cartridge using the axial adjustment screw so that it is .0010" ~ .0012" above the highest fixed pocket milling insert

Recommended Running Conditions

Gray Cast Iron			
Grade	SFM	D.O.C.	IPT
K244L9	450~1150	0.004~0.030	0.004~0.015
K246L9	400~650		
SN2100K	1000~3000	0.010~0.080	0.004~0.010

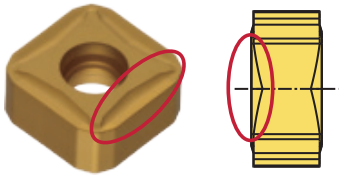
*Greater depths of cut (up to 4mm) possible if wiper cartridges are removed.

Ductile Cast Iron			
Grade	SFM	D.O.C.	IPT
K244L9	450~800	0.004~0.030	0.004~0.015
K246L9	400~600		

NOTE: If the wiper inserts will be indexed without presetting the wiper cartridge heights again, the first preset height should be from 0.001" to 0.002" (0.025 to 0.050 mm) above the highest fixed pocket periphery insert.

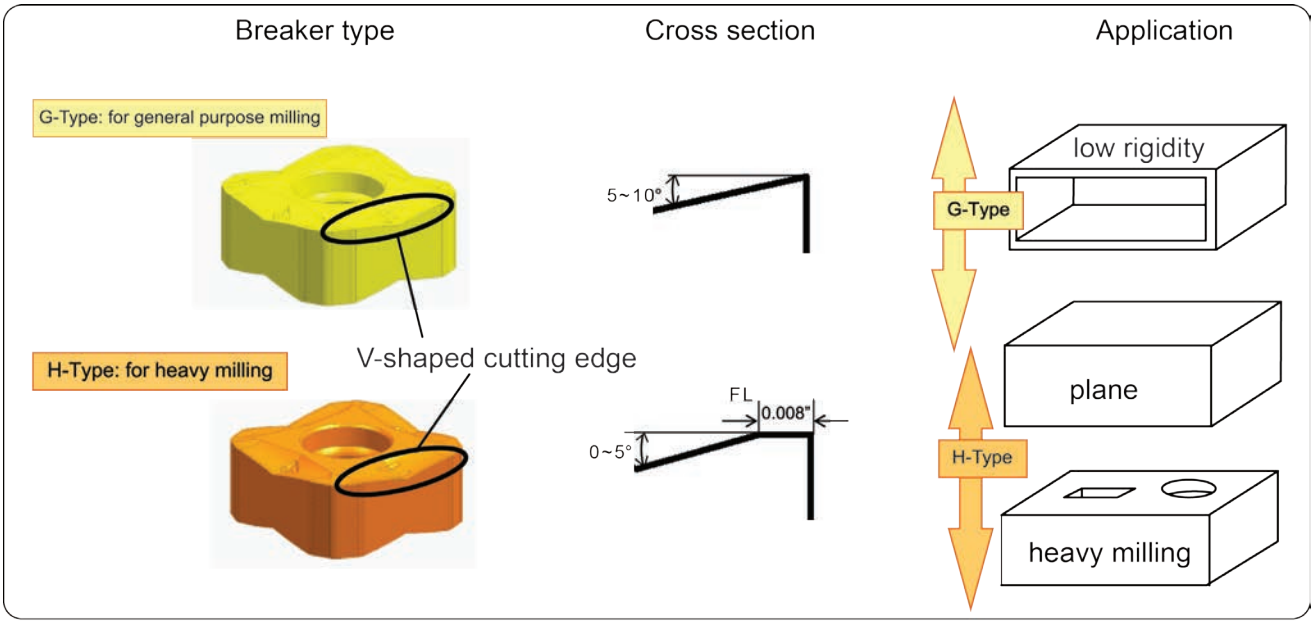
Features & Benefits

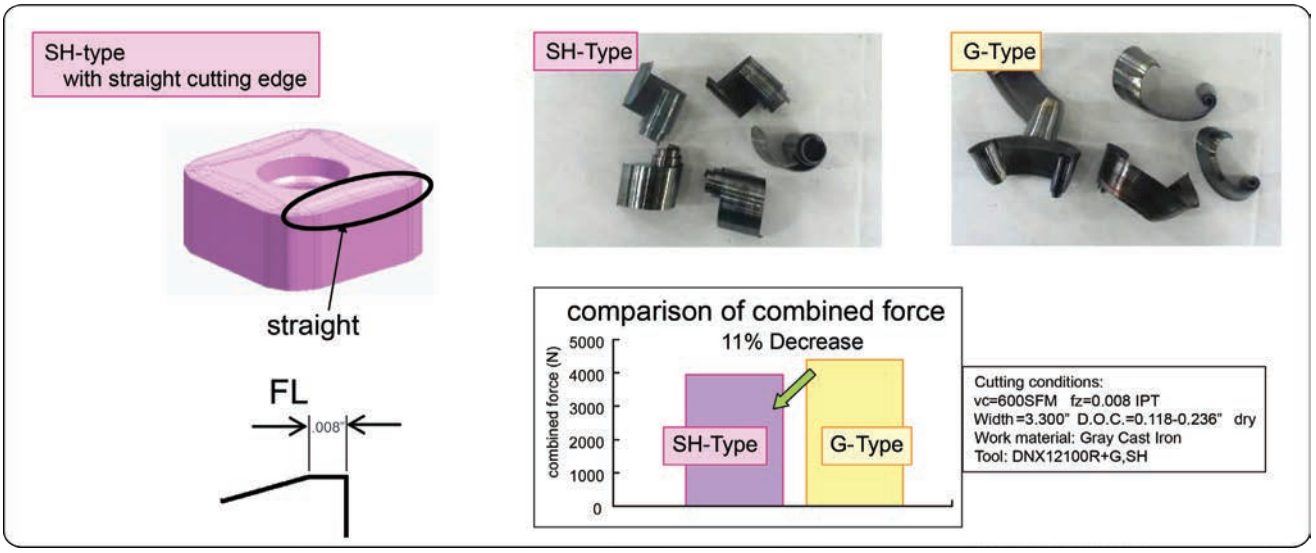
- For iron and steel applications
- Combination of cutter body type and insert design allows for a wider application range
- Low cutting forces and V-shaped insert edge together provide stable machining and less vibration
- Significant cost savings due to 8 cutting edges; able to achieve 1.5 times higher efficiency than the leading competitor



V-shaped cutting edge

Insert Characteristics





Rake Angle		
	Radial	−6°
	Axial	−5°

Max. Depth of Cut 8mm 25°

P Steel	M Stainless Steel	K Cast Iron	N Nonferrous Metal	N Aluminum	S Exotic Alloy	H Hardened Steel
○		●				

Fig. 1

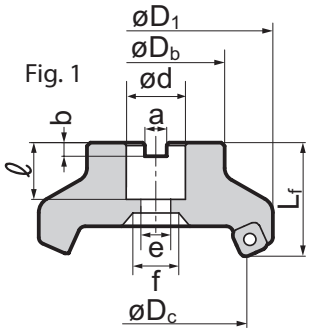


Fig. 2

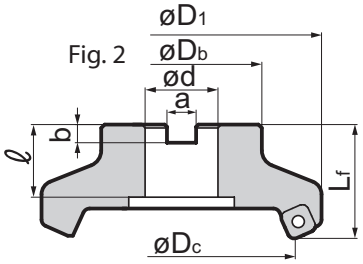
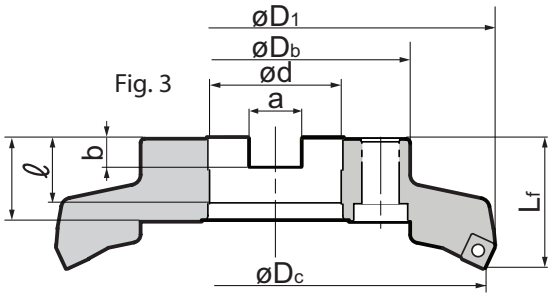


Fig. 3



SumiMill DNX Bodies - Coarse Pitch

Sumitomo Cat. Number	Dimensions (in)										# of Teeth	Pitch	Max D.O.C.	Fig.
	øDc	øD1	øDb	Lf	ød	a	b	ℓ	e	f				
DNX43000R	3.000	3.303	2.250	1.750	1.000	0.375	0.220	1.020	0.531	0.797	6	Coarse	0.314″	1
DNX44000R	4.000	4.315	2.870	2.000	1.250	0.500	0.280	1.020	0.656	1.000	7			1
DNX44000R-1.50	4.000	4.303	3.750	2.500	1.500	0.625	0.380	1.000	0.780	1.180	7			4
DNX45000R	5.000	5.303	3.750	2.500	1.500	0.625	0.380	1.060	-	-	8			2
DNX46000R	6.000	6.303	4.380	2.500	1.500	0.625	0.380	1.060	-	-	10			2
DNX48000R	8.000	8.303	5.120	2.500	2.500	1.000	0.560	1.595	-	-	12			3

SumiMill DNX Bodies - Fine Pitch

Sumitomo Cat. Number	Dimensions (in)										# of Teeth	Pitch	Max D.O.C.	Fig.
	øDc	øD1	øDb	Lf	ød	a	b	ℓ	e	f				
DNXF43000R	3.000	3.303	2.250	1.750	1.000	0.375	0.220	1.020	0.531	0.797	8	Fine	0.314″	1
DNXF44000R	4.000	4.315	2.870	2.000	1.250	0.500	0.280	1.020	0.656	1.000	10			1
DNX44000R-1.50	4.000	4.303	3.750	2.500	1.500	0.625	0.380	1.000	0.780	1.180	10			4
DNXF45000R	5.000	5.303	3.750	2.500	1.500	0.625	0.380	1.060	-	-	11			2
DNXF46000R	6.000	6.303	4.380	2.500	1.500	0.625	0.380	1.060	-	-	12			2
DNXF48000R	8.000	8.303	5.120	2.500	2.500	1.000	0.560	1.595	-	-	14			3

Inserts for DNX Series

Sumitomo Cat. Number	ACK100	ACK200	ACK300	ACP200	Edge Type	Fig.
SNMT1205ZNEN-G	●	●	●	●	V shaped	4
SNMT1205ZNEN-H	●	●	●	●		5
SNMT1205ZNEN-SH	★	★	★	★	Straight edge	6

Fig. 4

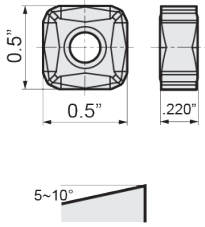


Fig. 5

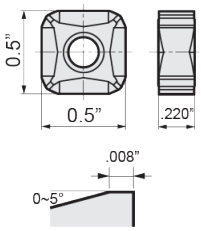
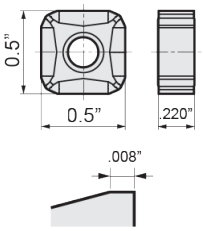


Fig. 6



Recommended Running Conditions

	Cast Iron				Steel	
	Gray Cast Iron		Ductile Cast Iron		Carbon Steel	Alloy Steel
Grade	**ACK200**	**ACK300**	**ACK100**	**ACK200**	**ACP200**	**ACP200**
SFM	400 ~ 1100	400 ~ 950	350 ~ 950	350 ~ 850	350 ~ 875	350 ~ 950
IPT	.004 ~ .014	.004 ~ .014	.004 ~ .012	.004 ~ .012	.004 ~ .010	.004 ~ .010
Max. D.O.C.	~ 0.314	~ 0.314	~ 0.314	~ 0.314	~ 0.314	~ 0.314

Hardware

Wrench	Screw
TRDR15IP	BFTX0412IP

Spider Mill

Applicable Insert: SNEX, SNMX

High Productivity Cast Iron Milling Cutter With Eight Cutting Edges

Features & Benefits

- Double negative milling cutter with positive cutting insert geometry
- High productivity shell mill for gray cast iron and ductile iron face milling
- Eight (8) cutting edges per insert
- Available in the new grades ACK100 and ACK200
- Unique positive chipbreaker insert provides less cutting force, more productivity and longer tool life

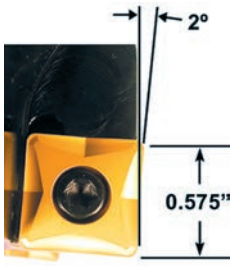


Figure 1

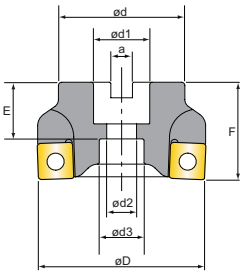
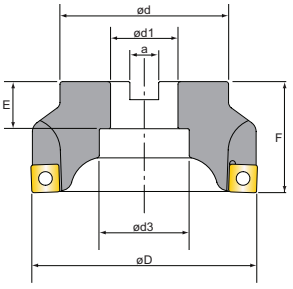


Figure 2

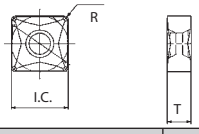


Spider Mill Cutter Bodies

Sumitomo Cat. No.	Status	Dimensions (Inch)										
		øD	ød	F	ød1	ød2	ød3	E	a	I.C.	Pitch	Fig.
SDP42000R	•	2.000"	1.500"	1.750"	0.750"	0.406"	0.609"	1.020"	0.312"	0.500"	4	1
SDP42500R	•	2.500	1.750"	1.750"	1.000"	0.531"	0.797"	1.020"	0.375"	0.500"	5	1
SDP43000R	•	3.000	2.250″	1.750"	1.000"	0.531"	0.797"	1.020"	0.375"	0.500"	6	1
SDP53000R	•	3.000"	2.250"	1.750"	1.000"	0.531"	0.797"	1.020"	0.385"	0.625"	5	1
SDP54000R	•	4.000"	2.756"	2.000"	1.250"	0.656"	1.030"	1.090"	0.515"	0.625"	7	1
SDP55000R	•	5.000"	3.750"	2.500"	1.500"	N/A	2.000"	1.060"	0.635"	0.625"	8	2
SDP56000R	•	6.000"	4.380"	2.500"	1.500"	N/A	2.000"	1.060"	0.635"	0.625"	10	2

• USA stocked item

Inserts



Sumitomo Cat. No.	CVD Coated														Dimensions (Inches)		
	ACK100	ACK200													I.C.	T	R
SNMX120412DP	•	•													0.500	0.1875	0.031
SNEX156612DP	•	•													0.625	0.2660	0.047

• USA stocked item

Hardware

Applicable Cutter	Insert Screw	Wrench
SDP4□000R	BFTX0412N	TRD15
SDP5□000R	BFTX0513N	TTX20

Torque specifications for BFTX0513N is 45-49 in/lbs.

See pages 613-615 for recommended running parameters

High Feed Milling

Pages 373-377

INDEXABLE MILLING CUTTERS **PAGES**

MSX Series

Applicable Insert: WDMT

Rake Angle		
Radial	-3° to -8°	
Axial	8°	

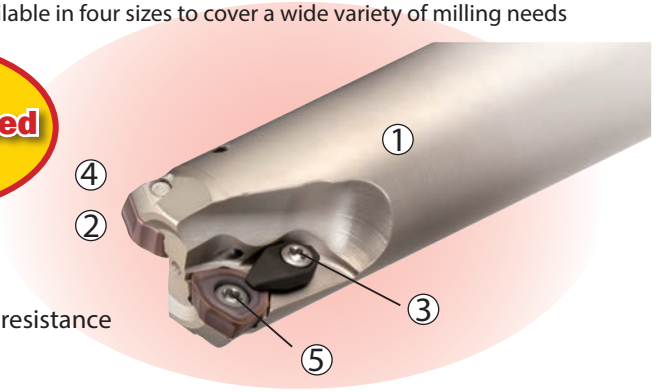
.039"	.059"	.079"	.098"
70°	70°	70°	70°
(WDMT06)	(WDMT08)	(WDMT12)	(WDMT14)

P	M	K	N	N	S	H
Steel	Stainless Steel	Cast Iron	Non-Ferrous Metal	Aluminum	Exotic Alloy	Hardened Steel
●	●	●			●	○

■ General Features

The Metal Slash Mill MSX Type is a multi-purpose cutter capable of roughing at ultra-high feeds. Its wide application range dramatically boosts efficiency. Inserts are available in four sizes to cover a wide variety of milling needs

Up to 0.055 IPT feed rates!



■ Characteristics

1. **Highly Durable Body** — Special surface treatment improves scratch resistance
2. **Versatile Machining Operations** — Use for ramping, helical, and drilling work
3. **Double Lock** — Extra-strong clamping ensures stable cutting performance (Single clamp for ø22mm or smaller diameters)
4. **With oil hole** — Improved chip evacuation with air or coolant supply hole and specially shaped pocket design
5. **Insert Shape** — Unique tool shape packs cutting performance and cutting edge strength

■ Corner Finishing

Fig1

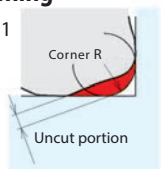
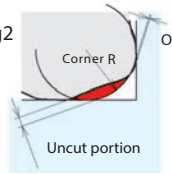


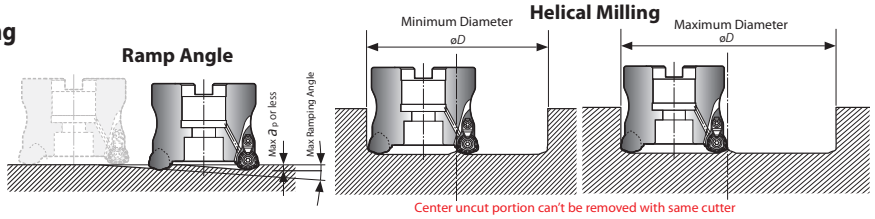
Fig2



* Actual machined corners will have uncut and over-cut portions due to the shape of the inserts.

Corner R	WDMT06 Type			WDMT08 Type			WDMT12 Type			WDMT14 Type		
	Uncut portion	Over-cut portion	Fig	Uncut portion	Over-cut portion	Fig	Uncut portion	Over-cut portion	Fig	Uncut portion	Over-cut portion	Fig
.079	0.016	0	1	0.029	0	1	0.052	0	1	0.065	0	1
.098	0.010	0.003	2	0.023	0	1	0.046	0	1	0.059	0	1
.118				0.018	0.001	2	0.041	0	1	0.054	0	1
.138							0.035	0.00004	2	0.048	0	1
.157										0.042	0.00063	2

■ Ramping & Helical Milling



Center uncut portion can't be removed with same cutter

øDc	WDMT06 Type			WDMT08 Type			WDMT12 Type			WDMT14 Type		
	Ramping	Helical Milling		Ramping	Helical Milling		Ramping	Helical Milling		Ramping	Helical Milling	
	Max. Ramping Angle	Min.	Max.	Max. Ramping Angle	Min.	Max	Max. Ramping Angle	Min.	Max	Max. Ramping Angle	Min	Max
16	6° 00'	0.827	1.181									
17	5° 00'	0.905	1.259									
18	4° 30'	1	1.339									
20	3° 30'	1.142	1.496	7° 30'	1	1.496						
22	3° 00'	1.299	1.654	5° 30'	1.142	1.654						
25	2° 00'	1.535	1.889	4° 00'	1.378	1.889						
28				3° 00'	1.614	2.126						
32				2° 30'	1.929	2.441	6° 30'	1.654	2.441			
35				2° 00'	2.165	2.677	5° 00'	1.889	2.677			
40				2° 00'	2.559	3.071	4° 00'	2.284	3.071	6° 00'	2.087	3.071
50							2° 30'	3.071	3.858	3° 30'	2.874	3.858
63							2° 00'	4.055	4.882	2° 00'	3.898	4.882
80										1° 30'	5.236	6.221
100										1° 00'	6.811	7.795
0.750	4º 00'	1.11	1.417									
1.000	2º 00'	1.58	1.92	4º 00'	1.42	1.92						
1.250				2º 30'	1.93	2.4	6º 30'	1.62	2.4			
1.500				1º 30'	2.45	2.91	4º 00'	2.13	2.91			
2.000				1° 00'	3.39	3.91	2° 30'	3.08	3.91	3° 30'	2.90	3.91
2.500							1º 30'	4.08	4.91	2° 30'	3.90	4.91
3.000							1° 00'	5.08	5.91	1º 30'	4.90	5.91
4.000							0° 30'	7.08	7.91	1° 00'	6.90	7.91
5.000										0° 30'	8.90	9.91
6.000										0° 30'	10.90	11.91

MSX Series

Applicable Insert: WDMT

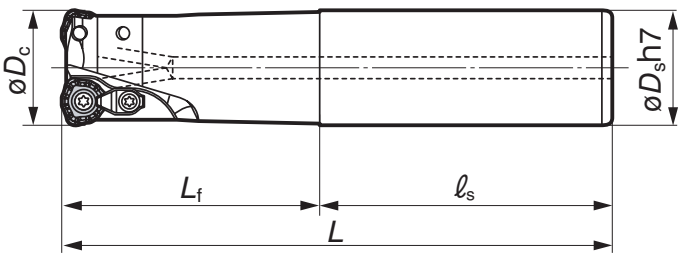
Rake Angle: Radial -3° to -8°, Axial 8°

.039" 70° (WDMT06)	.059" 70° (WDMT08)	.079" 70° (WDMT12)	.098" 70° (WDMT14)

P Steel ● M Stainless Steel ● K Cast Iron ● N Nonferrous Metal N Aluminum S Exotic Alloy ● H Hardened Steel ○

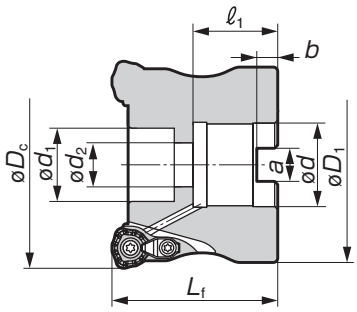
MSX Endmills - Inch

Catalog Number	$øD_c$	$øD_s$	L	L_f	ℓ_s	Teeth	Insert Type
MSX20750EW	0.750	0.750	5.125	2.000	2.031	3	WDMT06
MSX20750ELC	0.750	0.750	8.000	2.000	6.000	3	
MSX31000EW	1.000	1.000	4.781	2.500	2.281	2	WDMT08
MSX31000ELC	1.000	1.000	10.000	2.500	7.500	2	
MSXF31000EW	1.000	1.000	4.781	2.500	2.281	3	
MSXF31250EW	1.250	1.250	4.781	2.500	2.281	3	
MSXF31500EW	1.500	1.500	4.781	2.500	2.281	4	
MSX41250EW	1.250	1.250	4.781	2.500	2.281	2	WDMT12
MSX41250ELC	1.250	1.250	10.000	2.500	7.500	2	
MSX41500EW	1.500	1.250	4.781	2.500	2.281	2	
MSX41500ELC	1.500	1.500	10.000	2.500	7.500	2	
MSXF41500EW	1.500	1.500	4.781	2.500	2.281	3	

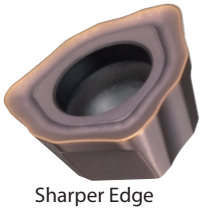


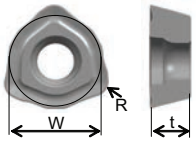
MSX Shell Mill - INCH

Catalog Number	Stock	Dimensions (in)									No. of Teeth	Insert
		$øD_c$	$øD_1$	L_f	ød	a	b	ℓ_1	$ød_1$	$ød_2$		
MSX31500R	●	1.500	1.339	1.530	0.750	0.312	0.190	0.750	0.609	0.406	4	WDMT08
MSX32000R	●	2.000	1.850	2.000	0.750	0.312	0.190	0.750	0.609	0.406	5	
MSX42000R	●	2.000	1.850	2.000	0.750	0.312	0.190	0.750	0.609	0.406	4	WDMT12
MSX42500R	●	2.500	2.362	2.000	1.000	0.375	0.220	0.750	0.797	0.530	5	
MSX43000R	●	3.000	2.756	2.000	1.000	0.375	0.220	0.750	0.797	0.530	6	
MSX44000R-1.25	●	4.000	3.740	2.500	1.250	0.500	0.280	0.750	1.000	0.656	7	
MSX44000R-1.50	●	4.000	3.740	2.500	1.500	0.625	0.380	1.000	2.000	0.781	7	
MSXM42000R	●	2.000	1.850	2.000	0.750	0.312	0.190	0.750	0.609	0.406	5	
MSX52000R	●	2.000	1.850	2.000	0.750	0.312	0.190	0.750	0.609	0.406	4	WDMT14
MSX52500R	●	2.500	2.362	2.000	1.000	0.375	0.220	0.750	0.797	0.531	5	
MSX53000R	●	3.000	2.756	2.000	1.000	0.375	0.220	0.750	0.797	0.531	5	
MSX54000R-1.25	●	4.000	3.740	2.500	1.250	0.500	0.280	0.750	1.000	0.656	6	
MSX54000R-1.50	●	4.000	3.740	2.500	1.500	0.625	0.380	1.000	2.000	0.781	6	
MSX55000R	●	5.000	3.937	2.500	1.500	0.625	0.380	1.000	2.000	0.781	7	
MSX56000R	●	6.000	3.937	2.500	1.500	0.625	0.380	1.000	2.000	0.781	8	



Type	Insert	P ACP200	P ACP300	K ACK200	K ACK300	M/S ACM200	M/S ACM300	Insert Dimensions (in) W	R	t	Max Depth of Cut (In.)
General Purpose	**WDMT0603ZDTR**	●	●	●	●	●	●	.250	.0591	.1181	.039
	WDMT0804ZDTR	●	●	●	●	●	●	.335	.0787	.1575	.059
	WDMT1205ZDTR	●	●	●	●	●	●	.472	.0787	.1969	.079
	WDMT1406ZDTR	●	●	●	●	●	●	.551	.0787	.2362	.098
Strong Edge	**WDMT0603ZDTR-H**	●	●	●	●	●	●	.250	.0591	.1181	.039
	WDMT0804ZDTR-H	●	●	●	●	●	●	.335	.0787	.1575	.059
	WDMT1205ZDTR-H	●	●	●	●	●	●	.472	.0787	.1969	.079
	WDMT1406ZDTR-H	●	●	●	●	●	●	.551	.0787	.2362	.098

General Purpose Edge	H : Strong Edge
General (First choice)	Interrupted Cutting
 Sharper Edge	 Emphasis on Fracture Resistance

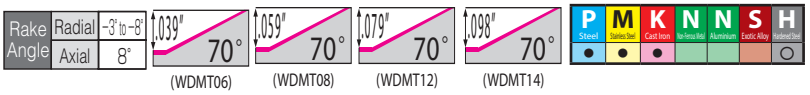


Hardware

Screw	Wrench	Clamp	Ring	Clamp Screw	Applicable Cutter
BFTX02505IP	TRDR08IP	-	-	-	MSX20000
BFTX0305IP	TRDR08IP	CCH3.5	CR3	BFTX03510IP08	MSX30000 ≤1.0"
BFTX0306IP	TRDR08IP	CCH3.5	CR3	BFTX03510IP08	MSX30000 >1.0"
BFTX0409IP	TRDR15IP	CCH3.5	CR3	BFTX03510IP15	MSX40000
BFTX0511IP	TRDR20IP	CCH4.5	CR3	BFTX04513IP20	MSX50000

MSX Series

Applicable Insert: WDMT



■ *MSX End Mill - Metric*

Fig1

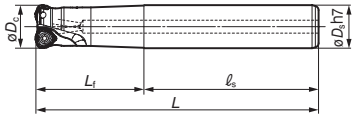
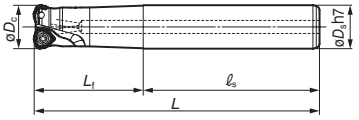


Fig2



■ Body Insert: WDMT06 Type

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)	Fig
		øDc	øDs	Lf	ℓs	L			
MSX 06016ES	★	16	16	30	80	110	2	0.2	1
MSX 06016EM	★	16	16	70	80	150	2	0.2	1
MSX 06017EM	★	17	16	20	130	150	2	0.2	1
MSX 06018EM	★	18	16	20	130	150	2	0.2	1
MSX 06020ES	★	20	20	50	80	130	3	0.3	1
MSX 06020EM	★	20	20	100	80	180	3	0.4	1
MSX 06022EM	★	22	20	30	150	180	3	0.4	1
MSX 06025ES	★	25	25	60	80	140	3	0.5	1
MSX 06025EM	★	25	25	120	130	250	3	0.8	1

■ Body Insert: WDMT08 Type

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)	Fig
		øDc	øDs	Lf	ℓs	L			
MSX 08020ES	★	20	20	50	80	130	2	0.3	1
MSX 08020EM	★	20	20	100	80	180	2	0.3	1
MSX 08022EM	★	22	20	30	150	180	2	0.4	1
MSX 08025ES	★	25	25	60	80	140	2	0.4	2
MSX 08025EM	★	25	25	120	130	250	2	0.8	2
MSX 08028EM	★	28	25	40	210	250	2	0.9	2
MSX 08032ES	★	32	32	70	80	150	3	0.8	2
MSX08032EM	★	32	32	120	130	250	3	1.4	2
MSX 08035EM	★	35	32	50	200	250	3	1.5	2

■ Body Insert: WDMT12 Type

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)	Fig
		øDc	øDs	Lf	ℓs	L			
MSX 12032ES	★	32	32	70	80	150	2	0.8	2
MSX 12032EM	★	32	32	120	130	250	2	1.4	2
MSX 12035EM	★	35	32	50	200	250	2	1.4	2
MSX 12040ES	★	40	32	50	100	150	3	0.9	2
MSX 12040EM	★	40	32	50	200	250	3	1.5	2
MSX 12050EM	★	50	42	50	200	250	4	2.6	2

■ Body Insert: WDMT14 Type

Cat. No.	Stock	Dimensions (mm)					No. of Teeth	Weight (kg)	Fig
		øDc	øDs	Lf	ℓs	L			
MSX 14040ES	★	40	32	50	100	150	2	0.9	2
MSX 14040EM	★	40	32	50	200	250	2	1.5	2
MSX 14050ES	★	50	42	50	100	150	3	1.5	2
MSX 14050EM	★	50	42	50	200	250	3	2.5	2
MSX 14063ES	★	63	42	50	100	150	4	1.7	2
MSX 14063EM	★	63	42	50	200	250	4	2.8	2

Inserts are not included.

■ *MSX Shell Mill - Metric*

Fig1

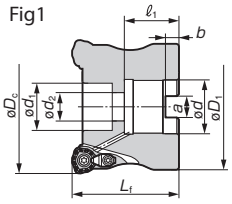
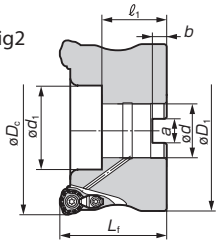


Fig2



Catalog Number	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)	Fig.	Insert
		øDc	øD1	Lf	ød	a	b	ℓ1	ød1	ød2				
MSX08040RS	★	40	37	45	16	8.4	5.6	18	13.5	9	4	0.2	1	WDMT08
MSX12050RS	★	50	47	50	22	10.4	6.3	20	18	11	4	0.3	1	WDMT12
MSX12063RS	★	63	60	50	22	10.4	6.3	20	18	11	5	0.6	1	
MSX14050RS	★	50	47	50	22	10.4	6.3	20	17	11	3	0.3	1	WDMT14
MSX14063RS	★	63	60	50	22	10.4	6.3	20	18	11	4	0.6	1	
MSX14080RS	★	80	76	63	27	12.4	7.0	25	20	13.5	5	1.4	1	
MSX14100RS	★	100	96	63	32	14.4	8.5	32	44	-	6	2.2	2	
MSX14080R	★	80	76	63	31.75	12.7	8.0	32	28	17	5	1.3	1	
MSX14100R	★	100	96	63	31.75	12.7	8.0	32	28	17	6	2.4	1	

(a_p: Depth of Cut f_z: Feed Rate)

Work Material	Grade	Cutting Speed v_c (SFM)	Insert Type	Endmill Type										Shell Type			
				ø16		ø20		ø25		ø32		ø40		ø50/ø63		ø80/ø100	
				a_p (in.)	f_z (in./t)	a_p (in.)	f_z (in./t)	a_p (in.)	f_z (in./t)	a_p (in.)	f_z (in./t)	a_p (in.)	f_z (in./t)	a_p (in.)	f_z (in./t)	a_p (in.)	f_z (in./t)
P General Steel Below 200HB	ACP200	330-500-650	WDMT 06	0.032	0.032	0.032	0.032	-	-	-	-	-	-	-	-	-	-
			WDMT 08	-	-	0.039	0.039	0.039	0.047	0.039	0.047	-	-	-	-	-	-
			WDMT 12	-	-	-	-	-	-	0.047	0.055	0.047	0.055	0.047	0.055	-	-
			WDMT 14	-	-	-	-	-	-	-	-	0.059	0.059	0.059	0.059	0.059	0.059
P Alloy Steel Below 45HRC	ACP200	260-430-590	WDMT 06	0.028	0.032	0.028	0.032	-	-	-	-	-	-	-	-	-	-
			WDMT 08	-	-	0.032	0.039	0.032	0.047	0.032	0.047	-	-	-	-	-	-
			WDMT 12	-	-	-	-	-	-	0.039	0.055	0.039	0.055	0.039	0.055	-	-
			WDMT 14	-	-	-	-	-	-	-	-	0.051	0.059	0.051	0.059	0.051	0.059
M Stainless Steel SUS304, Others	ACP300	260-400-500	WDMT 06	0.032	0.028	0.032	0.028	-	-	-	-	-	-	-	-	-	-
			WDMT 08	-	-	0.039	0.032	0.039	0.032	0.039	0.032	-	-	-	-	-	-
			WDMT 12	-	-	-	-	-	-	0.047	0.047	0.047	0.047	0.047	0.047	-	-
			WDMT 14	-	-	-	-	-	-	-	-	0.059	0.051	0.059	0.051	0.059	0.051
K Cast Iron FC,FCD	ACK200 ACK300	330-500-650	WDMT 06	0.032	0.039	0.032	0.039	-	-	-	-	-	-	-	-	-	-
			WDMT 08	-	-	0.039	0.047	0.039	0.055	0.039	0.055	-	-	-	-	-	-
			WDMT 12	-	-	-	-	-	-	0.047	0.059	0.047	0.059	0.047	0.059	-	-
			WDMT 14	-	-	-	-	-	-	-	-	0.059	0.071	0.059	0.071	0.059	0.071
H Hardened Steel Below 50HRC	ACK200 ACK300	130-260-330	WDMT 06	0.020	0.020	0.020	0.020	-	-	-	-	-	-	-	-	-	-
			WDMT 08	-	-	0.020	0.024	0.020	0.032	0.020	0.032	-	-	-	-	-	-
			WDMT 12	-	-	-	-	-	-	0.024	0.039	0.024	0.039	0.024	0.039	-	-
			WDMT 14	-	-	-	-	-	-	-	-	0.039	0.047	0.039	0.047	0.039	0.047

The above recommended cutting conditions may require adjustment according to machine rigidity and work rigidity. The above figures are guidelines for use with the BT50 machine tool.the above cutting conditions assume a tool overhang length of L/D=3 (i.e. overhang length is 3 times tool diameter) or less.

When tool overhang is more than L/D=3 and less than or equal L/D=5, settings should be adjusted to approximately 70 to 80% of those indicated in the above cutting conditions (i.e. a_p and f_z).

When tool overhang is more than L/D=5 and less than or equal L/D=8, settings should be adjusted to approximately 50 to 60% of those indicated in the above cutting conditions (i.e. a_p and f_z).

Features & Benefits

- Screw-on insert assembly
- U.S. stock standard bodies available in 2.000" - 4.000" diameters Worldwide stock includes 63.0 mm - 125 mm
- High feed rates (Maximum feed rate = 0.078" IPT) result in high productivity milling
- Four corner insert design yields low tooling costs per part
- Unique design directs cutting forces into the machine spindle to facilitate high feed rates even in low rigidity conditions
- Insert grades available for carbon steel, stainless steel, cast iron, & die steel

Fig 1

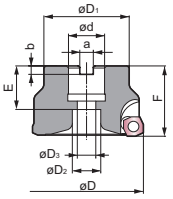
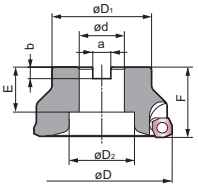


Fig 2

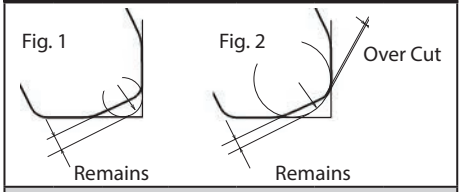


MS Mill Availability

Sumitomo Cat. No.	Stock	Dimensions (Inch / *mm*)									No. of Teeth	Fig.
		D	D1	D2	D3	F	d	a	b	E		
MS14020SR	•	2.000	1.500	0.609	0.406	1.750	0.750	0.319	0.190	1.020	4	1
MS14025SR	•	2.500	1.750	0.797	0.531	1.750	1.000	0.375	0.220	1.020	4	1
MS14030R	•	3.000	2.250	0.797	0.531	1.750	1.000	0.375	0.220	1.020	5	1
MS14040R	•	4.000	2.870	1.000	0.656	2.000	1.250	0.500	0.280	1.020	6	1
MS14063RS	★	*63.0*	*59.0*	*18.0*	*11.0*	*40.0*	*22.0*	*10.4*	*6.3*	*26.0*	*4*	*1*
MS14080R	★	*80.0*	*60.0*	*20.0*	*13.0*	*50.0*	*25.4*	*9.5*	*6.0*	*31.0*	*5*	*1*
MS14100R	★	*100.0*	*70.0*	*46.0*	–	*50.0*	*31.8*	*12.7*	*8.0*	*32.0*	*6*	*2*
MS14125R	★	*125.0*	*80.0*	*56.0*	–	*63.0*	*38.1*	*15.9*	*10.0*	*38.0*	*7*	*2*

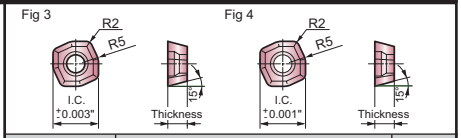
• USA stocked item ★ Worldwide Warehouse item

Programmed Radius Chart



SDMW (SDEW)1406ZDTR						
R		Remains		Over Cut		Fig.
in	mm	in	mm	in	mm	
.079	2.0	0.064	1.628	0	0	1
.098	2.5	0.058	1.464	0	0	1
.118	3.0	0.051	1.300	0	0	1
.138	3.5	0.0455	1.136	0	0	1
.158	4.0	0.038	0.972	0.0005	0.014	2
.177	4.5	0.032	0.808	0.005	0.118	2
.197	5.0	0.025	0.644	0.010	0.258	2

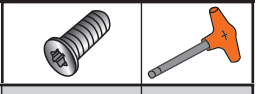
Inserts



Sumitomo Cat. No.	Coated					Dimensions (Inches)				
	CS3000	ACK200	ACK300	ACP200	ACP300	I.C.	T	R2	R5	Fig.
SDEW1406ZDTR	★	★	★	★	•	0.551	0.236	0.079	0.197	4
SDMW1406ZDTR	•	•	•	•	•	0.551	0.236	0.079	0.197	3

SDEW = Ground tolerance inserts
• USA stocked item ★ Worldwide Warehouse item

Hardware



Applicable Cutter	Insert Screw	Wrench
MS 1400 series	BFTX0513N	TTX20

Torque specifications for BFTX0513N is 45-55 in/lbs.

Ramp Angle

Cutting Edge dia.	SDMW (SDEW)1406ZDTR Max. Ad: .039 in (.015mm) R: .079 in (.003mm)		
	Ramp Angle	Helical Milling	
		Min øD	Max øD
2.0	2° 00'	3.189	3.858
2.5	1° 30'	4.213	4.882
3.0	1° 10'	5.197	5.866
4.0	0° 49'	7.205	7.874
63	*1° 00'*	*106*	*123*
80	*0° 50'*	*140*	*157*
100	*0° 30'*	*180*	*197*
125	*0° 30'*	*230*	*247*

Recommended Running Conditions

Material	Cutting Speed (SFM)	Feed Rate (IPT)	Depth of Cut (Inch)	Recommended Grades
Carbon Steel	500 ~ 820	< 0.078	< 0.059	ACP200, ACP300
Die Steel	325 ~ 650	< 0.059	< 0.059	ACP200, ACP300
Stainless Steel	525 ~ 650	< 0.039	< 0.059	ACM300, ACM200
Cast Iron	325 ~ 650	< 0.059	< 0.078	ACK200, ACK300

SUMITOMO

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Multi-purpose Milling

Pages 379-392

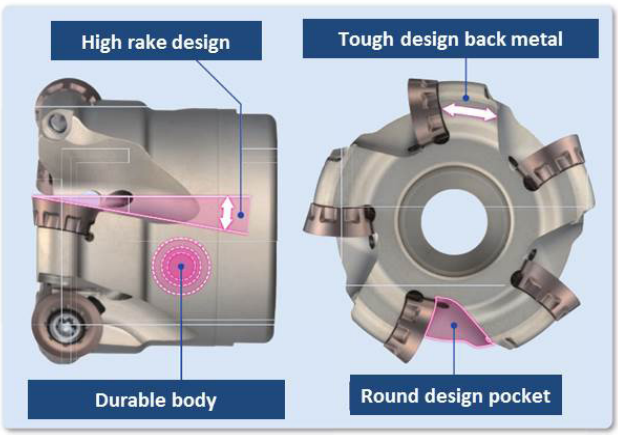
RSX Series

Wave Radius Mill

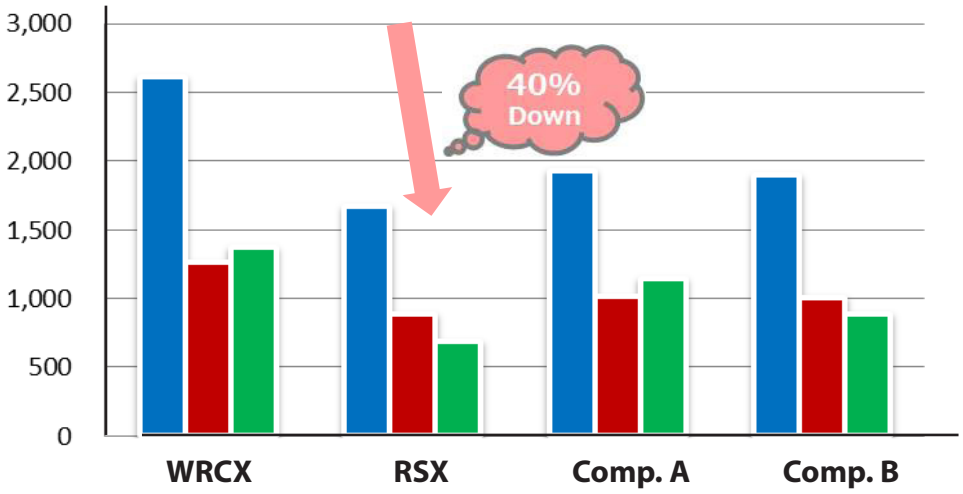
Radius Cutter for Stainless Steel & Exotic Material

Features & Benefits

- Wide application range that includes face milling, ramping, slotting, 3-D interpolation, and helical boring
- A highly durable body made of special alloyed steel and protected by a hard surface treatment
- Pocket design eliminates insert rotation during aggresive machining

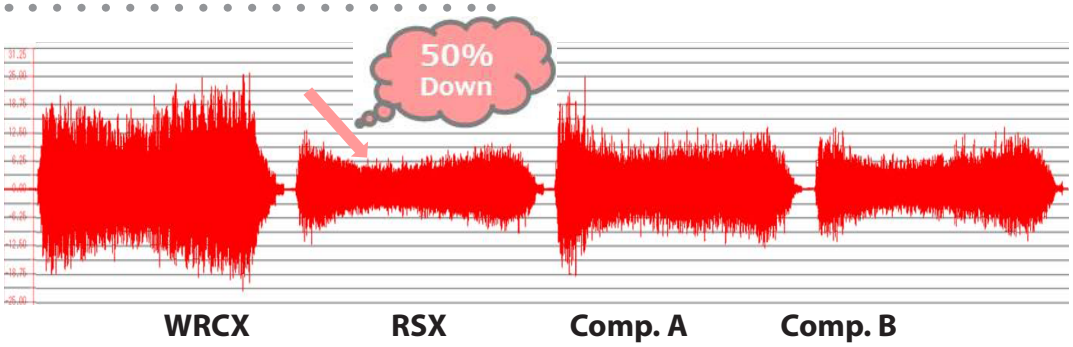


Low Cutting Force



Work piece: 304 Stainless Steel
Cutter: RSXF12050RS (2" cutter)
Cutting conditions:
Vc= 650 SFM
fz=0.02 in/t
ap=.079 in.
ae=0.39 in., WET

Low Vibration



Work piece: 304 Stainless Steel
Cutter: RSXF12050RS (2" cutter)
Cutting conditions:
Vc= 650 SFM
fz=0.02 in/t
ap=.079 in.
ae=0.39 in., DRY

RSX Series

Fig. 1

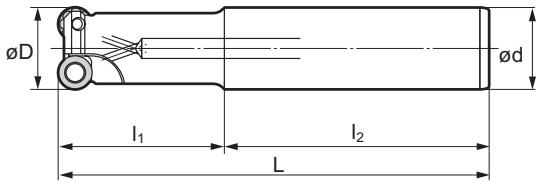


Fig. 2

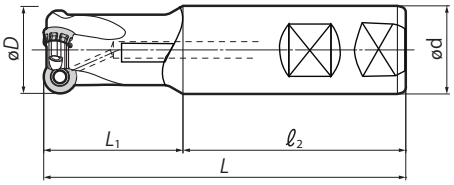
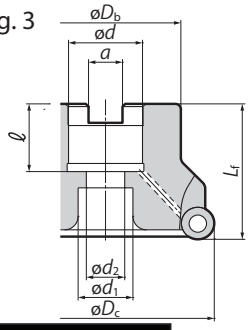


Fig. 3



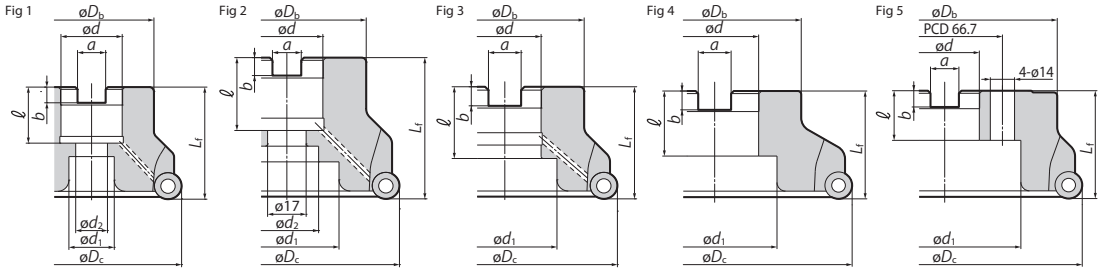
RSX End Mill - INCH

Catalog No.	Stock	φD	φd	L	l_1	l_2	Insert Type	# of Inserts	Shank Style	Weight (lbs)	Max Ramp Angle	Fig.
RSX31000EW	●	1.000	1.000	4.340	2.060	2.280	RDET10	2	Weldon	0.95	10° 15′	2
RSX31250EW	●	1.250	1.250	4.340	2.060	2.280	RDET10	3	Weldon	1.15	6° 45′	2
RSX31500EW	●	1.500	1.250	4.340	2.060	2.280	RDET10	3	Weldon	1.25	4 ° 45′	2
RSX41250EW	●	1.250	1.250	4.340	2.060	2.280	RDET12	2	Weldon	1.20	12° 30′	2
RSX41500EW	●	1.500	1.250	4.340	2.060	2.280	RDET12	3	Weldon	1.50	8° 30′	2
RSXF31000EW	●	1.000	1.000	4.340	2.060	2.280	RDET10	3	Weldon	1.00	10° 15′	2
RSXF31000ELC	●	1.000	1.000	10.000	3.750	6.250	RDET10	3	Cylindrical	2.00	10° 15′	1
RSXF31250EW	●	1.250	1.250	4.340	2.060	2.280	RDET10	4	Weldon	1.25	6° 45′	2
RSXF31250ELC	●	1.250	1.250	10.000	3.750	6.250	RDET10	4	Cylindrical	2.75	6° 45′	1
RSXF31500EW	●	1.500	1.250	4.340	2.060	2.280	RDET10	4	Weldon	1.40	4 ° 45′	2
RSXF31500ELC	●	1.500	1.250	10.000	3.750	6.250	RDET10	4	Cylindrical	3.25	4 ° 45′	1
RSXF41250EW	●	1.250	1.250	4.340	2.060	2.280	RDET12	3	Weldon	1.40	12° 30′	2
RSXF41250ELC	●	1.250	1.250	10.000	3.750	6.250	RDET12	3	Cylindrical	3.50	12° 30′	1
RSXF41500EW	●	1.500	1.250	4.340	2.060	2.280	RDET12	4	Weldon	1.65	8° 30′	2
RSXF41500ELC	●	1.500	1.250	10.000	3.750	6.250	RDET12	4	Cylindrical	4.00	8° 30′	1

RSX Shell Mill - INCH

Catalog N	Stock	$φD_c$	$φD_b$	L_f	φd	$φd_2$	$φd_1$	ℓ	a	Insert Type	# of Inserts	Weight (lbs)	Max Ramp Angle	Fig.
RSX32000R	●	2.000	1.500	1.750	0.750	0.406	0.609	0.750	0.312	RDET10	4	0.80	3° 15′	3
RSX42000R	●	2.000	1.500	1.750	0.750	0.406	0.609	0.750	0.312	RDET12	4	0.70	5° 30′	3
RSX42500R	●	2.500	1.750	1.750	1.000	0.531	0.797	0.750	0.375	RDET12	5	1.1	4°	3
RSX43000R	●	3.000	2.250	1.750	1.000	0.531	0.797	0.750	0.375	RDET12	6	1.75	3°	3
RSX44000R-1.25	●	4.000	2.870	2.000	1.250	0.656	1.000	0.750	0.500	RDET12	7	3.75	2°	3
RSX44000R-1.50	●	4.000	2.870	2.500	1.500	0.781	2.000	1.000	0.625	RDET12	7	4.00	2°	3
RSX45000R	●	5.000	3.750	2.500	1.500	0.781	2.000	1.000	0.625	RDET12	8	7.60	1° 30′	3
RSX46000R	●	6.000	4.380	2.500	1.500	0.781	2.000	1.000	0.625	RDET12	9	11.90	1°	3
RSX52500R	●	2.500	1.750	1.750	1.000	0.531	0.797	0.750	0.375	RDET16	4	0.95	5° 50′	3
RSX53000R	●	3.000	2.250	1.750	1.000	0.531	0.797	0.750	0.375	RDET16	5	1.50	4° 20′	3
RSX54000R-1.25	●	4.000	2.870	2.000	1.250	0.656	1.000	0.750	0.500	RDET16	7	4.25	2° 50′	3
RSX54000R-1.50	●	4.000	2.870	2.500	1.500	0.781	2.000	1.000	0.625	RDET16	7	4.90	2°	3
RSX55000R	●	5.000	3.750	2.500	1.500	0.781	2.000	1.000	0.625	RDET16	8	7.1	1° 30′	3
RSX56000R	●	6.000	4.380	2.500	1.500	0.781	2.000	1.000	0.625	RDET16	9	11.2	1°	3
RSXF32000R	●	2.000	1.500	1.750	0.750	0.406	0.609	0.750	0.312	RDET10	6	0.75	3° 15′	3
RSXF42000R	●	2.000	1.500	1.750	0.750	0.406	0.609	0.750	0.312	RDET12	5	0.65	5° 30′	3
RSXF42500R	●	2.500	1.750	1.750	1.000	0.531	0.797	0.750	0.375	RDET12	6	1.05	4°	3
RSXF43000R	●	3.000	2.250	1.750	1.000	0.531	0.797	0.750	0.375	RDET12	8	1.75	3°	3
RSXF44000R-1.25	●	4.000	2.870	2.000	1.250	0.656	1.000	0.750	0.500	RDET12	9	4.75	2°	3
RSXF44000R-1.50	●	4.000	2.870	2.500	1.500	0.781	2.000	1.000	0.625	RDET12	9	5.25	2°	3
RSXF45000R	●	5.000	3.750	2.500	1.500	0.781	2.000	1.000	0.625	RDET12	11	7.5	1° 30′	3
RSXF46000R	●	6.000	4.380	2.500	1.500	0.781	2.000	1.000	0.625	RDET12	12	11.75	1°	3
RSXF52500R	●	2.500	1.750	1.750	1.000	0.531	0.797	0.750	0.375	RDET16	5	0.85	5° 50′	3
RSXF53000R	●	3.000	2.250	1.750	1.000	0.531	0.797	0.750	0.375	RDET16	6	1.55	4° 20′	3
RSXF54000R-1.25	●	4.000	2.870	2.000	1.250	0.656	1.000	0.750	0.500	RDET16	8	3.25	2° 50′	3
RSXF54000R-1.50	●	4.000	2.870	2.500	1.500	0.781	2.000	1.000	0.625	RDET16	8	4.35	2°	3
RSXF55000R	●	5.000	3.750	1.500	1.500	0.781	2.000	1.000	0.625	RDET16	9	6.4	1° 30′	3
RSXF56000R	●	6.000	6.000	4.380	1.500	1.500	0.781	1.000	1.312	RDET16	10	10.5	1°	3

RSX Series



Rake Angle		
	Radial	-5°
	Axial	10°

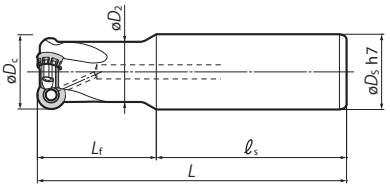
5mm RDET10 | 6mm RDET12 | 8mm RDET16

P	M	K	N	N	S	H
Steel	Stainless Steel	Cast Iron	Non-Ferrous Metal	Aluminium	Exotic Alloy	Hardened Steel
	●				●	

Catalog No.	Stock	φD_c	φD_b	L_f	φd	a	b	ℓ	φd_1	φd_2	Insert Type	# of Inserts	Weight (lbs)	Max. Ramp Angle	Fig.
RSX Shell Mill - Metric															
RSX10040RS	★	40	34	40	16	8.4	5.6	18	14	9	RDET10	4	0.45	4° 30′	1
RSX10050RS	★	50	40	40	22	10.4	6.3	20	18	11	RDET10	5	0.66	3° 15′	1
RSX10052RS	★	52	40	40	22	10.4	6.3	20	18	11	RDET10	5	0.89	3° 10′	1
RSX12040RS	★	40	32	40	16	8.4	5.6	18	13.5	9	RDET12	3	0.45	8° 00′	1
RSX12050RS	★	50	40	40	22	10.4	6.3	20	18	11	RDET12	4	0.66	5° 30′	1
RSX12052RS	★	52	40	40	22	10.4	6.3	20	18	11	RDET12	4	0.66	5° 15′	1
RSX12063RS	★	63	40	40	22	10.4	6.3	20	18	11	RDET12	5	0.89	4° 00′	1
RSX12066RS	★	66	55	50	27	12.4	7.0	25	20	14	RDET12	6	1.54	3° 45′	1
RSX12080RS	★	80	55	50	27	12.4	7.0	25	20	14	RDET12	6	2.20	2° 50′	1
RSX12100RS	★	100	70	50	32	14.4	8.5	32	46	-	RDET12	6	3.09	2° 10′	3
RSX16063RS	★	63	50	40	22	10.4	6.3	20	18	11	RDET16	4	1.10	6° 00′	1
RSX16080RS	★	80	55	50	27	12.4	7.0	25	20	14	RDET16	5	1.98	4° 10′	1
RSX16100RS	★	100	70	50	32	14.4	8.532	32	46	-	RDET16	6	2.87	3° 00′	3
RSX16125RS	★	125	80	63	40	16.4	9.5	29	52	29	RDET16	6	5.73	2° 20′	1
RSX Shell Mill - Metric ***(with Inch Arbor)***															
RSX12080R	★	80	55	50	1.0 in.	9.5	6.0	25	20	13	RDET12	6	2.20	2° 50′	1
RSX12100R	★	100	70	63	1.25 in.	12.7	8.0	32.5	46	28	RDET12	6	4.19	2° 10′	2
RSX16080R	★	80	55	50	1.0 in.	9.5	6.0	25	20	13	RDET16	5	1.98	4° 10′	1
RSX16100R	★	100	70	63	1.25 in.	12.7	8.0	32.5	46	28	RDET16	6	3.97	3° 00′	2
RSX16125R	★	125	80	63	1.50 in.	15.9	10.0	35.5	55	30	RDET16	6	5.95	2° 20′	1
RSX Shell Mill - Metric															
RSXF10040RS	★	40	34	40	16	8.4	5.6	18	14	9	RDET10	5	0.45	4° 30′	1
RSXF10050RS	★	50	40	40	22	10.4	6.3	20	18	11	RDET10	6	0.66	3° 15′	1
RSXF10052RS	★	52	40	40	22	10.4	6.3	20	18	11	RDET10	6	0.66	3° 10′	1
RSXF12040RS	★	40	32	40	16	8.4	5.6	18	13.5	9	RDET12	4	0.45	8° 00′	1
RSXF12050RS	★	50	40	40	22	10.4	6.3	20	18	11	RDET12	5	0.66	5° 30′	1
RSXF12052RS	★	52	40	40	22	10.4	6.3	20	18	11	RDET12	5	0.66	5° 15′	1
RSXF12063RS	★	63	40	40	22	10.4	6.3	20	18	11	RDET12	6	0.88	4° 00′	1
RSXF12066RS	★	66	55	50	27	12.4	7.0	25	20	14	RDET12	7	1.54	3° 45′	1
RSXF12080RS	★	80	55	50	27	12.4	7.0	25	20	14	RDET12	7	1.98	2° 50′	1
RSXF12100RS	★	100	70	50	32	14.4	8.5	32	46	-	RDET12	10	2.86	2° 10′	3
RSXF16063RS	★	63	50	40	22	10.4	6.3	20	18	11	RDET16	4	0.88	6° 00′	1
RSXF16080RS	★	80	55	50	27	12.4	7.0	25	20	14	RDET16	6	1.75	4° 10′	1
RSXF16100RS	★	100	70	50	32	14.4	8.5	32	46	-	RDET16	6	2.86	3° 00′	3
RSXF16125RS	★	125	80	63	40	16.4	9.5	29	52	29	RDET16	8	5.51	2° 20′	1
RSXF16160RS	★	160	130	63	40	16.4	9.5	29	88	-	RDET16	10	10.58	-	5
RSX Shell Mill - Metric ***(with Inch Arbor)***															
RSXF12080R	★	80	55	50	1.0 in.	9.5	6.0	25	20	13	RDET12	7	2.20	2° 50′	1
RSXF12100R	★	100	70	63	1.25 in.	12.7	8.0	32.5	46	28	RDET12	10	3.97	2° 10′	2
RSXF16080R	★	80	55	50	1.0 in.	9.5	6.0	25	20	13	RDET16	6	1.75	4° 10′	1
RSXF16100R	★	100	70	63	1.25 in.	12.7	8.0	32.5	46	28	RDET16	7	3.75	3° 00′	2
RSXF16125R	★	125	80	63	1.5 in.	15.9	10.0	35.5	55	30	RDET16	8	5.73	2° 20′	1
RSXF16160R	★	160	100	63	2.0 in.	19.0	11.0	38	72	-	RDET16	10	9.48	-	4

★: Worldwide Warehouse Item

RSX Series



RSX End Mill - Metric

Catalog No.	Stock	φDc	φDs	φD2	Lf	ℓf	L	Insert Type	# of Inserts	Weight (lbs)	Ramp Angle	Fig.
RSX10025ES	★	25	25	20.3	50	80	130	RDET10	2	0.88	10° 30′	1
RSX10032ES	★	32	32	27.1	50	80	130	RDET10	3	1.54	6° 45′	1
RSX12032ES	★	32	32	25.6	50	80	130	RDET12	2	1.54	12° 30′	1
RSXF10025ES	★	25	25	20.3	50	80	130	RDET10	3	0.88	10° 30′	1
RSXF10032ES	★	32	32	27.1	50	80	130	RDET10	4	1.54	6° 45′	1
RSXF12032ES	★	32	32	25.6	50	80	130	RDET12	3	1.54	12° 30′	1

★: Worldwide Warehouse Item

Insert & Parts Information

NEW

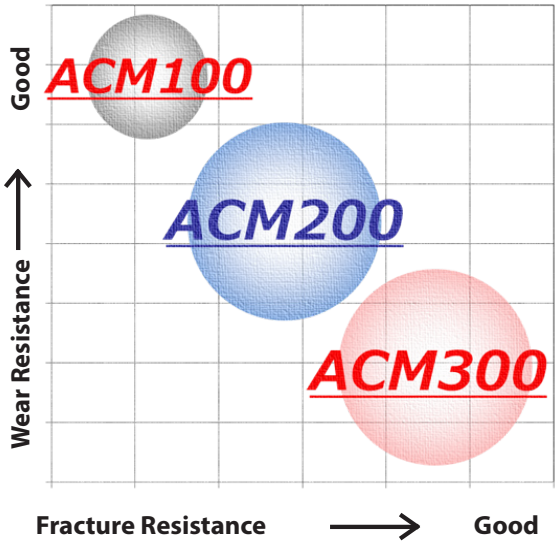
Inserts	P	K	M	S	Dimensions	
	ACP200	ACK300	ACM100	ACM200	ACM300	I.C.	Thickness
RDET10T3M0EN-G	●	●	●	●	●	0.394	0.156
RDET10T3M0EN-H	●	●	●	●	●		
RDET1204M0EN-G	●	●	●	●	●	0.472	0.187
RDET1204M0EN-H	●	●	●	●	●		
RDET1606M0EN-G	●	●	●	●	●	0.629	0.256
RDET1606M0EN-H	●	●	●	●	●		

●: U.S.A. Stock Item

Parts

Applicable Cutters	Wrench	Insert Screw	Recommended Tightening Torque Inch / LBs
RSX30000 Cutters	TRDR15IP	BFTX03584IP	25
RSX40000 Cutters		BFTX0409IP	25
RSX50000 Cutters	TRDR20IP	BFTX0409IP	45

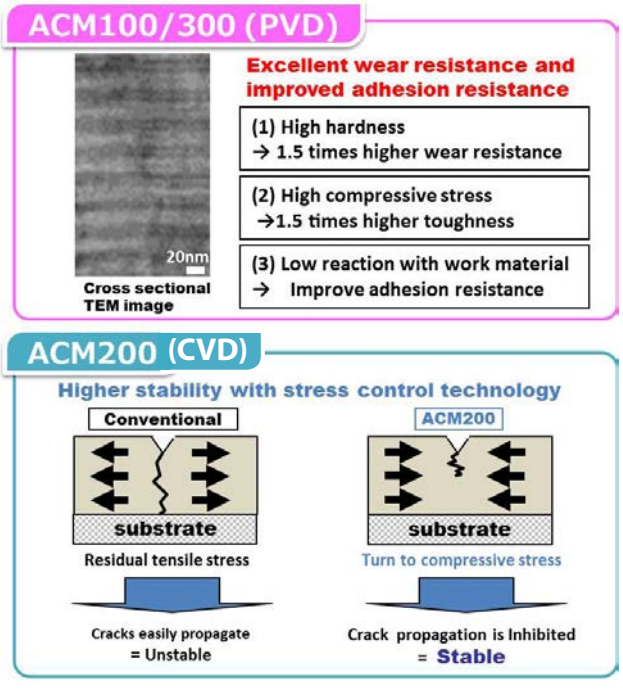
ACM Grade Information



Cutting Conditions

ISO		Work Material	Hardness	Cutting Speed v_c(sfm) Min - Max	Feed Rate f_z(ipt) Min - Max	Recommended Grade
M	Stainless Steel Cr Based	Ferrite System	200 HB	500 - 650	0.006 – 0.014	ACM300
		Martensitic	200~330HB	250 - 600	0.006 – 0.014	ACM300
	Stainless Steel Cr-Ni Based	Austenitc	200 HB	500 - 650	0.006 - 0.014	ACM300
		400 Series	230~270HB	250 - 600	0.006 - 0.014	ACM200
		Precipitation Hardening	330HB	200 - 525	0.006 - 0.014	ACM200
S	Heat Resistant Alloy	Ni Based Material System	250~350HB	65 - 130	0.004 - 0.012	ACM100 ACM200
	Titanium	Pure Titanium	(Rm400)	200 - 325	0.004 – 0.012	
		α+β Alloy System	(Rm1050)	130 - 200	0.004 – 0.012	

NOTE: The cutting conditions above are a guide.
Actual Conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.



WRCX Series

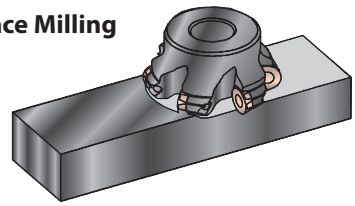
Applicable Insert: QPMT, QPET

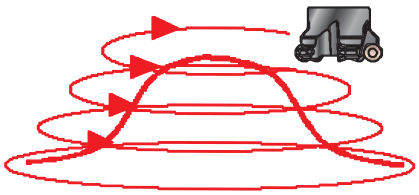
Features & Benefits

- 8 corner polygon inserts withstand extraordinary feed rates while providing improved finishes
- Highly durable cutter body made of special alloyed steel and protected by a hard surface treatment
- Wide application range that includes face milling, ramping, slotting, 3-D interpolation, and helical boring
- Pocket design eliminates insert rotation and breakage during aggressive machining
- Wide flute relief provides excellent chip evacuation

Application Examples

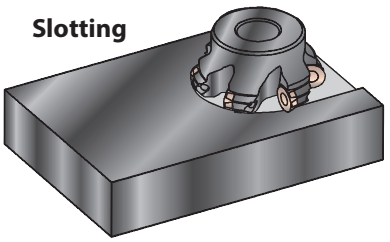
Face Milling

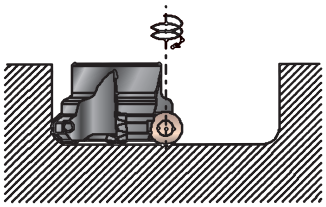




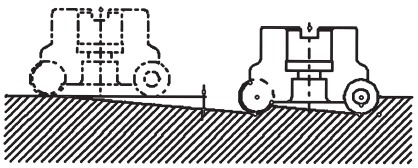
3-D Interpolation/Surfacing

Slotting





Helical Boring



Ramping

Recommended Running Conditions

ISO	Work Material	Grades	øD = 1.00" - 1.25"		øD = 1.50" - 3.00"		øD = 4.00" - 6.00"	
			SFM	IPT	SFM	IPT	SFM	IPT
P	Carbon Steel	ACP200	260-**395**-525	.004-**.012**-.016	330-**525**-655	.008-**.016**-.024	490-**655**-820	.012-**.016**-.024
	Alloy Steel (HRC<40)	ACP200	195-**330**-460	.004-**.008**-.012	330-**460**-590	.008-**.012**-.016	330-**525**-655	.004-**.012**-.020
M	Stainless Steel (304)	ACP200, ACP300	195-**330**-395	.004-**.006**-.008	260-**395**-525	.004-**.008**-.012	525-**590**-655	.006-**.008**-.012
K	Gray Cast Iron	ACK200, ACK300	195-**260**-395	.004-**.008**-.012	260-**395**-525	.004-**.008**-.016	330-**490**-655	.004-**.006**-.008
N	Non-ferrous Metal	H1, DL1000	655-**1640**-3280	.004-**.008**-.012	655-**1640**-3280	.004-**.012**-.016	655-**1640**-3280	.008-**.016**-.024

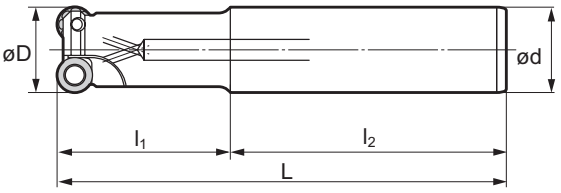
Min.-**OPTIMUM**-Max.

WRCX Series

Applicable Insert: QPMT, QPET

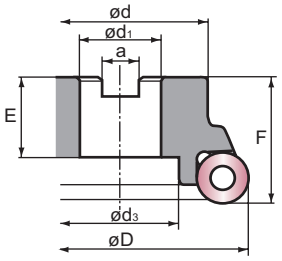
WRCX Endmill - Weldon/Cylindrical Shank - INCH

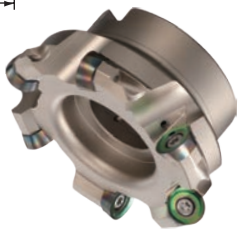
Catalog Number	Stock	Dimensions (inch)					Insert Dia.	# of Inserts	Ramp Angle	Shank Style
		øD	ød	L	l_1	l_2				
WRCX31000EW	•	1.000	1.000	4.341	2.060	2.281	0.375	2	11°30′	Weldon
WRCX31000ELC	•	1.000	1.000	10.000	3.750	6.250	0.375	2	11°30′	Cylindrical
WRCX31250EW	•	1.250	1.250	4.341	2.060	2.281	0.375	3	7°30′	Weldon
WRCX31250ELC	•	1.250	1.250	10.000	3.750	6.250	0.375	3	7°30′	Cylindrical
WRCX31500EW	•	1.500	1.500	4.341	2.060	2.281	0.375	4	5°30′	Weldon
WRCX31500ELC	•	1.500	1.500	10.000	3.750	6.250	0.375	4	5°30′	Cylindrical
WRCX41250EW	•	1.250	1.250	4.341	2.060	2.281	0.500	2	18°30′	Weldon
WRCX41250ELC	•	1.250	1.250	10.000	3.750	6.250	0.500	2	18°30′	Cylindrical
WRCX41500EW	•	1.500	1.500	4.341	2.060	2.281	0.500	3	12°30′	Weldon
WRCX41500ELC	•	1.500	1.500	10.000	3.750	6.250	0.500	3	12°30′	Cylindrical



WRCX Shell Mill - INCH

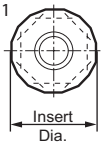
Catalog Number	Stock	Dimensions *(mm)*								Insert Dia.	# of Inserts	Ramp Angle
		øD	ød	F	$ød_1$	$ød_2$	$ød_3$	E	a			
WRCX32000R	•	2.000	1.50	1.75	0.750	0.406	0.609	1.020	0.312	0.375	4	5°30′
WRCX42000R	•	2.000	1.50	1.75	0.750	0.406	0.609	1.020	0.312	0.500	4	7°30′
WRCX42500R	•	2.500	1.75	1.75	1.000	0.531	0.797	1.020	0.375	0.500	4	5°30′
WRCX43000R	•	3.000	2.25	1.75	1.000	0.531	0.797	1.020	0.375	0.500	5	4°
WRCX63000R	•	3.000	2.25	1.75	1.000	0.531	0.797	1.020	0.375	0.750	5	7°30′
WRCX44000R	•	4.000	2.87	2.00	1.250	0.656	1.000	1.020	0.500	0.500	6	2°30′
WRCX64000R	•	4.000	2.87	2.00	1.250	0.656	1.000	1.020	0.500	0.750	6	4°30′
WRCX84000R	•	4.000	2.87	2.00	1.250	0.656	1.000	1.020	0.500	1.000	6	6°
WRCX65000R	•	5.000	3.75	2.50	1.500	-	2.000	1.060	0.625	0.750	6	3°15′
WRCX85000R	•	5.000	3.75	2.50	1.500	-	2.000	1.060	0.625	1.000	6	4°15′
WRCX66000R	•	6.000	3.75	2.50	1.500	-	2.000	1.060	0.625	0.750	8	3°15′
WRCX86000R	•	6.000	3.70	2.50	1.500	-	2.000	1.060	0.625	1.000	8	3°15′





Inserts

Fig. 1



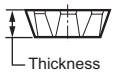
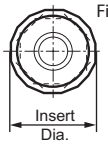


Fig. 2



Catalog Number	ACP100	ACP200	ACP300	ACK300	DL1000	H1	Dimensions (in) Insert Dia.	T	Max D.O.C.	Fig.
QPMT32.510PPEN	•	•	•	•			0.375	0.156	0.1875	1
QPMT32.510PPEN-H	•		•	•			0.375	0.156	0.1875	2
QPMT4312PPEN	•	•	•	•			0.500	0.1875	0.250	1
QPMT4312PPEN-H	•		•	•			0.500	0.1875	0.250	2
QPMT6416PPEN	•	•	•	•			0.750	0.250	0.375	1
QPMT6416PPEN-H	•		•	•			0.750	0.250	0.375	2
QPMT8424PPEN	•	•	•	•			1.000	0.250	0.500	1
QPMT8424PPEN-H	•		•	•			1.000	0.250	0.500	2
QPET32.510PPENS*					•	•	0.375	0.156	0.1875	1
QPET4312PPENS*					•	•	0.500	0.1875	0.250	1
QPET6416PPENS*					•	•	0.750	0.250	0.375	1

*4 indexes due to wiper

Coolant Through Bolts

Catalog Number	Cutter Size
BFXH 3/8 x 1	**2.00"**
BFXH 1/2 x 1 1/4	**2.50"**
BFXH 1/2 x 1 1/4	**3.00"**
BFXH 5/8 x 1 1/4	**4.00"**
BFXH 3/4 x 1 1/2	**5.00"**

Hardware

Cutter	Wrench	Screw
WRCX3☐☐☐R	TRDR15IP	BFTX03584IP
WRCX4☐☐☐R		BFTX0409IP
WRCX6☐☐☐R	TRDR20IP	BFTX0511IP
WRCX8☐☐☐R		BFTX0615IP

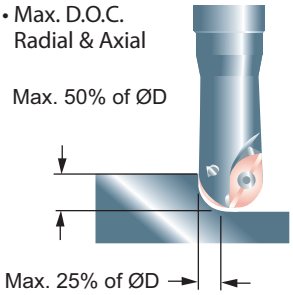
WBMR BALLNOSE ENDMILL

Applicable Insert: ZNMT

Features & Benefits

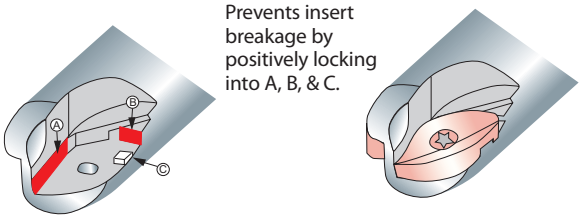
- Dedicated 2-flute ball nose endmill designed specifically for high performance rough cutting of steels, alloys, and tool steels
- Provides maximum cutter efficiency for the most time consuming portion of most machining operations–roughing
- Neutral insert edge with positive relief on face is incredibly strong but consumes low amounts of horsepower
- Strong tool steel body designed with anti-rotation lugs insures that cutting inserts are movement free, even at heavy feed rates and high cutting speeds
- "X" style cutter bodies allow the creation of part side walls with as little as three degrees of draft without side wall interference from the tool tip all the way to the face of a standard ISO Weldon shank tool holder
- Three separate lengths per diameter allow the end user to choose the best tool for the job at hand
- Cylindrical shank tooling allows extended reach, and the possibility of customization along with the correct design for use with the latest high strength milling chucks
- Negative assembly tolerancing eliminates 3-dimensional surface violations due to cumulative tooling errors
- The perfect 1-2 punch for the roughing of dies and mold work when combined with our WRCX cutters

- Max. D.O.C. Radial & Axial

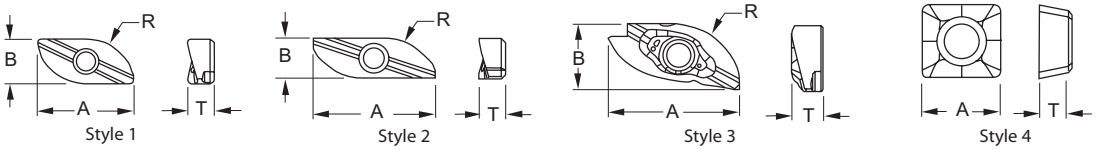


- Anti-rotational design

Prevents insert breakage by positively locking into A, B, & C.



Inserts for all WBMR Series Ballnose Endmills

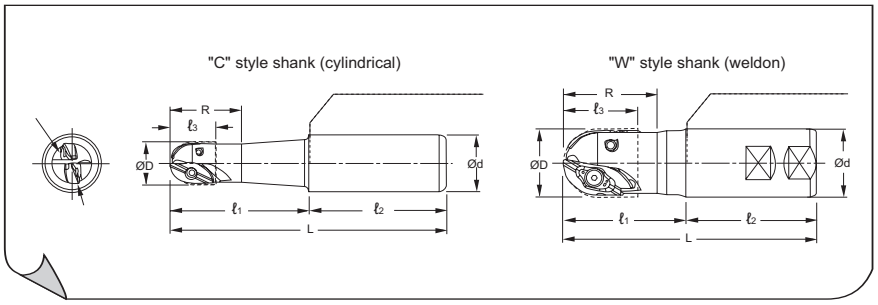


Catalog Number	Style	Position	A	B	T	R	Applicable Cutters
ZNMT3CX	1	center	0.720	0.361	0.189	0.375	WBMR075SX, MX, LX, or LCX
ZNMT3SX	2	outer	0.795	0.280	0.167	0.375	
ZNMT4CX	1	center	0.887	0.480	0.224	0.500	WBMR100SX, MX, LX, LCX,
ZNMT4SX	2	outer	0.913	0.369	0.217	0.500	SLX, MLX, or LLX
ZNMT5CX	1	center	1.150	0.615	0.281	0.625	WBMR125SX, MX, LX, LCX,
ZNMT5SX	2	outer	1.185	0.472	0.263	0.625	SLX, MLX, or LLX
ZNMT6X	3	center & outer	1.430	0.781	0.348	0.750	WBMR150SX, MX, or LX
ZNMT8X	3	center & outer	1.705	1.012	0.400	1.000	WBMR200SX, MX, or LX
SPMT09T308*	4	peripheral insert	0.375 (I.C.)	N/A	0.156	.031	WBMR100 & 125 SLX, MLX, or LLX

*Used in "Extended Length of Cut" Endmills only

WBMR BALLNOSE ENDMILL

Applicable Insert: ZNMT



WBMR Cutters (Standard Length)

Catalog Number	Stock	Dimensions (Inches)								Inserts
		ØD	Ød	Shank	L	ℓ_3	ℓ_1	ℓ_2	R	
WBMR075SX	•	0.750	1.000	W	4.546	0.752	2.285	2.261	1.181	ZNMT3_X
WBMR075MX	•	0.750	1.000	W	6.046	0.752	3.785	2.261	1.181	ZNMT3_X
WBMR075LX	•	0.750	1.000	W	7.546	0.752	5.285	2.261	1.181	ZNMT3_X
WBMR100SX	•	1.000	1.250	W	4.796	0.917	2.535	2.261	1.378	ZNMT4_X
WBMR100MX	•	1.000	1.250	W	6.546	0.917	4.285	2.261	1.378	ZNMT4_X
WBMR100LX	•	1.000	1.250	W	8.296	0.917	6.035	2.261	1.378	ZNMT4_X
WBMR100LCX	•	1.000	1.250	C	11.750	0.917	2.535*	9.215**	1.378	ZNMT4_X
WBMR125SX	•	1.250	1.250	W	4.796	1.228	2.535	2.261	1.693	ZNMT5_X
WBMR125MX	•	1.250	1.250	W	6.796	1.228	4.535	2.261	1.693	ZNMT5_X
WBMR125LX	•	1.250	1.250	W	8.796	1.228	6.535	2.261	1.693	ZNMT5_X
WBMR125LCX	•	1.250	1.250	C	13.750	1.228	2.535*	11.215**	1.693	ZNMT5_X
WBMR150SX	•	1.500	1.500	W	5.223	1.543	2.535	2.688	1.940	ZNMT6X
WBMR150MX	•	1.500	1.500	W	7.779	1.543	4.535	3.244	3.688	ZNMT6X
WBMR150LX	•	1.500	1.500	W	9.779	1.543	6.535	3.244	5.488	ZNMT6X
WBMR200SX	•	2.000	2.000	W	6.029	1.862	2.785	3.244	2.256	ZNMT8X
WBMR200MX	•	2.000	2.000	W	8.279	1.862	5.035	3.244	4.138	ZNMT8X
WBMR200LX	•	2.000	2.000	W	10.529	1.862	7.285	3.244	6.163	ZNMT8X

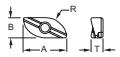
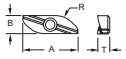
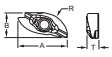
Note: All 0.750"-1.250" cutters require (1) Center "CX" insert and (1) Outer "SX" insert to accomplish the "D" diameter specified. The tolerance of the "D" diameter is +.000/-.020.
*Represents relieved portion of cutter body
**Represents straight portion of cutter body
• USA stocked item

Hardware


Catalog Number	Screw	Wrench
WBMR075□X	BFTX0307N	TRX10
WBMR100□X	BFTX0409N	TRD15
WBMR125□X	BFTX0511N	TRD20
WBMR150□X	BFTX0619N	TRD25
WBMR200□X	BFTX0619N	TRD25

Torque specifications for BFTX0307N insert screw is 18-22 in/lbs.
Torque specifications for BFTX0409N insert screw is 27-31 in/lbs.
Torque specifications for BFTX0511N insert screw is 44-49 in/lbs.
Torque specifications for BFTX0619N insert screw is 62-67 in/lbs.

Inserts

Figure 1 
Figure 2 
Figure 3 

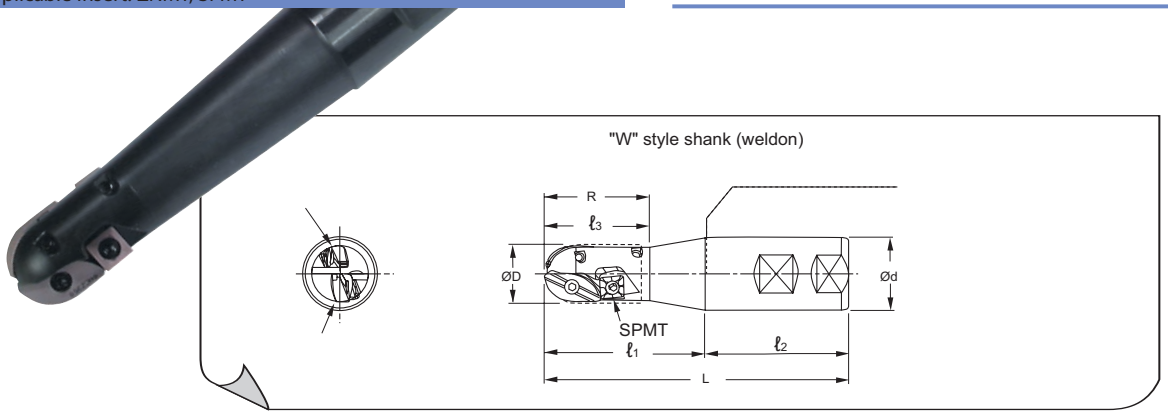
Sumitomo Cat. No.	Coated						Dimensions (Inches)				
	ACZ310	ACZ330	ACZ350	ACK300	ACP200	ACP300	A	B	T	R	Figure
ZNMT3CX	▲	▲	▲	•	•	•	0.720	0.361	0.189	0.375	1
ZNMT3SX	▲	▲	▲	•	•	•	0.795	0.280	0.167	0.375	2
ZNMT4CX	▲	▲	▲	•	•	•	0.887	0.480	0.224	0.500	1
ZNMT4SX	▲	▲	▲	•	•	•	0.913	0.369	0.217	0.500	2
ZNMT5CX	▲	▲	▲	•	•	•	1.150	0.615	0.281	0.625	1
ZNMT5SX	▲	▲	▲	•	•	•	1.185	0.472	0.263	0.625	2
ZNMT6X	▲		▲	•	•	•	1.430	0.781	0.348	0.750	3
ZNMT8X	▲		▲	•	•	•	1.705	1.012	0.400	1.000	3

"CX" denotes center insert (Fig. 1)
"SX" denotes outer insert (Fig. 2)
Fig. 3 inserts are used in both center and outer position.
• USA stocked item

See pages 613-615 for recommended running parameters

WBMR BALLNOSE ENDMILL

Applicable Insert: ZNMT, SPMT

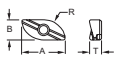
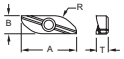
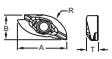


WBMR Cutters (Extended Length)

Catalog Number	Stock	Dimensions (Inches)								Inserts 1 & 2	Insert style 4
		ØD	Ød	Shank	L	ℓ_3	ℓ_1	ℓ_2	R		
WBMR100SLX	•	1.000	1.250	W	4.796	1.535	2.535	2.261	1.653	ZNMT4_X	SPMT09T308
WBMR100MLX	•	1.000	1.250	W	6.546	1.535	4.285	2.261	1.653	ZNMT4_X	SPMT09T308
WBMR100LLX	•	1.000	1.250	W	8.296	1.535	6.035	2.261	1.653	ZNMT4_X	SPMT09T308
WBMR125SLX	•	1.250	1.250	W	4.796	1.835	2.535	2.261	1.968	ZNMT5_X	SPMT09T308
WBMR125MLX	•	1.250	1.250	W	6.796	1.835	4.535	2.261	1.968	ZNMT5_X	SPMT09T308
WBMR125LLX	•	1.250	1.250	W	8.796	1.835	6.535	2.261	1.968	ZNMT5_X	SPMT09T308

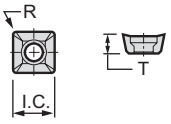
Note: All 0.750" - 1.250" cutters require (1) Center "CX" insert and (1) Outer "SX" insert to accomplish the "D" diameter specified.
The tolerance of the "D" diameter is +.000/-.020.
*This dimension represents the actual "extension from holder."
• USA stocked item

Inserts

Figure 1 
Figure 2 
Figure 3 

Sumitomo Cat. No.	Coated						Dimensions (Inches)				Figure
	AC7310	AC7330	AC7350	ACK300	ACP200	ACP300	A	B	T	R	
ZNMT3CX	▲	▲	▲	•	•	•	0.720	0.361	0.189	0.375	1
ZNMT3SX	▲	▲	▲	•	•	•	0.795	0.280	0.167	0.375	2
ZNMT4CX	▲	▲	▲	•	•	•	0.887	0.480	0.224	0.500	1
ZNMT4SX	▲	▲	▲	•	•	•	0.913	0.369	0.217	0.500	2
ZNMT5CX	▲	▲	▲	•	•	•	1.150	0.615	0.281	0.625	1
ZNMT5SX	▲	▲	▲	•	•	•	1.185	0.472	0.263	0.625	2
ZNMT6X	▲		▲	•	•	•	1.430	0.781	0.348	0.750	3
ZNMT8X	▲		▲	•	•	•	1.705	1.012	0.400	1.000	3

"CX" denotes center insert (Fig. 1)
"SX" denotes outer insert (Fig. 2)
▲ USA Limited Availablity Item
• USA stocked item



Sumitomo Cat. No.	Coated				Dimensions (Inches)		
	ACK300				I.C.	T	R
SPMT09T308	•				0.375	0.156	0.031

• USA stocked item

Hardware


Catalog Number	Insert	Screw	Wrench
WBMR100□LX	ZNMT4_X	BFTX0409N	TRD15
WBMR125□LX	ZNMT5_X	BFTX0511N	TRD20
WBMR□□□□LX	SPMT09T308	BFTX0409N	TRD15

Torque specifications for BFTX0409N insert screw is 27-31 in/lbs.
Torque specifications for BFTX0511N insert screw is 44-49 in/lbs.

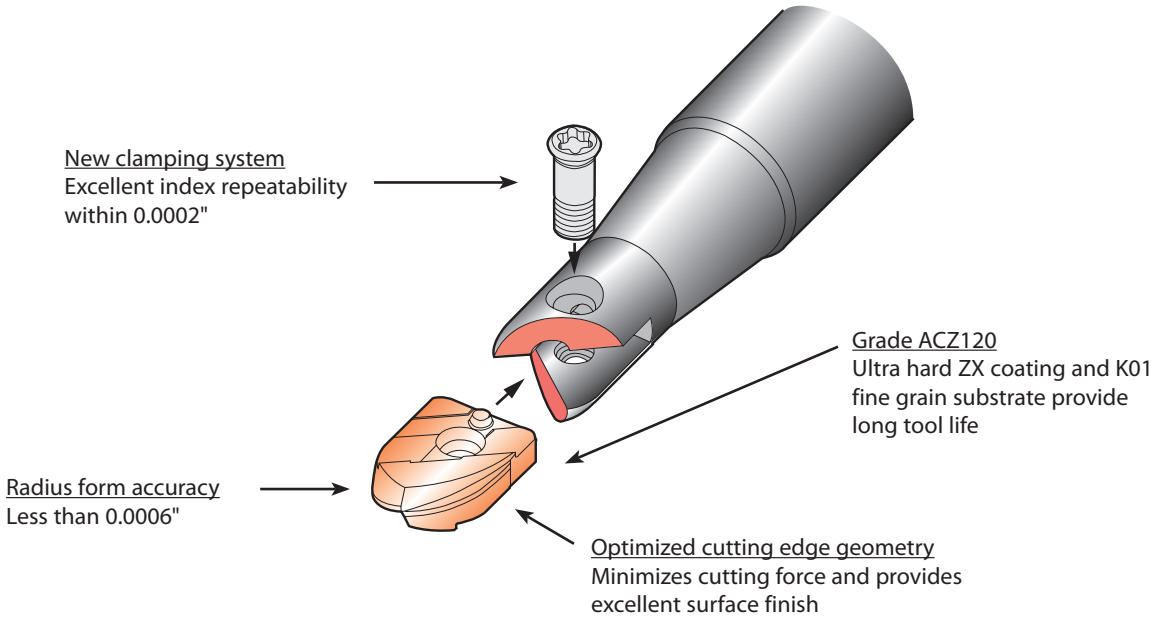
See pages 613-615 for recommended running parameters

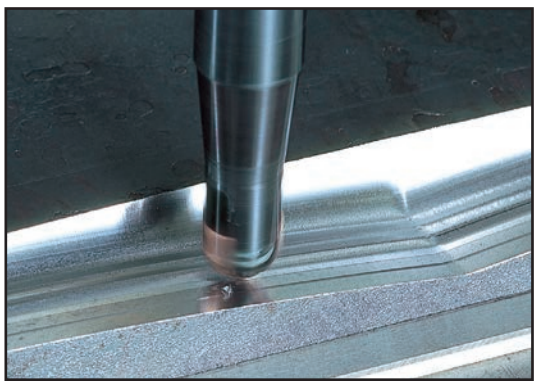
WBMF BALLNOSE ENDMILL

Applicable Insert: ZPGU

Features & Benefits

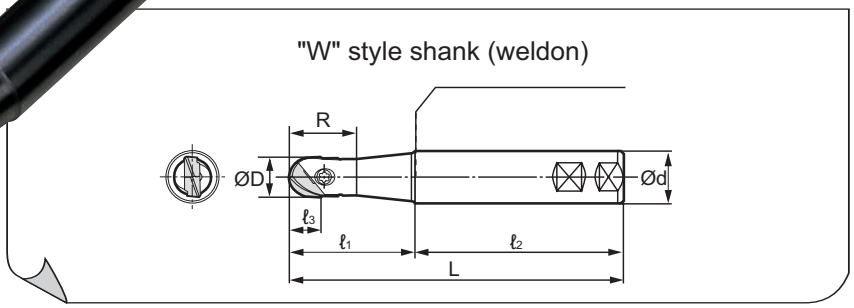
- Highly accurate fully ground insert offers reliable repeatability (within 0.0002") to simplify the finish milling processes of complex 3-dimensional work
- Multi ground locking surfaces and screw-on insert design makes the cutter assembly super strong and rigid
- The tool body design matches that of the WBMR line to provide worry-free programming, insuring no side wall interference down to as little as 3° of draft without body modification of weldon style tools
- Each diameter is offered in multiple lengths to allow application of the shortest, most efficient length for the job
- ACZ120, ZX coated carbide inserts efficiently cut hardened mold and die steels with low cutting forces and long tool life
- Sharp helical cutting edge generates excellent surface finishes to reduce or eliminate time consuming hand polishing operations





WBMF BALLNOSE ENDMILL

Applicable Insert: ZPGU

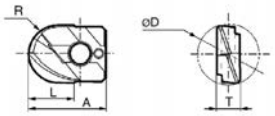


WBMF Cutters (Standard Length)

Catalog Number	Stock	Dimensions (Inches)								Inserts
		D	d	Shank	L	ℓ_1	ℓ_2	ℓ_3	R	
WBMF10500S	•	0.500	0.625	W	3.678	1.772	1.906	0.427	0.782	ZPGU2S
WBMF10500M	•	0.500	0.625	W	4.428	2.5222	1.906	0.427	0.782	ZPGU2S
WBMF10500L	•	0.500	0.750	W	5.300	3.270	2.031	0.427	0.782	ZPGU2S
WBMF10625S	•	0.625	0.750	W	3.801	1.770	2.0313	0.470	1.000	ZPGU2.5S
WBMF10625M	•	0.625	0.750	W	4.551	2.520	2.0313	0.470	1.000	ZPGU2.5S
WBMF10625L	•	0.625	1.000	W	5.546	3.265	2.2813	0.470	1.000	ZPGU2.5S
WBMF10750S	•	0.750	1.000	W	4.5459	2.265	2.2813	0.572	1.250	ZPGU3S
WBMF10750M	•	0.750	1.000	W	6.0459	3.7647	2.2813	0.572	1.250	ZPGU3S
WBMF10750L	•	0.750	1.000	W	7.546	5.265	2.2813	0.572	1.250	ZPGU3S
WBMF11000S	•	1.000	1.250	W	4.793	2.5117	2.2813	0.736	1.500	ZPGU4S
WBMF11000M	•	1.000	1.250	W	6.546	4.265	2.2813	0.736	1.500	ZPGU4S
WBMF11000L	•	1.000	1.250	W	8.296	6.0147	2.2813	0.736	1.500	ZPGU4S
WBMF11250S	•	1.250	1.250	W	4.796	2.515	2.2813	0.919	1.750	ZPGU5S
WBMF11250M	•	1.250	1.250	W	6.796	4.515	2.2813	0.919	1.750	ZPGU5S
WBMF11250L	•	1.250	1.250	W	8.796	6.5147	2.2813	0.919	1.750	ZPGU5S

• USA stocked item

Inserts



Sumitomo Cat. No.	Coated ACZ120				Dimensions (Inches) ØD	L	A	T	R
ZPGU2S	•				0.500	0.427	0.722	0.220	0.250
ZPGU2.5S	•				0.625	0.470	0.805	0.240	0.3125
ZPGU3S	•				0.750	0.572	0.946	0.280	0.375
ZPGU4S	•				1.000	0.736	1.130	0.299	0.500
ZPGU5S	•				1.250	0.919	1.392	0.339	0.625

• USA stocked item

Hardware

Catalog Number	Screw	Wrench
WBMF10500□	BFTG0409F	TRD15
WBMF10625□	BFTG0513F	TRD20
WBMF10750□	BFTG0617F	TRD25
WBMF11000□	BFTG0621F	TRD25
WBMF11250□	BFTG0825F	TRD25

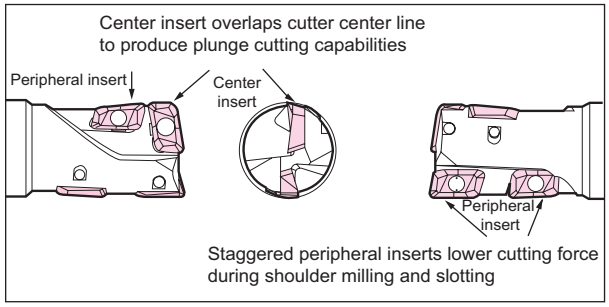
See pages 613-615 for recommended running parameters

WMM Series

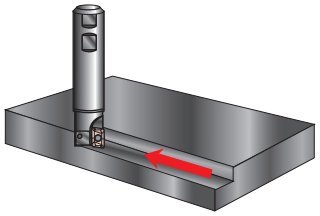
Features & Benefits

- Multi-functional cutter efficiently performs the cutting operations of several tools
- Excellent for ramping, helical cutting, pocketing, and drilling
- Inserts interchangeable with those used on the WEM and WRM cutters
- Strong high rake inserts provide smooth cutting action

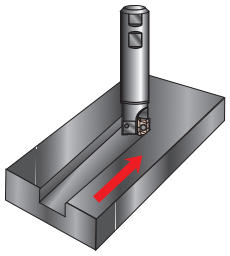
■ Insert orientation of WMM type cutter



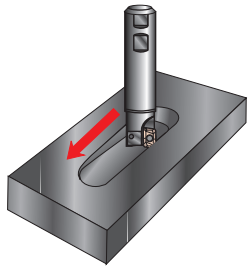
■ Multi-purpose Applications



Shoulder milling

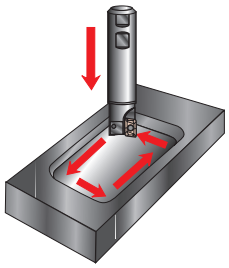


Slotting

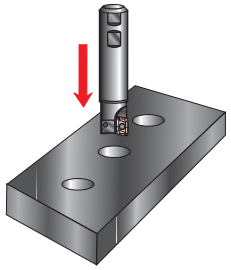


Ramping

Max. depth = effective depth of cut
Ramping Angle = 0~30°

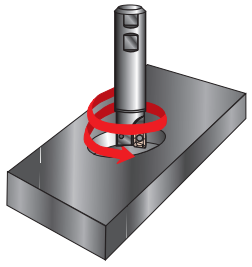


Pocketing



Drilling

Always use step feed (.020″-.040″) when drilling. It is recommended that the drill depth is ≤0.6D.

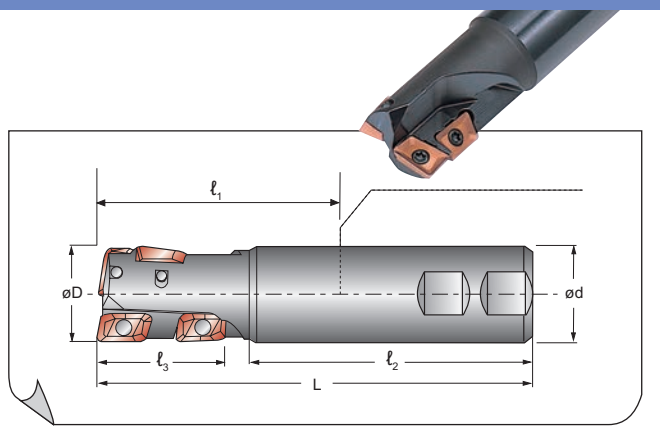


Helical boring
Boring-expanding

- a hole of 1.2-1.8 x diameter without prepared hole
- Helical angle = 0° to 30°

Inch WMM10000

Applicable Insert: APET10 APMT10



WMM Endmills

Catalog Number	Stock	Dimensions (Inches) ØD	Ød	L	ℓ1	ℓ2	ℓ3 Max D.O.C.	# of Inserts
WMM10100M	•	1.000	1.000	4.000	1.7394	2.281	1.050	4
WMM10125M	•	1.250	1.250	5.000	2.7394	2.281	1.390	5

• USA stocked item

Inserts

Figure 1

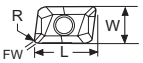


Figure 2

Sumitomo Cat. No.	Coated ACZ310	ACZ330	ACZ350	DL1000	Uncoated H1			Dimensions (Inches) L	W	T	R	Facet Width	Fig.
APET103504PDER	•	•	•					0.394	0.250	0.138	0.016	0.0315	1
APET103504PDFR-J				•	•			0.394	0.250	0.138	0.016	0.0315	1
APMT103504PDER	•	•	•					0.394	0.250	0.138	0.016	N/A	2
APMT103504PDER-H	•	•	•					0.394	0.250	0.138	0.016	N/A	2
APMT103508PDER	•		•					0.394	0.250	0.138	0.031	N/A	2
APMT103508PDER-H	•		•					0.394	0.250	0.138	0.031	N/A	2
APMT103512PDER	•		•					0.394	0.250	0.138	0.047	N/A	2
APMT103512PDER-H	•		•					0.394	0.250	0.138	0.047	N/A	2

"J" denotes inserts with a polished face.
"H" denotes inserts with heavy edge preparation.
• USA stocked item

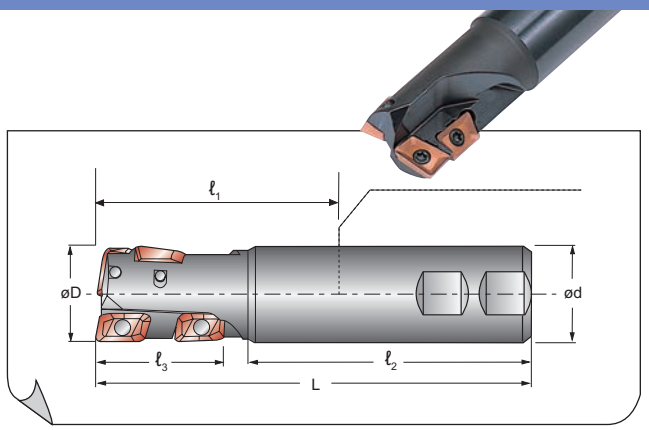
Hardware

Catalog Number	Screw	Wrench
WMM10□□□M	BFTX02506N	TRD08

Torque specifications for BFTX02506N insert screw=10-14 inch/lbs.

Inch WMM16000

Applicable Insert: APET16 APMT16



WMM Endmills

Catalog Number	Stock	Dimensions (Inches) ØD	Ød	L	ℓ1	ℓ2	ℓ3 Max D.O.C.	# of Inserts
WMM16150M	•	1.500	1.250	5.000	2.7394	2.281	1.540	4

• USA stocked item

Inserts

Figure 1

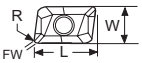


Figure 2

Sumitomo Cat. No.	Coated ACZ310	ACZ330	ACZ350	DL1000	Uncoated H1			Dimensions (Inches) L	W	T	R	Facet Width	Fig.
APET160504PDFR-J				•	•			0.630	0.375	0.218	0.016	0.0827	1
APET160508PDER	•	•	•					0.630	0.375	0.218	0.031	0.071	1
APET160508PDFR-J				•	•			0.630	0.375	0.218	0.031	0.071	1
APMT160508PDER	•	•	•					0.630	0.375	0.218	0.031	N/A	2
APMT160508PDER-H	•	•	•					0.630	0.375	0.218	0.031	N/A	2
APMT160512PDER	•		•					0.630	0.375	0.218	0.047	N/A	2
APMT160512PDER-H	•		•					0.630	0.375	0.218	0.047	N/A	2
APMT160516PDER			•					0.630	0.375	0.218	0.063	N/A	2
APMT160516PDER-H		•	•					0.630	0.375	0.218	0.063	N/A	2
APMT160532PDER-H	•	•	•					0.630	0.375	0.218	0.125	N/A	2

"J" denotes inserts with a polished face.
"H" denotes inserts with heavy edge preparation.
• USA stocked item

Hardware

Catalog Number	Screw	Wrench
WMM16□□□M	BFTX03584	TRD15

Torque specifications for BFTX03584 insert screw=27-31 inch/lbs.

See pages 613-615 for recommended running parameters

Modular Tooling

Pages 393-399

Features & Benefits

Exchangeable head endmills are available in 3 types!

1) WEX Type Shoulder Endmill

2) RSX Type Multi-purpose Radius Endmill

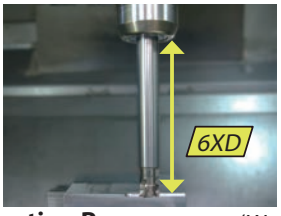
3) MSX Type Ultra-High Feed Endmill

4) TSX Type Tangential Shoulder Endmill

■ Charateristics

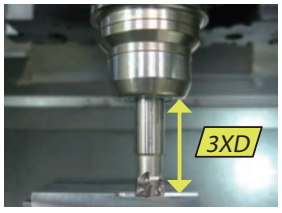
Carbide arbors can be applied up to 6 times diameter to length ratio.

Modular Type + Carbide Arbor



Work Material: 1049
Tool: WEX2025M12Z4 (φ25x4 flutes)
Cutting Conditions: v_c=328 SFM f_z=0.004 IPT
a_e=.315" mm x 3 D.O.C=.079" Equipment = M/C BT50

Standard Type (Integrated Arbor)

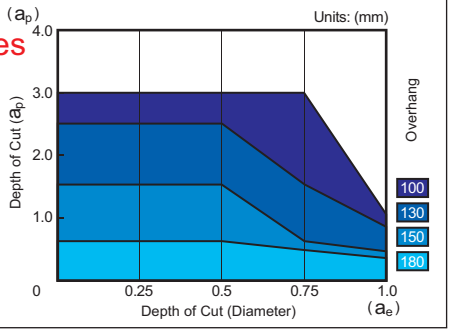


■ Application Range

(Work Material: 1049 Equipment: Vertical M/C BT50 Dry)

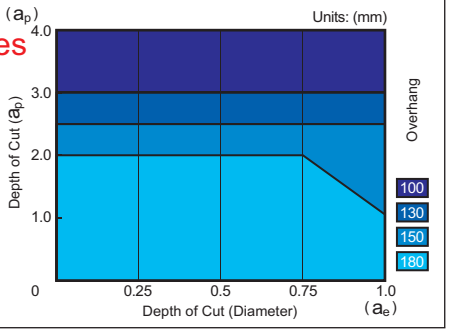
WEX2000 Series

(v_c=180m/min, f_z=0.1mm)



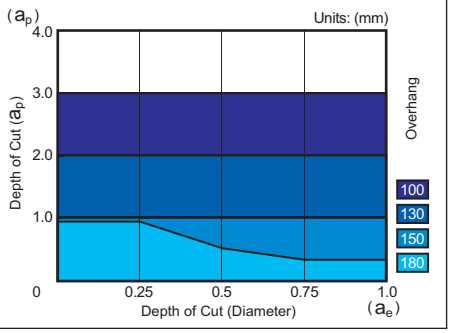
WEX3000 Series

(v_c=180m/min, f_z=0.1mm)



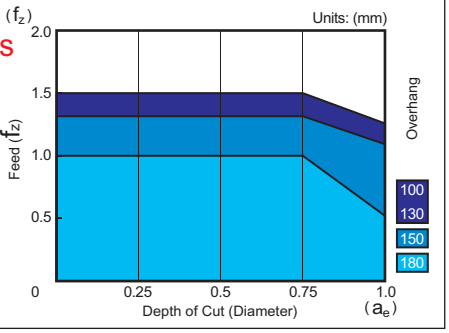
RSX4000 Series

(v_c=160m/min, f_z=0.2mm)



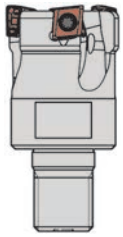
MSX4000 Series

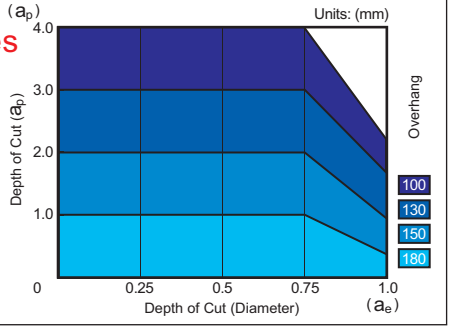
(v_c=160m/min, a_p=1.2mm)



TSX4000 Series

(v_c=180m/min, f_z=0.1mm)





Note: These tables indicate reference machining conditions. Actual machining parameters should be adjusted based on machine rigidity and work clamp rigidity.

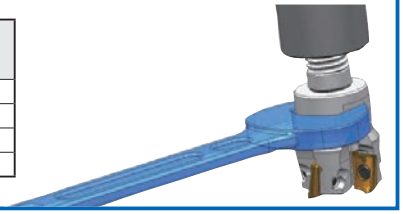
■ Recommended Tightening Torque (N•m)

*Notes about tightening the head.

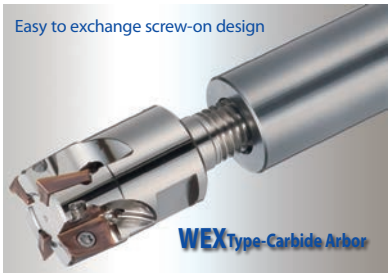
·When attaching the head to an arbor, follow the standard tightening torque in the table below.

·Check the mounting screw size for the head and arbor beforehand.

Screw Size	Torque (N·m)
M8	23
M10	46
M12	80
M16	90



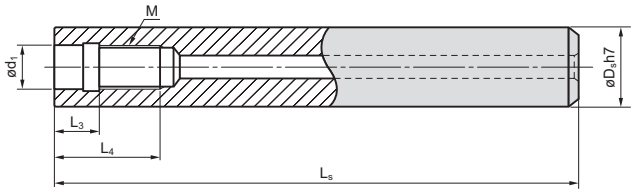
Suitable for milling with long overhangs when combined with carbide or steel arbors



Modular Tools Special Arbors (Carbide Arbors/Steel Arbors)

Carbide Arbors

Steel Arbors



■ Set Dimensions (*)

★Worldwide Warehouse Item

Carbide Arbors

Catalog Number	Stock	Dimension (mm)						
		M	ød1	øDs	Ls	L3	L4	Ls*
MA15M08L120C	★	M8	8.5	15	120	10	18	145
MA15M08L160C	★	M8	8.5	15	160	10	18	185
MA16M08L120C	★	M8	8.5	16	120	10	18	145
MA16M08L160C	★	M8	8.5	16	160	10	18	185
MA18M10L150C	★	M10	10.5	18	150	10	20	180
MA18M10L200C	★	M10	10.5	18	200	10	20	230
MA20M10L150C	★	M10	10.5	20	150	10	20	180
MA20M10L200C	★	M10	10.5	20	200	10	20	230
MA23M12L200C	★	M12	12.5	23	200	10	22	235
MA23M12L250C	★	M12	12.5	23	250	10	22	285
MA25M12L200C	★	M12	12.5	25	200	10	22	235
MA25M12L250C	★	M12	12.5	25	250	10	22	285
MA28M16L200C	★	M16	17.0	28	200	10	24	240
MA28M16L300C	★	M16	17.0	28	300	10	24	340
MA32M16L200C	★	M16	17.0	32	200	10	24	240
MA32M16L300C	★	M16	17.0	32	300	10	24	340

Steel Arbors

Catalog Number	Stock	Dimension (mm)						
		M	ød1	øDs	Ls	L3	L4	Ls
MA16M08L120S	★	M8	8.5	16	120	10	18	145
MA18M10L150S								
MA20M10L150S	★	M10	10.5	20	150	10	20	180
MA25M12L200S	★	M12	12.5	25	200	10	22	235
MA28M16L200S								
MA32M16L200S	★	M16	17.0	32	200	10	24	240

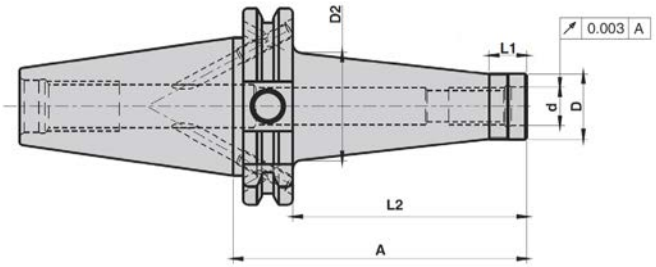
★Worldwide Warehouse Item

Arbor Identification

MA 15 M08 L120 C

(1) Cutter Series	(2) Shank Diameter	(3) Mounting Screw	(4) Arbor Length	(5) C: Carbide S: Steel

Modular Tools Adapters



Modular Adapters - SK40

Catalog Number	Stock	Dimension (mm)						
		M	d	D1	D2	A	L1	L2
SMA-M8-69-SK40	★	M8	8.5	13.8	23	69	12	49.9
SMA-M8-94-SK40	★	M8	8.5	13.8	25	94	12	74.9
SMA-M8-119-SK40	★	M8	8.5	13.8	30	119	12	99.9
SMA-M10-69-SK40	★	M8	8.5	18.0	25	69	12	49.9
SMA-M10-94-SK40	★	M10	10.5	18.0	30	94	12	74.9
SMA-M10-119-SK40	★	M10	10.5	18.0	35	119	12	99.9
SMA-M10-169-SK40	★	M10	10.5	18.0	45	169	12	149.9
SMA-M12-69-SK40	★	M10	12.5	21.0	30	69	12	49.9
SMA-M12-94-SK40	★	M12	12.5	21.0	35	94	12	74.9
SMA-M12-119-SK40	★	M12	12.5	21.0	38	119	12	99.9
SMA-M12-169-SK40	★	M12	12.5	21.0	48	169	12	149.9
SMA-M16-69-SK40	★	M12	17.0	29.0	34	69	12	49.9
SMA-M16-94-SK40	★	M16	17.0	29.0	35	94	12	74.9
SMA-M16-119-SK40	★	M16	17.0	29.0	40	119	12	99.9
SMA-M16-169-SK40	★	M16	17.0	29.0	48	169	12	149.9

Note: The above holders require an M16 thread retention knob

Modular Adapters - SK50

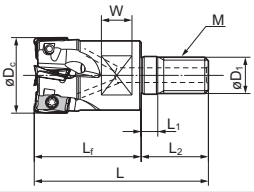
Catalog Number	Stock	Dimension (mm)						
		M	d	D1	D2	A	L1	L2
SMA-M8-69-SK50	★	M8	8.5	13.8	23	69	12	49.9
SMA-M8-119-SK50	★	M8	8.5	13.8	30	119	12	74.9
SMA-M8-169-SK50	★	M8	8.5	13.8	45	169	12	99.9
SMA-M10-69-SK50	★	M10	10.5	18.0	25	69	12	49.9
SMA-M10-119-SK50	★	M10	10.5	18.0	35	119	12	99.9
SMA-M10-169-SK50	★	M10	10.5	18.0	45	169	12	149.9
SMA-M12-69-SK50	★	M12	12.5	21.0	30	69	12	49.9
SMA-M12-119-SK50	★	M12	12.5	21.0	38	119	12	99.9
SMA-M12-169-SK50	★	M12	12.5	21.0	52	169	12	149.9
SMA-M16-69-SK50	★	M16	17.0	29.0	34	69	12	49.9
SMA-M16-119-SK50	★	M16	17.0	29.0	40	119	12	99.9
SMA-M16-169-SK50	★	M16	17.0	29.0	48	169	12	149.9

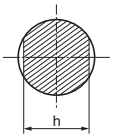
Note: The above holders require an M24 thread retention knob

WEX Series

Rake Angle				
Radial	10° to 18°	10mm	0°	P M K N N S H
Axial	14° to 25°			
Radial	8° to 15°	14mm	0°	P M K N N S H
Axial	16° to 24°			

WEX2000M





WEX3000M

★Worldwide Warehouse Item Inserts are not included

Modular Head - INCH — Insert: AXMT12

Catalog Number	Stock	Dimensions (in.)									No. of Teeth
		øDc	øD1	M	L	Lf	L1	L2	W	h	
WEX20750M10Z3	○	0.750	0.413	M10	1.929	1.181	0.197	0.748	0.315	0.591	3
WEX21000M12Z4	○	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	4
WEX21250M16Z5	○	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	5
WEX21500M16Z6	○	1.500	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	6

Modular Head - INCH — Insert: AXMT17

Catalog Number	Stock	Dimensions (in.)									No. of Teeth
		øDc	øD1	M	L	Lf	L1	L2	W	h	
WEX31000M12Z2	○	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	2
WEX31250M16Z3	○	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	3
WEX31500M16Z4	○	1.500	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	4

○ Available 1st Quarter 2017

Modular Head - METRIC — Insert: AXMT12

Catalog Number	Stock	Dimensions (mm)									No. of Teeth
		øDc	øD1	M	L	Lf	L1	L2	W	h	
WEX 2016M08Z2	★	16	8.5	M8	42	25	5	17	8	13	2
WEX 2018M08Z2	★	18	8.5	M8	42	25	5	17	8	13	2
WEX 2020M10Z3	★	20	10.5	M10	49	30	5	19	8	15	3
WEX 2022M10Z3	★	22	10.5	M10	49	30	5	19	8	15	3
WEX 2025M12Z4	★	25	12.5	M12	56	35	5	21	10	19	4
WEX 2028M12Z4	★	28	12.5	M12	56	35	5	21	10	19	4
WEX 2030M16Z4	★	30	17.0	M16	63	40	5	23	10	24	4
WEX 2032M16Z5	★	32	17.0	M16	63	40	5	23	10	24	5
WEX 2040M16Z6	★	40	17.0	M16	63	40	5	23	10	24	6

Modular Head (WEX3000M) - METRIC — Insert: AXMT17

Catalog Number	Stock	Dimensions (mm)									No. of Teeth
		øDc	øD1	M	L	Lf	L1	L2	W	h	
WEX 3025M12Z2	★	25	12.5	M12	56	35	5	21	10	19	2
WEX 3028M12Z2	★	28	12.5	M12	56	35	5	21	10	19	2
WEX 3030M16Z3	★	30	17.0	M16	63	40	5	23	10	24	3
WEX 3032M16Z3	★	32	17.0	M16	63	40	5	23	10	24	3
WEX 3035M16Z3	★	35	17.0	M16	63	40	5	23	10	24	3
WEX 3040M16Z4	★	40	17.0	M16	63	40	5	23	10	24	4

■ **Arbor**

★Worldwide Warehouse Item Inserts are not included

WEX2000 Inserts

Insert	P			K		M/S		N		Dimensions (Inches)				
	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	DL1000	H1	L	W	T	R	Facet Width
AXMT123504PEERG	●	●	●	●	●					.472	.260	.138	.016	.061
AXMT123504PEERH	●	●	●	●	●					.472	.260	.138	.016	.061
AXMT123508PEERG	●	●	●	●	●					.472	.260	.138	.031	.061
AXMT123508PEERH	●	●	●	●	●					.472	.260	.138	.031	.061
AXMT123512PEERG	●	●	●	●	●					.472	.260	.138	.047	.061
AXMT123512PEERH	●	●	●	●	●					.472	.260	.138	.047	.061
AXMT123504PEERE						●	●			.472	.260	.138	.016	.061
AXMT123508PEERE						●	●			.472	.260	.138	.031	.061
AXMT123508PEEREH						●	●			.472	.260	.138	.031	.061
AXMT123512PEERE						●	●			.472	.260	.138	.047	.061
AXMT123516PEERE						●	●			.472	.260	.138	.063	.061
AXMT123524PEERE						●	●			.472	.260	.138	.094	.061
AXMT123532PEERE						●	●			.472	.260	.138	.126	.061
AXET123502PEFRS								●	●	.472	.260	.138	.008	.061
AXET123504PEFRS								●	●	.472	.260	.138	.016	.061
AXET123508PEFRS								●	●	.472	.260	.138	.031	.061

WEX3000 Inserts

Insert	P			K		M/S		N		Dimensions (Inches)				
	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	DL1000	H1	L	W	T	R	Facet Width
AXMT170504PEERG	●	●	●	●	●					.689	.402	.219	.016	.118
AXMT170508PEERG	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170508PEERH	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170508PEERL	●	●	●	●	●					.689	.402	.219	.031	.118
AXMT170512PEERG	●	●	●	●	●					.689	.402	.219	.047	.118
AXMT170512PEERH	●	●	●	●						.689	.402	.219	.047	.118
AXMT170516PEERG	●	●	●	●	●					.689	.402	.219	.063	.118
AXMT170520PEERG	●	●	●	●	●					.689	.402	.219	.079	.118
AXMT170530PEERG	●	●	●	●	●					.689	.402	.219	.118	.118
AXMT170532PEERG		●								.689	.402	.219	.126	.118
AXMT170504PEERE						●	●			.689	.402	.219	.016	.118
AXMT170508PEERE						●	●			.689	.402	.219	.031	.118
AXMT170508PEEREH						●	●			.689	.402	.219	.031	.118
AXMT170512PEERE						●	●			.689	.402	.219	.047	.118
AXMT170516PEERE						●	●			.689	.402	.219	.063	.118
AXMT170520PEERE						●	●			.689	.402	.219	.079	.118
AXMT170524PEERE						●	●			.689	.402	.219	.094	.118
AXMT170530PEERE						●	●			.689	.402	.219	.118	.118
AXMT170531PEERE						●	●			.689	.402	.219	.122	.118
AXMT170548PEERE						●	●			.689	.402	.219	.189	.118
AXMT170563PEERE						●	●			.689	.402	.219	.248	.118
AXET170502PEFRS								●	●	.689	.402	.219	.008	.118
AXET170504PEFRS								●	●	.689	.402	.219	.016	.118
AXET170508PEFRS								●	●	.689	.402	.219	.031	.118

WEX 2 016 M08 Z2

(1) Cutter Series; (2) Insert Size; (3) Diameter; (4) Mounting Screw; (5) No. of Flutes

Hardware (WEX2000M)

Spanner	Screw	Recommended Tightening Torque (N·m)	Applicable Endmill
TRDR08IP	BFTX0305IP	2.0	WEX2016M, WEX2018M
	BFTX0306IP	2.0	WEX2020M ~ WEX2040M

Anti-seizure cream SUMI-P included in the package

Hardware (WEX3000M)

Spanner	Screw	Recommended Tightening Torque (N·m)	Applicable Endmill
TRDR15IP	BFTX0407IP	3.0	WEX3025M ~ WEX3030M
	BFTX0409IP	3.0	WEX3032M ~ WEX3040M

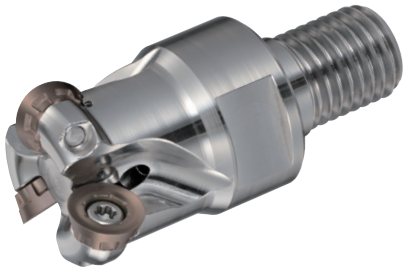
Rake Angle: Radial -5° / Axial 10°

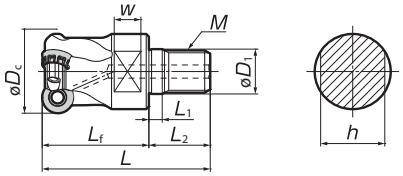
5mm RDET10 | 6mm RDET12

P	M	K	N	N	S	H
Steel	Stainless Steel	Cast Iron	Non-Ferrous Metal	Aluminum	Exotic Alloy	Hardened Steel
	●				●	

RSX

Milling for steel, stainless steel, cast iron, and non-ferrous alloys





Modular Head Course Pitch - INCH											Insert: RDET10
Catalog Number	Stock	Dimensions (in)									No. of Teeth
		øDc	øD1	M	L	Lf	L1	L2	W	h	
RSXF31000M12Z3	○	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	3
RSXF31250M16Z4	○	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	4
Modular Head Fine Pitch - INCH											Insert: RDET12
RSXF41250M16Z3	○	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	3
RSXF41500M16Z4	○	1.500	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	4

○ Available 1st Quarter 2017

Modular Head Course Pitch - METRIC												Insert: RDET10
Catalog Number	Stock	Dimensions (mm)									No. of Teeth	Weight (kg)
		øDc	øD1	M	L	Lf	L1	L2	W	h		
RSX10025M12Z2	★	25	12.5	M12	56	35	5	21	10	19	2	0.1
RSX10032M16Z3	★	32	17.0	M16	63	40	5	23	10	24	3	0.2
RSX12032M16Z2	★	32	17.0	M16	63	40	5	23	10	24	2	0.2
RSX12040M16Z3	★	40	17.0	M16	63	40	5	23	10	24	3	0.3
Modular Head Fine Pitch - METRIC												Insert: RDET12
RSXF10025M12Z3	★	25	12.5	M12	56	35	5	21	10	19	3	0.1
RSXF10032M16Z4	★	32	17.0	M16	63	40	5	23	10	24	4	0.2
RSXF12032M16Z3	★	30	17.0	M16	63	40	5	23	10	24	3	0.2
RSXF12040M16Z4	★	32	17.0	M16	63	40	5	23	10	24	4	0.3

★Worldwide Warehouse Item

Inserts are not included.

■ Insert & Parts Information

NEW

Inserts	P	K	M	M	S	Dimensions	
	ACP200	ACK300	ACM100	ACM200	ACM300	I.C.	Thickness
RDET10T3M0EN-G	●	●	●	●	●	0.394	0.156
RDET10T3M0EN-H	●	●	●	●	●		
RDET1204M0EN-G	●	●	●	●	●	0.472	0.187
RDET1204M0EN-H	●	●	●	●	●		
RDET1606M0EN-G	●	●	●	●	●	0.629	0.256
RDET1606M0EN-H	●	●	●	●	●		

●: U.S.A. Stock Item

■ Arbor

■ Modular Head Identification Details

RSX F 10 025 M12 Z3

(1) Cutter Series	(2) Pitch Type	(3) Insert Size	(4) Diameter	(5) Mounting Screw	(6) No. of Teeth

Hardware			
Spanner	Screw	Recommended Tightening Torque (N x m)	Applicable Head
TRDR15IP	BFTX03584IP	3.0	RSX10000M
	BFTX0409IP	3.0	RSX12000M

MSX Series

Rake Angle			WDMT06	WDMT08	WDMT12
Radial	-3° to -8°	.039"	70°	.059"	70°	.079"	70°
Axial	8°						

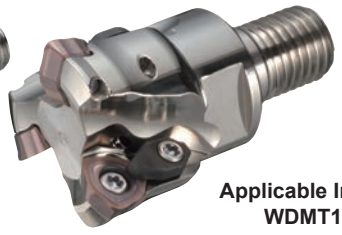
P Steel ● M Stainless Steel ● K Cast Iron ● N Non-ferrous/Alloy ● N Aluminum ● S Exotic Alloy ● H Hardened Steel ○

MSX

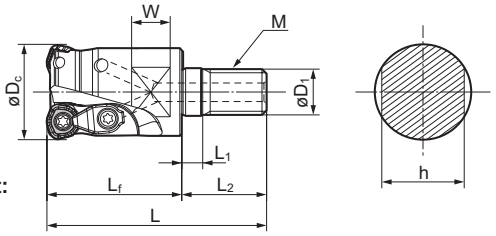
Ultra-high speed, high efficiency machining endmill

Applicable Insert: WDMT06

Applicable Insert: WDMT08



Applicable Insert: WDMT12



Modular Head - INCH	Stock	Insert: WDMT06 Type									
Catalog Number		Dimensions (in.)									No. of Teeth
		øDc	øD1	M	L	Lf	L1	L2	W	h	
MSX20750M10Z3	○	0.750	0.413	M10	1.929	1.181	0.197	0.748	0.315	0.591	3
MSX21000M12Z3	○	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	3
Modular Head - INCH		**Insert: WDMT08 Type**									
MSX31000M12Z2	○	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	2
MSX31250M16Z3	○	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	3

Arbor

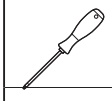
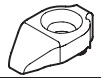
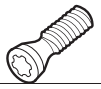
Modular Head - METRIC	Stock	Insert: WDMT06 Type									
Catalog Number		Dimensions (in.)									No. of Teeth
		øDc	øD1	M	L	Lf	L1	L2	W	h	
MSX 06016M08Z2	★	16	8.5	M8	42	25	5	17	8	13	2
MSX 06018M08Z2	★	18	8.5	M8	42	25	5	17	8	13	2
MSX 06020M10Z3	★	20	10.5	M10	49	30	5	19	8	15	3
MSX 06022M10Z3	★	22	10.5	M10	49	30	5	19	8	15	3
MSX 06025M12Z3	★	25	12.5	M12	56	35	5	21	10	19	3
Modular Head - METRIC		**Insert: WDMT08 Type**									
MSX 08025M12Z2	★	25	12.5	M12	56	35	5	21	10	19	2
MSX 08028M12Z2	★	28	12.5	M12	56	35	5	21	10	19	2
MSX 08030M16Z3	★	30	17.0	M16	63	40	5	23	10	24	3
MSX 08032M16Z3	★	32	17.0	M16	63	40	5	23	10	24	3
MSX 08035M16Z3	★	35	17.0	M16	63	40	5	23	10	24	3
Modular Head - METRIC		**Insert: WDMT12 Type**									
MSX 12032M16Z2	★	32	17.0	M16	63	40	5	23	10	24	2
MSX 12035M16Z2	★	35	17.0	M16	63	40	5	23	10	24	2
MSX 12040M16Z3	★	40	17.0	M16	63	40	5	23	10	24	3

★Worldwide Warehouse Item

○ Available 1st Quarter 2017

Insert	P		K		M	S	Insert Dimensions (in)			Max Depth of Cut (In.)
	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	W	R	t	
WDMT0603ZDTR	●	●	●	●	●	●	.250	.0591	.1181	.039
WDMT0804ZDTR	●	●	●	●	●	●	.335	.0787	.1575	.059
WDMT1205ZDTR	●	●	●	●	●	●	.472	.0787	.1969	.079
WDMT1406ZDTR	●	●	●	●	●	●	.551	.0787	.2362	.098
WDMT0603ZDTR-H	●	●	●	●	●	●	.250	.0591	.1181	.039
WDMT0804ZDTR-H	●	●	●	●	●	●	.335	.0787	.1575	.059
WDMT1205ZDTR-H	●	●	●	●	●	●	.472	.0787	.1969	.079
WDMT1406ZDTR-H	●	●	●	●	●	●	.551	.0787	.2362	.098

• USA stocked item

Hardware						
Wrench	Screws	Clamp	C ring	Clamp Screw	Recommended Tightening Torque (N•m)	Applicable Head
						
TRDR08IP	BFTX02505IP	-	-	-	1.5	MSX06000M
	BFTX0306IP	CCH3.5	CR3	BFTX03510IP08	2.0	MSX08000M
TRDR15IP	BFTX0409IP	CCH3.5	CR3	BFTX03510IP15	3.0	MSX12000M

Modular Head Identification

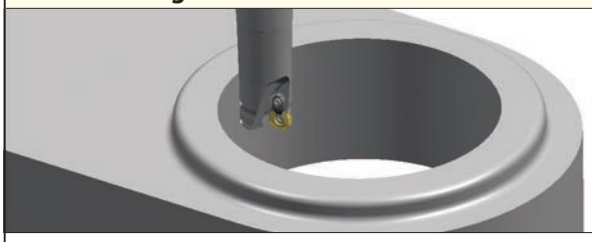
MSX 06 016 M08 Z2

(1) Cutter Series | (2) Insert Size | (3) Diameter | (4) Mounting Screw | (5) No. of Flutes

Performance

Tool: MSX12032EM Insert: WDMT1205ZDTR-ACP200 *Actual measurement for an integrated endmill type.

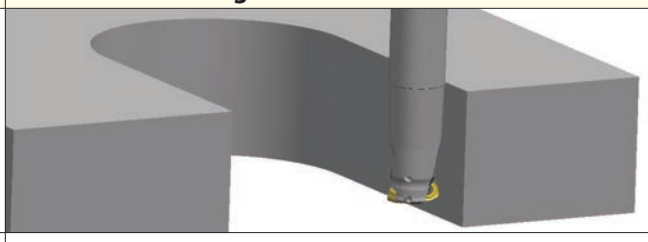
Helical Boring



Work material : 1015
Cutting Conditions : v_c=558 SFM n=1,700min^{-1} f_z=.059 IPT
D.O.C.=.032" Radial=.276" OH=5.315"

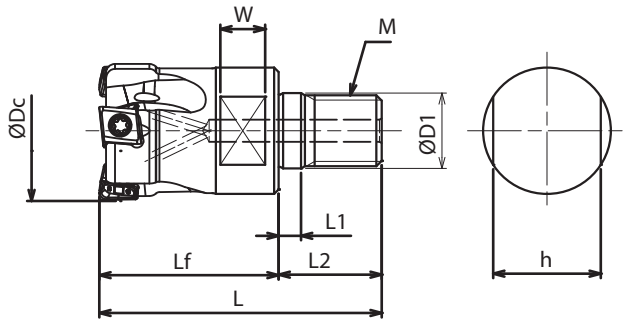
Results: Some chattering but cut edge looks good and provides good chip control.
20% better efficiency than competitor A.
(Chipping found on Comp A's tool)

Contour Machining



Work material : 4137
Cutting Conditions : v_c=492 SFM n=1,500min^{-1} f_z=.039 IPT
D.O.C.=.032" Radial=.354"~.472" OH=5.315"

Results: 50% faster feed rate than competitor B.
(Comp B's tool failed to perform at this rate)



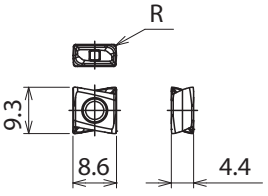
***Modular Head* - INCH**											Insert: LNEX08 Type
Catalog Number	Stock	Dimensions (in.)									No. of Teeth
		$øD_c$	$øD_1$	M	L	L_f	L_1	L_2	W	h	
TSXF30750M10Z3	○	0.750	0.413	M10	1.929	1.181	0.197	0.748	0.315	0.591	3
TSXF31000M12Z4	○	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	4
TSXF31250M16Z5	○	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	5
TSXF31500M16Z6	○	1.500	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	6
***Modular Head* - INCH**											Insert: LNEX13Type
Catalog Number	Stock	Dimensions (in.)									No. of Teeth
		$øD_c$	$øD_1$	M	L	L_f	L_1	L_2	W	h	
TSX41000M12Z2	○	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	2
TSX41250M16Z3	○	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	3
TSX41500M16Z4	○	1.500	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	4

○ Available 1st Quarter 2017

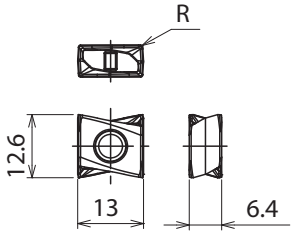
Inserts	P			K		M	S	
Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	R
LNEX080404PNER-L	○	○	○	○	○	○	○	.016
LNEX080404PNER-G	○	○	○	○	○	○	○	.016
LNEX080408PNER-L	○	○	○	○	○	○	○	.031
LNEX080408PNER-G	○	○	○	○	○	○	○	.031
LNEX080412PNER-G	○	○	○	○	○	○	○	.047
LNEX080416PNER-G	○	○	○	○	○	○	○	.063
LNEX130604PNER-L	○	○	○	○	○	○	○	.016
LNEX130604PNER-G	○	○	○	○	○	○	○	.016
LNEX130608PNER-L	○	○	○	○	○	○	○	.031
LNEX130608PNER-G	○	○	○	○	○	○	○	.031
LNEX130608PNER-H	○	○	○	○	○	○	○	.031
LNEX130616PNER-G	○	○	○	○	○	○	○	.063
LNEX130616PNER-H	○	○	○	○	○	○	○	.063
LNEX130624PNER-G	○	○	○	○	○	○	○	.094
LNEX130624PNER-H	○	○	○	○	○	○	○	.094
LNEX130632PNER-G	○	○	○	○	○	○	○	.126
LNEX130632PNER-H	○	○	○	○	○	○	○	.126

○ Available 1st Quarter 2017

LNEX08
Max. DOC 8mm (.315")



LNEX13
Max. DOC 12 mm (.473")



■ Arbor

■ Modular Head Identification Details

TSX F 3 0750 M12 Z3

(1)	(2)	(3)	(4)	(5)	(6)
Cutter Series	Pitch Type	Insert Size 3: 08 4:13	Diameter	Mounting Screw	No. of Teeth

■ Hardware

Insert Size	Catalog Number	Insert Screw	Wrench	Recommended Tightening Torque
TSX3000 (LNEX08)	TSX□30625□~TSX□30750□	BFTX0306IP	TRDR08IP	2.0Nm
	TSX□31000□~TSX□32500□	BFTX0308IP		
TSX4000 (LNEX13)	TSX□41000□~TSX□44000□	BFTX03510IP	TRDR15IP	3.0Nm

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PCD & PCBN
Milling

Pages 401-412

HF Series

SUMIDIA Cutter for High-Efficiency Cutting of Aluminum and Non-Ferrous Metals

■ General Features

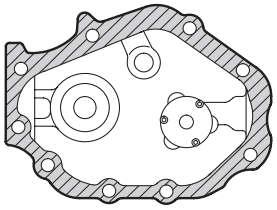
The HF Type high-efficiency aluminum cutter with **air/ coolant through system** employs a unique insert design to eliminate burrs and to achieve superior surface finishes.

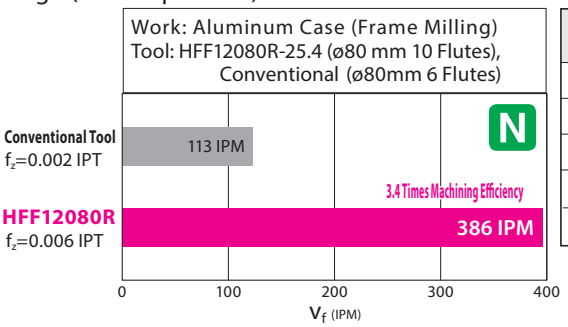
■ Part Material

- Aluminum and aluminum alloys
- Other non-ferrous metal
- Not suited for cast iron or steel

■ Characteristics

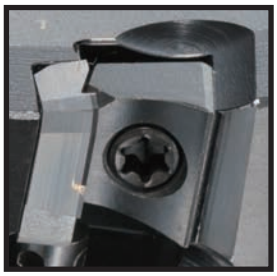
● Achieves high-efficiency milling due to its high density design (3 teeth per inch)





■ Table 1

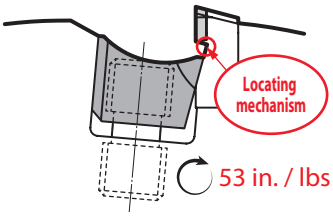
Cutter (in.)	s max (RPM)	V_c Max (SFM)	f_z (IPT)	Max No. of Edges	Feed (IPM)
2.500	13,000	8,500	to 0.008	6	to 624
3.000	12,000	9,400	to 0.008	9	to 864
4.000	9,500	9,900	to 0.008	12	to 912
5.000	7,500	9,800	to 0.008	15	to 900
6.000	6,000	9,400	to 0.008	18	to 864

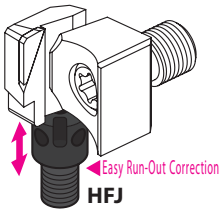


● The wedge clamp's locating mechanism ensures safety and ease of use

The shape and structure of the clamp prevents dislocation by centrifugal force

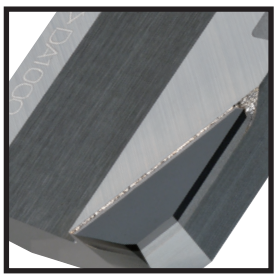
Ensure that the maximum allowable spindle speed (s max) specified for each cutter diameter is not exceeded. Failing to do so is very dangerous (*See table 1)





1. Preset height adjuster
2.Tighten wedge clamp
3. Fasten height adjustment screw

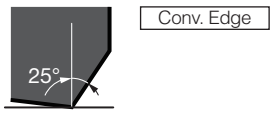
● Achieves a run-out precision of 5μm (0.0002") or less by employing an easy fine-tuning mechanism

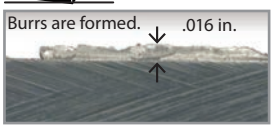


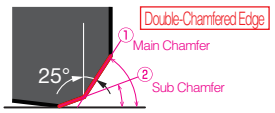
● Reduces burrs by using a double-chamfered cutting edge

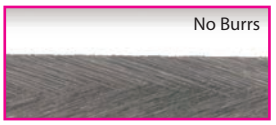
Drastically reduces burrs by preventing the plastic deformation that causes burrs.

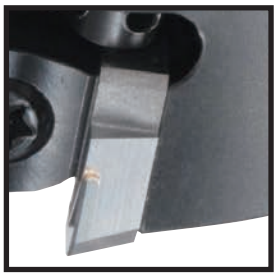
Work Material: A6061 Blanks
Cutting Conditions: v_C=9,800 SFM,
f_Z=0.004 in./t,
^{a}p=0.02 in., Dry







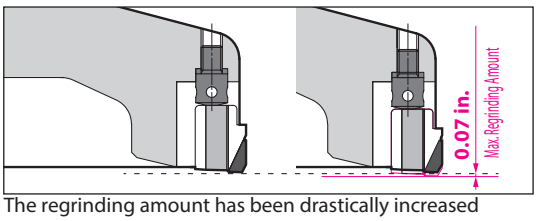




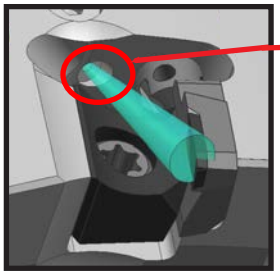
● Reduces tooling costs by drastically increasing the insert regrinding amount (to 0.07 in.)

Assuming the amount of regrinding to be 0.007 in., an edge can be used up to 10 times.

(* Given the condition of normal wear with ap of .055 in. or less)



The regrinding amount has been drastically increased compared to conventional screw-lock types.



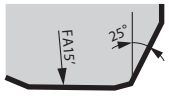
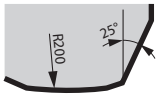
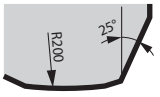
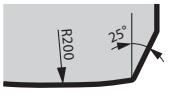
Internal coolant holes

● Improved chip evacuation with internal coolant (HFFH, HFMH, HF-BBT30 Series)

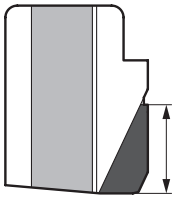
● Prevent chip packing and lengthen tool life by using internal coolant

SUMIBORON MILLS
HF Series

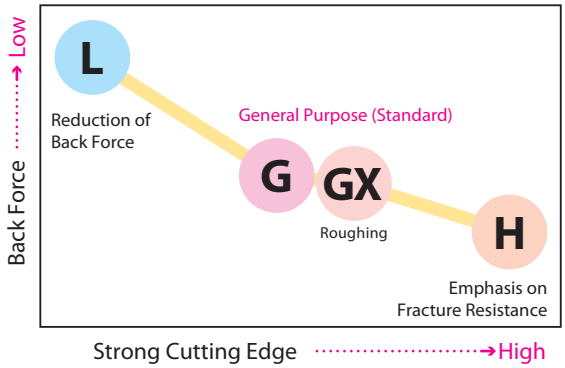
■ Edge Selection Guide

Material	N				
Type	L	G	GX	H	W
Cutting Edge Insert Figure					
Characteristics	Low Cutting Force	Standard	Long Edge	High Strength	Wiper
Application	Reduction of Back Force	General Purpose	Roughing	Emphasis on Fracture Resistance	
*Blank Length	6.0mm	6.0mm	9.0mm	6.0mm	
Max D.O.C.	3.0mm	3.0mm	3.0mm	3.0mm	—

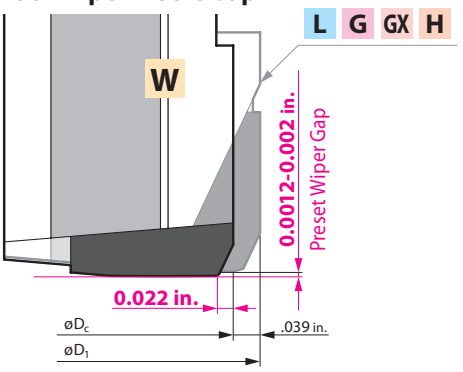
*Blank Length
9.0mm only for GX Type



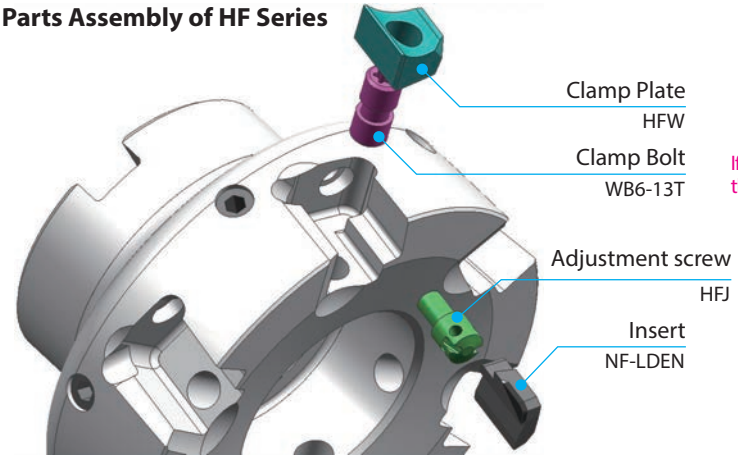
■ Guideline for Edge Selection



■ Amount of Wiper Insert Gap



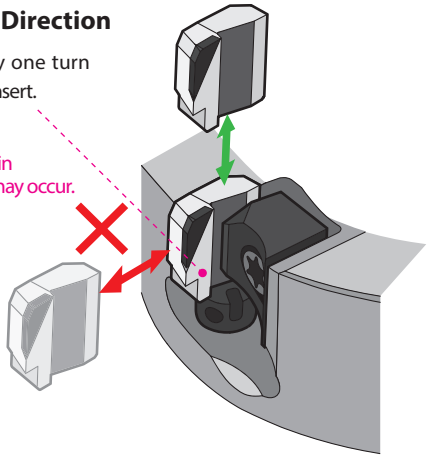
■ Parts Assembly of HF Series



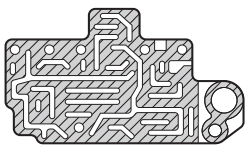
■ Insert Removal Direction

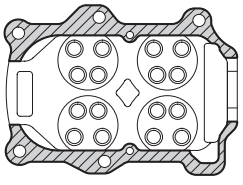
Loosen the screw by one turn before removing the insert.

⚠ If the insert is forcibly removed in the wrong direction, damage may occur.



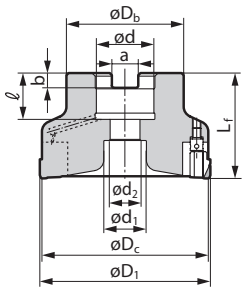
■ Application Examples

● Work : Crankcase Cover		HFFH
Work Material : Aluminium Alloy	Tool	HFFH12100R-25.4
	Insert	NF-LDEN12T3ZDTR-H
	Grade	DA1000
	No. of Teeth	12
	V_c (SFM)	6,181
	n(RPM)	6000
	V_f (IPM)	141"
	f_z (In./t)	.002"
	a_p (in.)	.008"
	Coolant	Wet
	Results	With through coolant, Tool Life x 2 vs. flood coolant Acheived 3600 finished parts Excellent surface finish!

● Work : Engine Component		HFFH
Work Material : Aluminium Alloy	Tool	HFFH12125R-31.75
	Insert	NF-LDEN12T3ZDTR-G
	Grade	DA1000
	No. of Teeth	15
	V_c (SFM)	9,662
	n(RPM)	7,500
	V_f (IPM)	266"
	f_z (In./t)	.0024"
	a_p (in.)	.00788"
	Coolant	Wet
	Results	With through coolant, Tool Life x 1.7 vs. flood coolant Acheived 17,000 finished parts Great chip control!

HF Series

SUMIDIA Cutter for High-Efficiency Cutting of Aluminum and Non-Ferrous Metals



Rake Angle		
	Radial	+4°
	Axial	+10°

.12" 90°

P	M	K	N	N	S	H
Steel	Stainless Steel	Cast Iron	Non-ferrous Met.	Aluminum	Exotic Alloy	Hardened Steel
			●	○		

HFMH Body (Standard Pitch) - INCH

Cat. No.	Stock	Dimensions (in.)										Coolant Hole	Coolant Bolt	No. of Teeth	Weight (lbs)
		øDc	øD1	øDb	Lf	ød	a	b	ℓ	ød1	ød2				
HFMH42500R	●	2.500	2.579	1.970	2.000	1.000	0.375	0.220	1.020	0.797	0.531	YES	BFXH1/2X1 1/4	6	1.76
HFMH43000R	●	3.000	3.079	1.970	2.000	1.000	0.375	0.220	1.020	0.797	0.531	YES	BFXH1/2X1 1/4	6	2.42
HFMH44000R	●	4.000	4.079	2.756	2.000	1.500	0.625	0.380	1.457	2.126	0.781	YES	BFXH3/4X2	8	3.96
HFMH45000R	●	5.000	5.079	3.150	2.000	1.500	0.625	0.380	1.457	2.126	0.781	YES	BFXH3/4X2	10	6.17
HFMH46000R	●	6.000	6.079	3.740	2.374	1.500	0.625	0.380	1.457	2.756	0.781	YES	BFXH3/4X2	12	9.50

HFFH Body (Fine Pitch) - INCH

Cat. No.	Stock	Dimensions (in.)										Coolant Hole	Coolant Bolt	No. of Teeth	Weight (lbs)
		øDc	øD1	øDb	Lf	ød	a	b	ℓ	ød1	ød2				
HFFH43000R	●	3.000	3.079	1.970	2.000	1.000	0.375	0.220	1.020	0.797	0.531	YES	BFXH1/2X1 1/4	9	2.20
HFFH44000R	●	4.000	4.079	2.756	2.000	1.500	0.625	0.380	1.457	2.126	0.781	YES	BFXH3/4X2	12	3.75
HFFH45000R	●	5.000	5.079	3.150	2.000	1.500	0.625	0.380	1.457	2.126	0.781	YES	BFXH3/4X2	15	5.95
HFFH46000R	●	6.000	6.079	3.740	2.374	1.500	0.625	0.380	1.457	2.756	0.781	YES	BFXH3/4X2	18	9.30

■ Inserts

Grade		PCD
Application	High Speed/Light	N
	General Purpose	N
	Roughing	N

N Non-Ferrous Metal

Dimensions (mm)

Cat. No.	DA1000	Edge Length	Unique Wiper Edge	Application	Fig
NF-LDEN 12T3ZDFR-L	●	6	Straight	Low Cutting Force	4
12T3ZDFR-G	●	6	Arc	General Purpose	4
12T3ZDTR-H	●	6	Arc	Strong Edge	4
12T3ZDFR-R0.4	●	6	Arc	Radius Edge	7
12T3ZDFR-GX	●	9	Arc	Long Edge	5
12T3ZDFR-W	●	-	Arc	Wiper	6

Fig 4

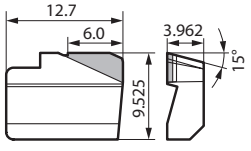


Fig 5

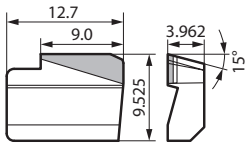
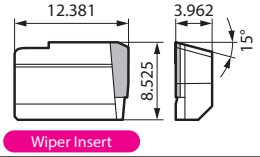
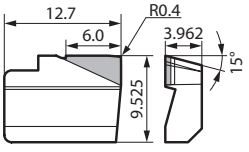


Fig 6



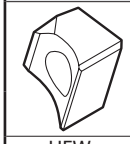
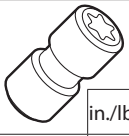
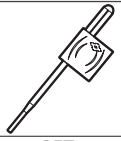
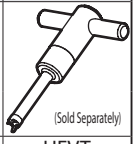
Wiper Insert

Fig 7



● : U.S.A. Stock Standard

■ Parts

Clamp Plate	Clamp Bolt		Adjustment screw	Adjusting Wrench	Wrench	Assembling Wrench
		in./lbs				 (Sold Separately)
HFW	WB6-13T	53.0	HFJ	TTX20	RFT	HFVT

Recommended Tightening Torque (in./lbs)

■ Recommended Cutting Conditions

Si content of 12.6% or less.

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min.- **Optimum** -Max.	Feed Rate f_z (in./t) Min.- **Optimum** -Max.	Grade
N	Aluminium Alloy	-	6550- **8200** -9850	0.002-**0.005**-0.008	DA1000

*see table 1 for Max SFM by cutter diameter

Si content of over 12.6%

N	Aluminium Alloy	-	1300-**1950**-2600	0.002-**0.005**-0.008	DA1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth, and other factors.

■ Identification Details

HF M H 4 2500 R

(1) Cutter Series
(2) M: Course Pitch F : Fine Pitch
(3) Coolant
(4) Insert Size
(5) Cutter Size
(6) Direction

HF Series

SUMIDIA Cutter for High-Efficiency Cutting of Aluminum and Non-Ferrous Metals

Rake Angle		
	Radial	+4 °
	Axial	+10 °

3mm 90 °

P Steel | M Stainless Steel | K Cast Iron | N Nonferrous Metal ● | N Aluminum ○ | S Exotic Alloy | H Hardened Steel

Fig. 1

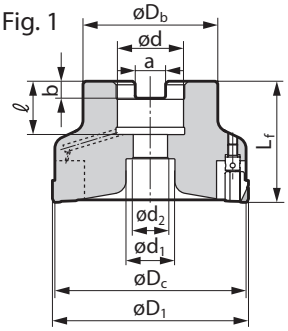


Fig. 2

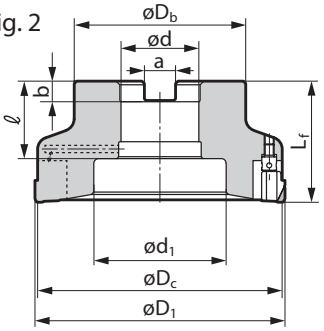
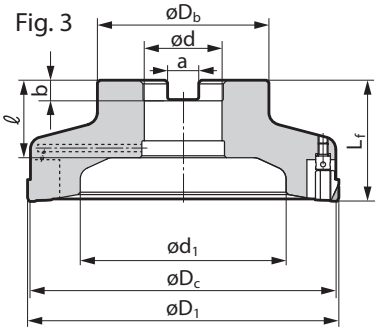


Fig. 3



HFM Body (Standard Pitch) - METRIC

Cat. No.	Stock	Dimensions (mm)										Coolant Hole	Coolant Bolt	No. of Teeth	Weight (lbs)	Fig.
		øDc	øD1	øDb	Lf	ød	a	b	ℓ	ød1	ød2					
HFM12080RS-22	★	80	82	50	40	22	10.4	6.3	20	18	11	-	-	6	2.20	1
HFM12080RS-27	★	80	82	55	50	27	12.4	7	22	20	14	-	-	6	2.64	1
HFM12100RS-32	★	100	102	70	50	32	14.4	8	32	54	-	-	-	8	3.75	2
HFM12125RS-32	★	125	127	70	50	32	14.4	8	32	84	-	-	-	10	4.85	3
HFM12125RS-40	★	125	127	90	63	40	16.4	9	35	84	-	-	-	10	6.17	3
HFM12080R-25.4	★	80	82	50	50	25.40	9.5	6	30	35	-	-	-	6	2.20	2
HFM12100R-25.4	★	100	102	50	50	25.40	9.5	6	30	54	-	-	-	8	3.31	2
HFM12100R-31.75	★	100	102	70	50	31.75	12.7	8	32	54	-	-	-	8	3.75	2
HFM12125R-25.4	★	125	127	50	50	25.40	9.5	6	30	84	-	-	-	10	4.40	3
HFM12125R-31.75	★	125	127	70	50	31.75	12.7	8	32	84	-	-	-	10	4.85	3
HFM12125R-38.1	★	125	127	80	63	38.10	15.9	10	36	84	-	-	-	10	5.51	3

* Sold Separately

HFF / HFFH Body (Fine Pitch) - METRIC

Cat. No.	Stock	Dimensions (mm)										Coolant Hole	Coolant Bolt	No. of Teeth	Weight (lbs)	Fig.
		øDc	øD1	øDb	Lf	ød	a	b	ℓ	ød1	ød2					
HFF12080RS-22	★	80	82	50	40	22	10.4	6.3	20	18	11	-	-	10	2.20	1
HFF12080RS-27	★	80	82	55	50	27	12.4	7	22	20	14	-	-	10	2.64	1
HFF12100RS-32	★	100	102	70	50	32	14.4	8	32	54	-	-	-	12	3.75	2
HFF12125RS-32	★	125	127	70	50	32	14.4	8	32	84	-	-	-	15	4.85	3
HFF12125RS-40	★	125	127	90	63	40	16.4	9	35	84	-	-	-	15	6.17	3
HFF12080R-25.4	★	80	82	50	50	25.40	9.5	6.3	30	35	-	-	-	10	2.20	2
HFF12100R-25.4	★	100	102	50	50	25.40	9.5	6	30	54	-	-	-	12	3.30	2
HFF12100R-31.75	★	100	102	70	50	31.75	12.7	8	32	54	-	-	-	12	3.75	2
HFF12125R-25.4	★	125	127	50	50	25.40	9.5	6	30	84	-	-	-	15	4.41	3
HFF12125R-31.75	★	125	127	70	50	31.75	12.7	8	32	84	-	-	-	15	4.85	3
HFF12125R-38.1	★	125	127	80	63	38.10	15.9	10	36	84	-	-	-	15	5.51	3
HFFH12080RS-22	★	80	82	50	40	22	10.4	6.3	20	18	11	YES	* BFXH1025-D16	10	2.20	1
HFFH12080RS-27	★	80	82	55	50	27	12.4	7	22	20	14	YES	* BFXH1230-D18	10	2.64	1
HFFH12100RS-32	★	100	102	70	50	32	14.4	8	32	54	-	YES	* BFXH1635-D40	12	3.75	2
HFFH12125RS-32	★	125	127	70	50	32	14.4	8	32	84	-	YES	* BFXH1635-D40	15	4.85	3
HFFH12125RS-40	★	125	127	90	63	40	16.4	9	35	84	-	YES	* BFXH2036-D50	15	6.17	3
HFFH12080R-25.4	●	80	82	50	50	25.40	9.5	6.3	30	35	-	YES	* BFXH1/2-20X1 1/4-D33	10	2.20	2
HFFH12100R-25.4	●	100	102	50	50	25.40	9.5	6	30	54	-	YES	* BFXH1/2-20X1 1/4-D40	12	3.30	2
HFFH12100R-31.75	●	100	102	70	50	31.75	12.7	8	32	54	-	YES	* BFXH5/8-18X1 1/2-D50	12	3.75	2
HFFH12125R-25.4	●	125	127	50	50	25.40	9.5	6	30	84	-	YES	* BFXH1/2-20X1 1/4-D40	15	4.41	3
HFFH12125R-31.75	●	125	127	70	50	31.75	12.7	8	32	84	-	YES	* BFXH5/8-18X1 1/2-D50	15	4.85	3
HFFH12125R-38.1	●	125	127	80	63	38.10	15.9	10	36	84	-	YES	* BFXH3/4X2	15	5.51	3

■ **HFM Identification Details**

HF M 12 080 R S -22

(1) Cutter Series | (2) Standard Pitch | (3) Insert Size | (4) Cutter Size | (5) Direction | (6) Metric Bore | (7) Arbor Size

■ **HFF Identification Details**

HF F 12 080 R S -22

(1) Cutter Series | (2) Fine Pitch | (3) Insert Size | (4) Cutter Size | (5) Direction | (6) Metric Bore | (7) Arbor Size

■ **HFFH Identification Details**

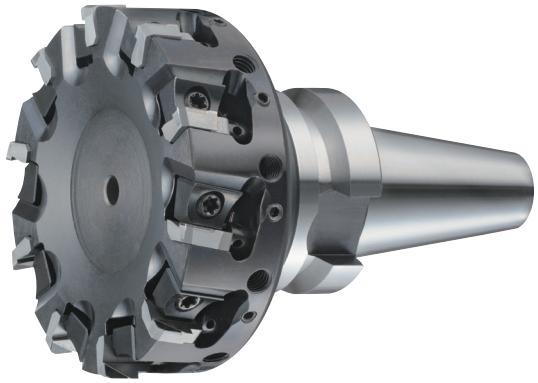
HF F H 12 080 R S -22

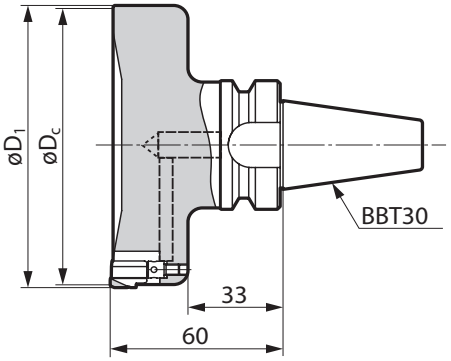
(1) Cutter Series | (2) Fine Pitch | (3) Coolant | (4) Insert Size | (5) Cutter Size | (6) Direction | (7) Metric Bore | (8) Arbor Size

HF Series

SUMIDIA Cutter for High-Efficiency Cutting of Aluminum and Non-Ferrous Metals

HF Lineup - Metric





HF Mono Block Type - Fine Pitch - METRIC						
Cat. No.	Stock	Dimensions (mm)		Coolant Hole	No. of Teeth	Weight (lbs)
		øDc	øD1			
HFFH12080R-BBT30	★	80	82	YES	10	3.52
HFFH12100R-BBT30	★	100	102	YES	12	5.29
HFFH12125R-BBT30	★	125	127	YES	15	5.95

■ Inserts

Grade		PCD
Application	High Speed/Light	N
	General Purpose	N
	Roughing	N

N Non-Ferrous Metal

Dimensions (mm)

Cat. No.	DA1000	Edge Length	Unique Wiper Edge	Application	Fig
NF-LDEN 12T3ZDFR-L	●	6	Straight	Low Cutting Force	4
12T3ZDFR-G	●	6	Arc	General Purpose	4
12T3ZDTR-H	●	6	Arc	Strong Edge	4
12T3ZDFR-R0.4	●	6	Arc	Radius Edge	7
12T3ZDFR-GX	●	9	Arc	Long Edge	5
12T3ZDFR-W	●	-	Arc	Wiper	6

Fig 4

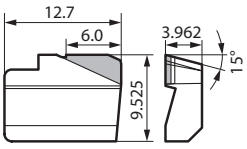


Fig 5

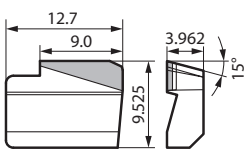
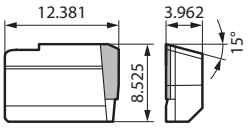
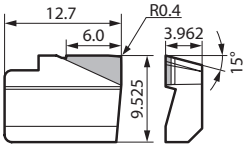


Fig 6



Wiper Insert

Fig 7



● : U.S.A. Stock Standard

■ Recommended Cutting Conditions

Si content of 12.6% or less.

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min.- **Optimum** -Max.	Feed Rate f_z (mm/t) Min.- **Optimum** -Max.	Grade
N	Aluminium Alloy	-	2000- **2500** -3000	0.05- **0.13** -0.20	DA1000

Si content of over 12.6% *see table 1 for Max RPM by cutter diameter

N	Aluminium Alloy	-	400- **600** -800	0.05- **0.13** -0.20	DA1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth, and other factors.

■ HFF Identification Details

HF F H 12 080 R -BBT30

(1) Cutter Series	(2) Fine Pitch	(3) Coolant	(4) Insert Size	(5) Cutter	(6) Direction	(7) Arbor Type

Rake Angle	Radial	+4°
	Axial	+10°

3mm 90°

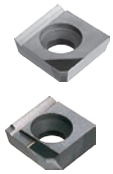
P	M	K	N	N	S	H
Steel	Stainless Steel	Cast Iron	Nonferrous Metal	Aluminum	Exotic Alloy	Hardened Steel
			●	○		

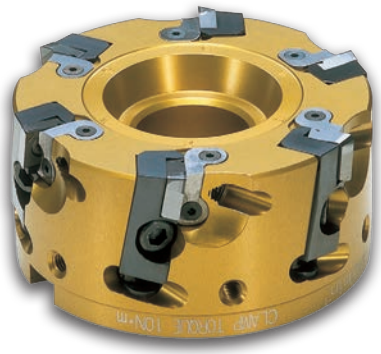
*BIG-PLUS® is a registered trademark of BIG Daishowa Seiki Co., Ltd.

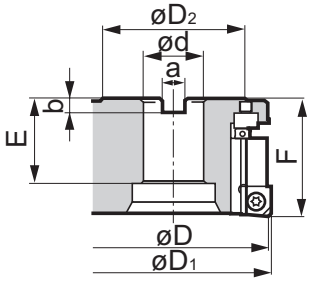
**Mono-block type can be applied for BT30 machining

SUMIDIA MILLS

RF Series







RF Endmill Availability - METRIC

Sumitomo Cat. No.	Stock	Dimensions (mm)								# of teeth
		øD	øD1	øD2	F	ød	a	b	E	
RF4080R	★	80.0	82.0	60.0	50.0	25.40	9.5	6.0	30.0	6
RF4100R	★	100.0	102.0	75.0	50.0	31.75	12.7	8.0	38.0	6
RF4125R	★	125.0	127.0	75.0	63.0	38.10	15.9	10.0	38.0	8
RF4160R	★	160.0	162.0	100.0	63.0	50.80	19.0	11.0	38.0	10

NOTES: Cartridges and inserts are sold separately.

Fig 1

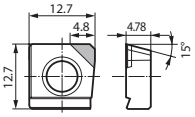
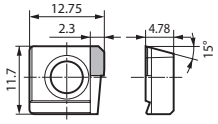


Fig 2



Recommended Running Conditions

Aluminum Alloy			
Si content		Less than 13%	13% and above
Cutting Speed m/min (sfm)	SUMIDIA	2,000~5,000 (6,560~16,404)	400~800 (1,310~2,625)
	Carbide	1,000~2,500 (3,280~8,200)	200~400 (655~1,310)
Feedrate mm/t (ipt)		0.05~0.2 (.002~.008)	0.05~0.2 (.002~.008)
D.O.C. mm (in)		below 3mm (below .118 in.)	below 3mm (below .118 in.)

Inserts

Description	Sumitomo Catalog No.	SUMIDIA DA1000	Figure
SUMIDIA Insert	**NF-SNEW1204ADFR**	●	1
Wiper Insert	**NF-SNEW1204ADFR-W**	●	2

Maximum Allowable Spindle Speed

Cat. No.	*s* max (RPM)
RF4080R	17,000
RF4100R	15,900
RF4125R	13,500
RF4160R	11,000

Parts

Description	Sumitomo Catalog No.	Stock	Appearance
Cartridge	**RFF**	●	
Coolant Through Arbor Bolt	RF-SCB80	●	
	RF-SCB100	●	
	RF-SCB125	●	
	RF-SCB160	●	

NOTES: Cartridges and inserts are sold separately.

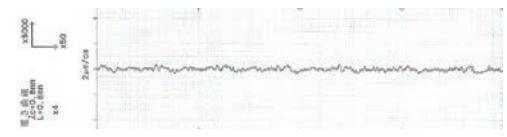
Surface Finish

Conditions

Process: Finishing
Machine: Machining Center
Arbor: HSK63A
Work Piece: Si10 ~ 12% Al Alloy
Cutter: RF4100R, 6 teeth
Grade: SUMIDIA DA2200

V = 16,370 sfm
F = 450 ipm
f = .005 ipt
d = .020 in.
d/wiper = .001 in.
Dry

Results



Rz: 0.69µm Ra: 0.092µm

SRF Series

SUMIDIA Cutter for High Speed Finishing of Non-ferrous Metal

Fig 1

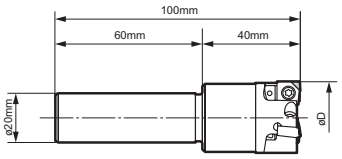


Fig 2

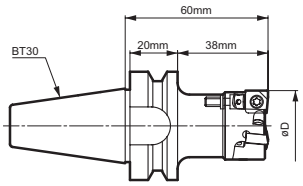


Fig 3

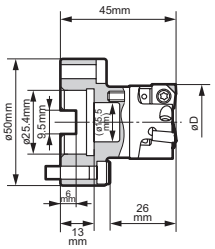
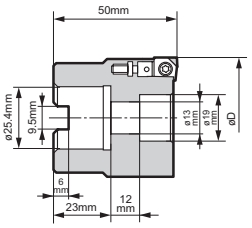
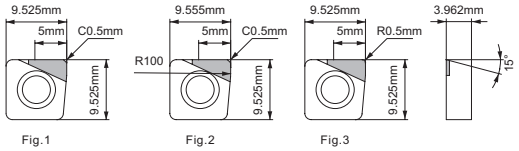


Fig 4



SRF Endmill Availability - METRIC

Sumitomo Catalog No.	Stock	øD (mm)	# of Teeth	Fig.
SRF30R-ST	★	30.0	3	1
SRF40R-ST	★	40.0	4	1
SRF30R-BT30	★	30.0	3	2
SRF40R-BT30	★	40.0	4	2
SRF30R	★	30.0	3	3
SRF40R	★	40.0	4	3
SRF50R	★	50.0	5	4
SRF63R	★	63.0	6	4

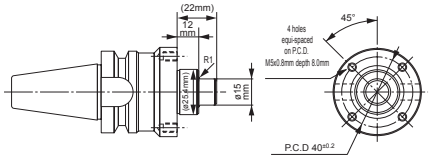


Inserts

Sumitomo Catalog No.	Cutting Edge	SUMIDIA DA1000	Fig.
NF-SNEW09T3ADTR	Standard	●	1
NF-SNEW09T3ADTR-U	Wiper	●	2
NF-SNEW09T3ADTR-R	Nose Radius	●	3

- Standard inserts and wiper inserts can be used on the same cutter body.
- Standard inserts with nose radius should be used where vibration is present. Wiper inserts are not recommended.
- Inserts can be reground 3 times (up to I.C. diameter of 9.225 mm/0.3632 in.)
- When using reground inserts, it is recommended to reconfirm insert height and cutting diameter with a tool pre-setter.
- Do not mix new and reground inserts OR inserts with different regrind measurements on the same cutter.
- Standard inserts and wiper inserts can be used on the same cutter body.

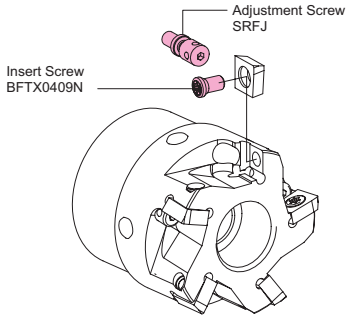
■ Arbor *for SRF30R & SRF40R*



When using the SRF30R or SRF40R cutters, modification to the arbor is required, as shown above.

1) Reduce part of the arbor's adaptor shaft from ø25.4mm to ø15mm.
2) Add four tap holes for M5 cap screws.

■ Parts



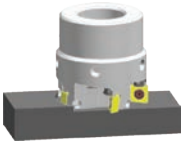
■ Maximum D.O.C. Guide (SRF50R, 5 teeth)

Below are guidelines for maximum D.O.C. based on internal test results. '●' indicates possible application range. Actual cutting condtions should be set based on actual machine and work piece characteristics.

D.O.C. in (mm)	Feedrate, F: ipm (mm/min)		
	100 (2500)	160 (4000)	200 (5000)
	Feed per tooth, f: ipt (mm/tooth)		
	0.002 (0.05)	0.003 (0.08)	0.004 (0.10)
0.20 (0.5)	●	●	●
0.40 (1.0)	●	●	●
0.60 (1.5)	●	●	●
0.80 (2.0)	●	●	●
0.10 (2.5)	●	●	●
0.12 (3.0)	●	●	●
0.14 (3.5)	●	●	-
0.16 (4.0)	●	-	-
0.18 (4.5)	●	-	-
0.20 (5.0)	●	-	-

■ Cutting Conditions

Cutter: SRF50R
Insert: NF-SNEW09T3ADTR (DA2200)
Arbor: BT30 FMA25.4-45
Work: A-5052
Width: 35mm (1.40 in.) at D.O.C. indicated above



SUMIBORON MILLS

RM Series

Features & Benefits

- High speed, high efficiency milling of gray cast iron
- Solid CBN grade BNS800
- Cost effective 8 cornered regrindable insert
- Four corner insert design yields low tooling costs per part
- Simple design for direct insert mounting

Fig 1

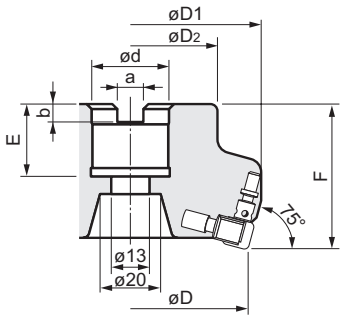
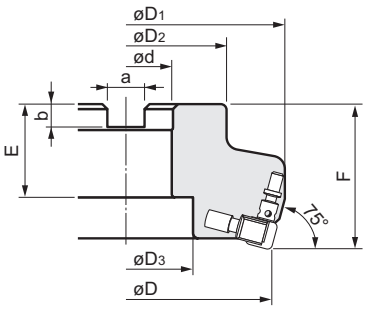


Fig 2

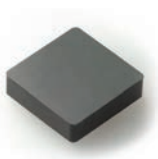


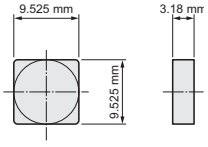
RM Mill Availability - METRIC

Sumitomo Cat. No.	Stock	Dimensions (*mm*)									No. of Teeth	Fig.
		D	D1	D2	D3	F	d	a	b	E		
RM3080R	•	80	90	60	-	50	25.40	9.5	6	25	6	1
RM3100R	•	100	110	70	46	50	31.75	12.7	8	32	8	2
RM3125R	•	125	135	80	59	63	38.10	15.9	10	38	10	2
RM3160R	•	160	170	100	80	63	50.80	19	11	38	12	2

• USA stocked item

Inserts

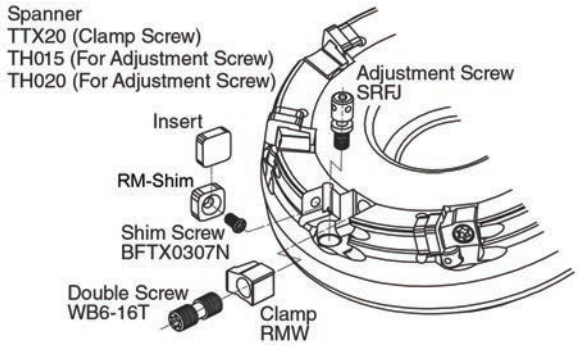




Sumitomo Cat. No.	Stock	Grade	Dimensions (Inches) I.C.	T	Cutting Edge
SNG322	•	BNS800	.375	.125	Standard
SNG323	•		.375	.125	Standard
SNEN090308-W	•		.375	.125	Wiper

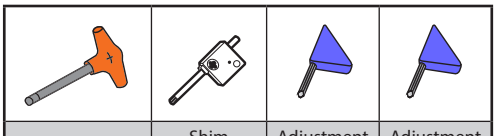
NOTES: 1) Do not use a mix of standard and wiper inserts on a single cutter setting.
2) Do not mix new and reground inserts on a single cutter setting.
3) Inserts can only be reground once (I.C. must be at least .360")

• USA stocked item



Hardware

Clamp	Double Screw	Shim	Shim Screw	Adjustment Screw
RMW	WB6-16T	RM-SHIM	BFTX0307N	SRFJ



Clamp Wrench	Shim Screw Wrench	Adjustment Screw Wrench	Adjustment Screw Wrench
TTX20	TRX10	TH015	TH020

RM Series

High Speed SUMIBORON Mill for Cast Iron Finishing

Features & Benefits

- Removeable cartridges for easy insert run-out management.
- Uses BN700 with high CBN content, offering good wear and fracture resistance.
- Available in both shell and small diameter endmill types.
- High speed machining V=6500+ sfm
- Surface roughness Rz=3.2 (1Ra)

Fig 1

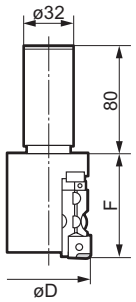


Fig 2

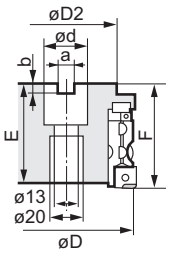
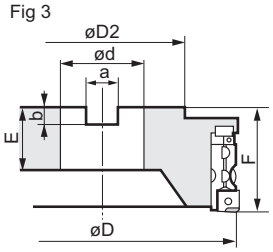


Fig 3

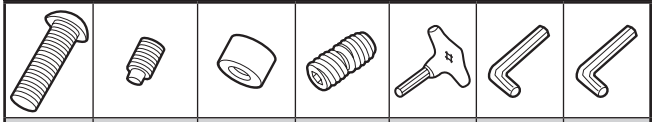


FMU Mill Availability - METRIC

Sumitomo Cat. No.	Stock	Dimensions (mm)								No. of Teeth	Fig.
		D	D1	D2	F	d	a	b	E		
FMU4040ER	★	37	40	-	63	-	-	-	-	2	1
FMU4050ER	★	47	50	-	63	-	-	-	-	3	1
FMU4063ER	★	60	63	60	63	25.40	9.5	6	25	4	2
FMU4080R	★	80	82.8	60	63	25.40	9.5	6	25	6	2
FMU4100R	★	100	102.8	75	63	31.75	12.7	8	38	8	3
FMU4125R	★	125	127.8	75	63	38.10	15.9	10	38	10	3
FMU4160R	★	160	162.8	100	63	50.80	19	11	38	12	3

★ Worldwide Warehouse item

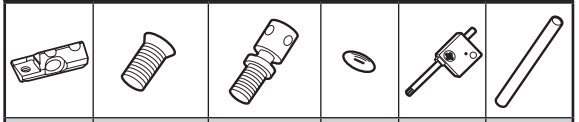
Hardware



Screw	Screw	Setting Clamp	Double Screw	Wrench	Wrench	Wrench
BH0620*	BTD0609	FMUE	WB5-10	TH040	LH030	LH025

* FMU4040ER/4050ER/4063ER use FMUUE type cartridge
* FMUU/FMUUE use similar screw (BFTX0509N), adjustment screw,(FMUJ) and O-ring (P3)

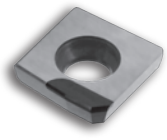
Hardware

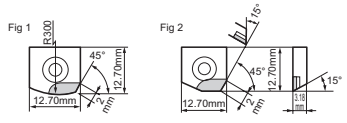


Cartridge	Screw	Adjustment Screw	O-Ring	Wrench	Wrench
FMUU*	BFTX0509N	FMUJ	P3	TRX20	1.8 x 45

* Screw for FMU4040ER/4050ER/4063ER is BH0615

Inserts

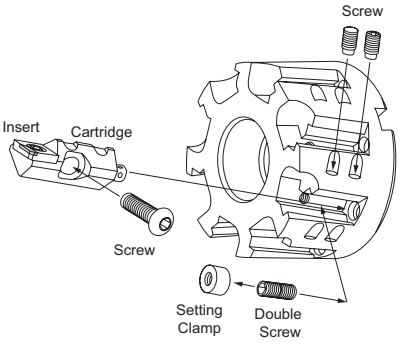




Sumitomo Cat. No.	Stock	Grade	Dimensions (in.) I.C.	Dimensions (in.) T	Fig.
SNEW1203ADTR	•	**BN7000**	.500	.125	1
SNEW1203ADTR-S*	•	BN700	.500	.125	2

• USA stocked item

* Low cutting force insert



■ Gauge

Setting Gauge
FMU-SET

Gauge not included

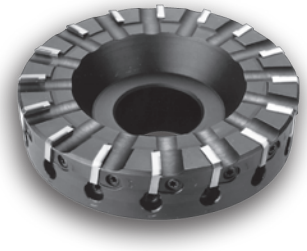


Fig 1

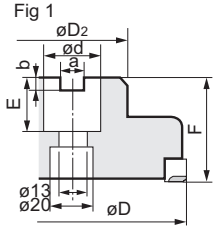
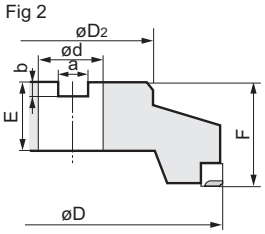


Fig 2

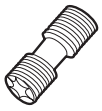


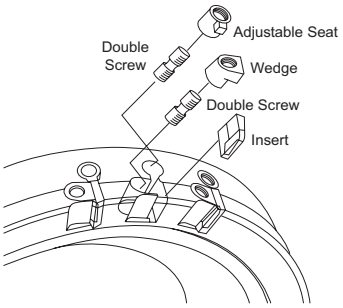
FM Mill Availability - METRIC

Sumitomo Cat. No.	Stock	Dimensions (*mm*)								No. of Teeth	Fig.
		D	D1	D2	F	d	a	b	E		
FM5080R	★	80	82.8	60	50	24.5	9.5	6	25	6	1
FM5100R	★	100	102.8	75	50	31.75	12.7	8	32	8	2
FM5125R	★	125	127.8	75	63	38.10	15.9	10	38	10	2
FM5160R	★	160	162.8	100	63	50.80	19	11	38	12	2

★ Worldwide Warehouse item

Hardware

 Wedge	 Adjustable Seat	 Adjustment Screw	 Double Screw	 Wrench	 Wrench	Applicable Cutter
FMW	FME	FMJ	WB7F-20TL	TT25	1.8 x 45	FM5080R
						FM5100R-FM5160R



Inserts

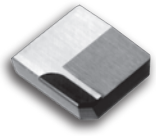


Fig 1

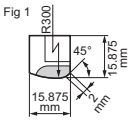
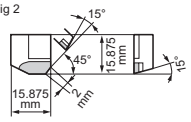


Fig 2



Sumitomo Cat. No.	Stock	Grade	Dimensions (in.) I.C.	Dimensions (in.) T	Fig.
SNEN1504ADTR	•	BN700	.625	.1875	1
SNEN1504ADTR-S*	•		.625	.1875	2

• USA stocked item * Low cutting force insert

BRC Series

High Speed SUMIBORON Mill for Hardened Steel & Cast Iron Finishing

Features & Benefits

- High speed, high efficiency milling of hardened mold material.
- Cost effective full-top CBN inserts, multiple corner usage
- Available in both shell and small diameter endmill types.
- Strong clamping with conical insert screw hole design.

Fig 1

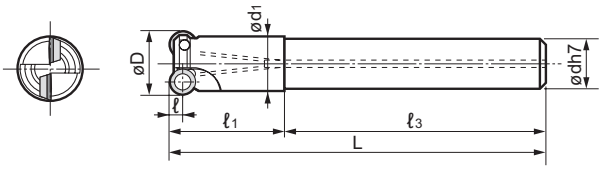


Fig 2

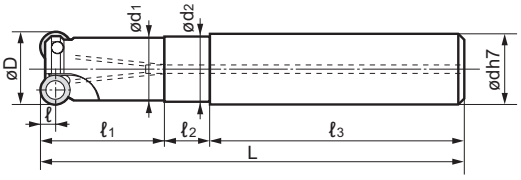
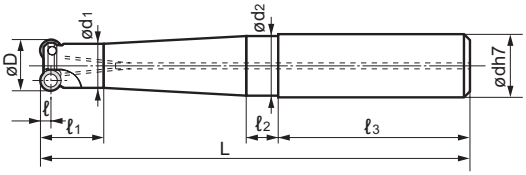
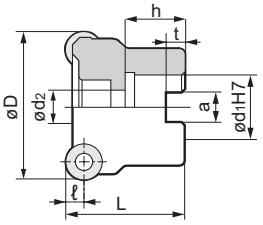


Fig 3

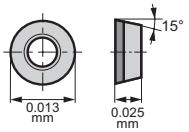




BRC Shell Mill Availability - METRIC

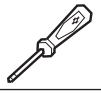
Sumitomo Cat. No.	Stock	Dimensions (mm) øD	ød1	ød2	ℓ	L	h	a	t	# of teeth	Group
BRC10042R	★	42	16	9	5	44	20	8	6	6	C
BRC10052R	★	52	22	11	5	50	30	10	7	7	
BRC12042R	★	42	16	9	6	42	20	8	6	5	D
BRC12052R	★	52	22	11	6	52	30	10	7	5	
BRC12066R	★	66	27	13	6	52	30	12	7	6	

Inserts



Sumitomo Cat. No.	Stock BN350	BN7000	BN700	Dimensions (in) I.C.	T	Applicable Holder (Grp.)
RDHX0701M0T	★	★	★	.276	.078	A
RDHX0702M0T	★	★	★	.276	.094	B
RDHX1003M0T	★	★	★	.394	.125	C
RDHX12T3M0T	★	★	★	.472	.156	D

Hardware

Screw	Wrench	Applicable Holder (Grp)
		
BFTB025048	TRD07	A
BFTB02505	TRD07	B
BFTB035074	TRD15	C,D

BRC Endmill Availability - METRIC

Sumitomo Cat. No.	Stock	Dimensions (mm) øD	ød	ød1	ød2	ℓ	ℓ1	ℓ2	ℓ3	L	# of teeth	Fig.	Group
BRC071207ES10	★	12	10	11	-	3.5	23	-	52	75	2	1	A
BRC071207ES12	★	12	12	11	11.5	3.5	22	8	45	75	2	2	
BRC071208ES16	★	12	16	11	15.5	3.5	16	8	48	88	2	3	
BRC071210ES16	★	12	16	11	15.5	3.5	16	8	48	108	2	3	
BRC071212ES16	★	12	16	11	15.5	3.5	16	8	48	128	2	3	
BRC071507ES12	★	15	12	12.5	-	3.5	16	-	59	75	3	1	
BRC071507ES16	★	15	16	12.5	13	3.5	19	11	48	78	3	2	
BRC071508ES16	★	15	16	13.5	15.5	3.5	20	8	48	88	2	3	B
BRC071510ES16	★	15	16	13.5	15.5	3.5	20	8	48	108	2		
BRC071513ES20	★	15	20	13.5	19.5	3.5	22	8	50	130	2		
BRC071515ES20	★	15	20	13.5	19.5	3.5	22	8	50	150	2		
BRC071517ES25	★	15	25	13.5	24.5	3.5	22	8	56	176	2		
BRC102009ES20	★	20	20	17	19.5	5	20	8	50	90	2		C
BRC102011ES20	★	20	20	17	19.5	5	22	8	50	110	2		
BRC102012ES25	★	20	25	17	24.5	5	24	8	56	136	2		
BRC102015ES25	★	20	25	17	24.5	5	24	8	56	156	2		
BRC102017ES25	★	20	25	17	24.5	5	24	8	56	176	2		

Recommended Running Conditions

Conditions	Steel 40~45HRC	47~55HRC	58~62HRC	Cast Iron -
	BN7000		BN350	BN7000
V (sfm)	655~2625	490~1310	260~655	980~4920
f (ipt)	.004~.016	.004~.012	.004~.008	.004~.016
d (in)	.020	.020	.020	.020

Discontinued Items

Pages 413-425

WGC Series

WaveMill Series
45° Lead Angle Face Mill

Features & Benefits

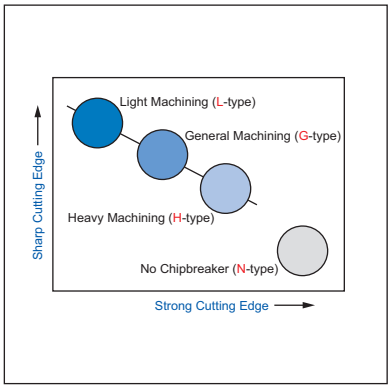
- 45° Lead Angle facilitates feed rate capabilities up to 30% higher than 90° tooling for high performance in face milling applications
- Cutter rake angles and insert design promote efficient cutting action with low horsepower consumption
- Light cutter assembly weight
- Lack of body overhang facilitates machining close to fixturing and/or part details
- Screw on insert design features carbide back up seats for durability, and ease of repair while offering easy set-up and indexing
- Accepts the widest variety of inserts of any Sumitomo milling cutter
- Available in "M" class (molded), "E" class, and several chipbreakers/edge preps and grades for almost any situation

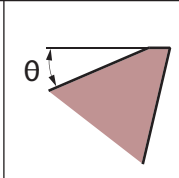
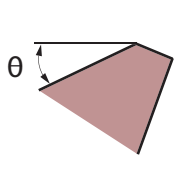
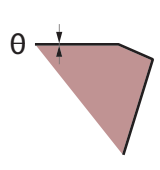
Shank type

Shell type
Coarse Pitch

Shell type
Fine Pitch

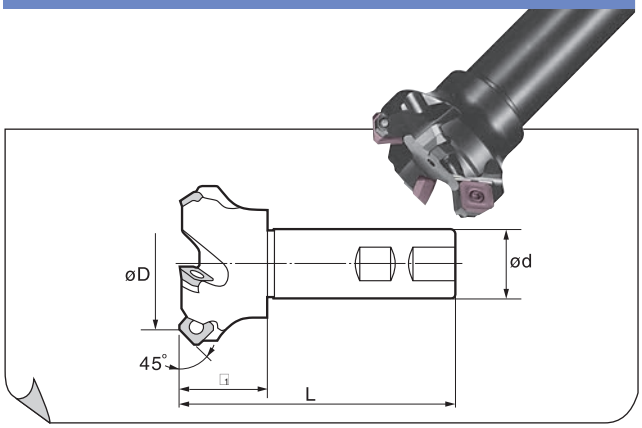
Chipbreaker Map



Breaker	L-Type	G-Type	H-Type	N-Type	W-Type
Figure					
Rake Angle 0 –	25°	20°	15°	0°	
Application	• Light cutting • Low force milling of thin work piece • Low burr design	• General purpose to interrupted milling • Main chipbreaker	• Interrupted to Heavy milling • For welded or rolled surfaces	• Very heavy milling	• High precision finish (Wiper edge)

Inch WGC4000

Applicable Insert: SEET, SEMT, SECW, XEEW



Weldon Shank Series

Catalog Number	Stock	Dimensions (Inches) ØD	Ød	L	ℓ1*	Insert Max Diameter	D.O.C.	# of Inserts
WGC4200WR	▲	2.000	1.250	3.970	1.7094	0.375	0.250	3
WGC4250WR	▲	2.500	1.250	3.970	1.7094	0.375	0.250	4

* This dimension represents the actual "extension from holder".
• USA stocked item

Insert Application Key

L	Light depth of cut applications
G	General purpose cutting applications
N	No chipbreaker
H	Heavy cutting applications

Hardware

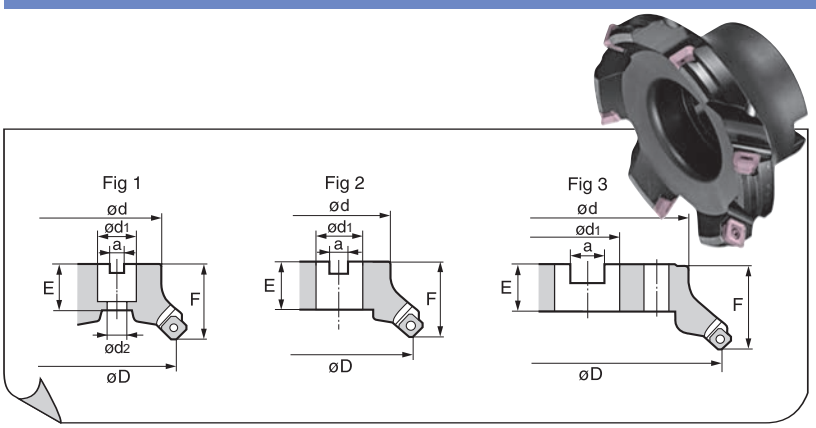
Catalog Number	Seat	Insert Screw*	Seat Screw**	Insert Wrench	Seat Wrench
WGC42□□WR	WGCS13R	BFTX03512IP	BW0507F	TRDR15IP	LH035
WGC4□□□SR	WGCS13R	BFTX03512IP	BW0507F	TRDR15IP	LH035
WGCF4□□□SR	WGCS13R	BFTX03512IP	BW0507F	TRDR15IP	LH035

* Torque specifications for insert screw=24-29 in/lbs.
**Torque specifications for seat screw=42-46 in/lbs.

See pages 592-594 for recommended running parameters

Inch WGC/F4000

Applicable Insert: SEET, SEMT, SECW, XEEW



Shell Mill Series

Catalog Number	Stock	Dimensions (Inches) ØD	Ød1	Ød2	F	Ød	a	E	No. of Teeth	Max D.O.C.	Fig.	Pitch
WGC4200SR*	▲	2.000	0.750	0.406	1.750	1.500	0.312	1.020	3	0.250	1	Coarse
WGC4250SR†	▲	2.500	1.000	0.531	1.750	1.750	0.375	1.020	4	0.250	1	Coarse
WGC4300SR†	▲	3.000	1.000	0.531	1.750	2.250	0.375	1.020	4	0.250	1	Coarse
WGC4400SR◆	▲	4.000	1.250	0.656	2.000	2.870	0.500	1.020	5	0.250	1	Coarse
WGC4500SR	▲	5.000	1.500	–	2.500	3.750	0.625	1.060	6	0.250	2	Coarse
WGC4600SR	▲	6.000	1.500	–	2.500	4.380	0.625	1.060	7	0.250	2	Coarse
WGC4800SR	▲	8.000	2.500	–	2.500	5.120	1.000	1.595	8	0.250	3	Coarse
WGC41000SR	▲	10.00	2.500	–	2.756	7.087	1.000	1.575	10	0.250	3	Coarse

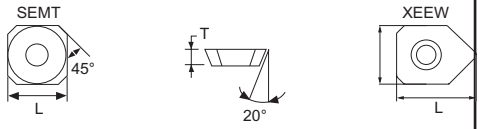
Socket Head Cap Screw: *3/8-24x1, †1/2-20x1.5, ◆5/8-18x1.5

Shell Mill Series

Catalog Number	Stock	Dimensions (Inches) ØD	Ød1	Ød2	F	Ød	a	E	No. of Teeth	Max D.O.C.	Fig.	Pitch
WGCF4200SR*	▲	2.000	0.750	0.406	1.750	1.500	0.312	1.020	4	0.250	1	Fine
WGCF4250SR†	▲	2.500	1.000	0.531	1.750	1.750	0.375	1.020	5	0.250	1	Fine
WGCF4300SR†	▲	3.000	1.000	0.531	1.750	2.250	0.375	1.020	6	0.250	1	Fine
WGCF4400SR◆	▲	4.000	1.250	0.656	2.000	2.870	0.500	1.020	7	0.250	1	Fine
WGCF4500SR	▲	5.000	1.500	–	2.500	3.750	0.625	1.060	8	0.250	2	Fine
WGCF4600SR	▲	6.000	1.500	–	2.500	4.380	0.625	1.060	10	0.250	2	Fine
WGCF4800SR	▲	8.000	2.500	–	2.500	5.120	1.000	1.595	12	0.250	3	Fine

Socket Head Cap Screw: *3/8-24x1, †1/2-20x1.5, ◆5/8-18x1.5

Inserts



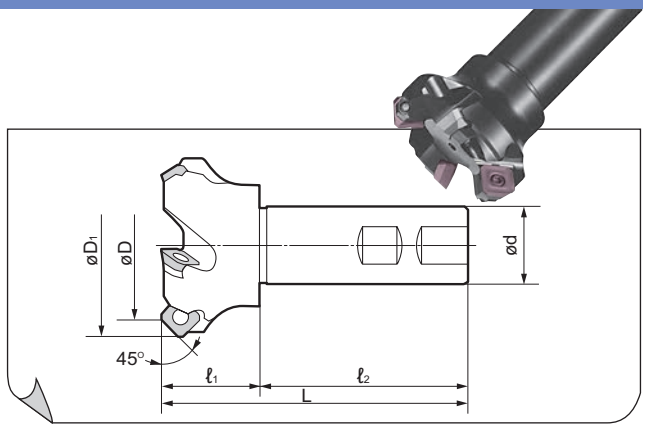
Sumitomo Catalog Number	DL1000	ACK200	ACK300	ACP100	ACP200	ACP300	Cermet T250A		Uncoated A30N	EH520	H1	PCD DA2200	DA1000	Dimension (inch) L	T	Facet Width	Facet Radii
SEET13T3AGFNL	▲		▲							▲	▲						
SEET13T3AGSNG		▲	▲	▲	▲	▲	▲			▲							
SEET13T3AGSNN		▲	▲	▲	▲	▲	▲		▲								
SEMT13T3AGSNG			▲	▲	▲	▲			▲					0.528	0.156	0.0639	0.0394
SEMT13T3AGSNH		▲	▲	▲	▲	▲											
SEMT13T3AGSNL		▲	▲	▲	▲	▲											
NF-SECW13T3AGTNN												▲	▲				
XEEW13T3AGERW			▲											0.707	0.156	0.320	-
NF-XEEW13T3AGFRW												▲	▲				

Note: SEET is a close tolerance, peripheral ground insert type which may provide better surface finish and repeatability

• USA stocked item
★ Worldwide Warehouse item
▲ USA limited availability item

Metric WGC4000

Applicable Insert: SEET, SEMT, SECW, XEEW



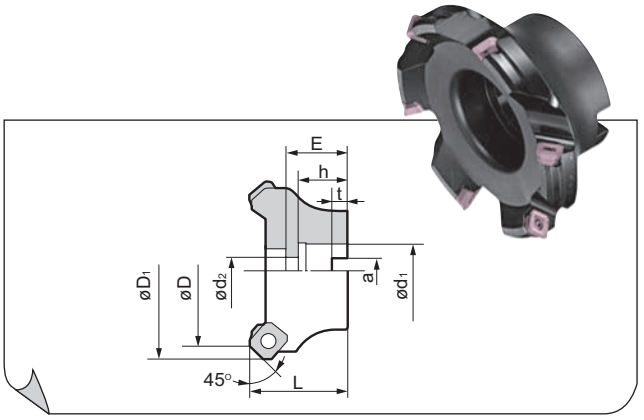
Weldon Shank Series (WGC 4000EW Type)

Catalog Number	Stock	Dimensions (mm)						# of Inserts
		ØD	ØD1	Ød	ℓ1	ℓ2	L	
WGC4032EW	▲	32	44	32	40	85	125	3
WGC4040EW	▲	40	52	32	40	85	125	3
WGC4050EW	▲	50	63	32	40	85	125	4
WGC4063EW	▲	63	76	32	40	85	125	5

▲ USA limited availability item

Metric WGC/F4000

Applicable Insert: SEET, SEMT, SECW, XEEW



Shell Mill Series (WGC 4000RS Type)

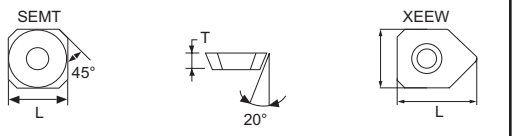
Catalog Number	Stock	Dimensions (mm)									# of Teeth
		ØD	ØD1	Ød1	Ød2	t	a	L	h	E	
WGC4040RS	▲	40	52	16	9	5.6	8.4	40	18	28	3
WGC4050RS	▲	50	63	22	11	6.3	10.4	40	20	26	3
WGC4063RS	▲	63	76	22	11	6.3	10.4	40	20	26	4

Shell Mill Series (WGCF 4000RS Type)

Catalog Number	Stock	Dimensions (mm)									# of Teeth
		ØD	ØD1	Ød1	Ød2	t	a	L	h	E	
WGCF4050RS	▲	50	63	22	11	6.3	10.4	40	20	26	5
WGCF4063RS	▲	63	76	22	11	6.3	10.4	40	20	26	6

▲ USA limited availability item

Inserts



Sumitomo Catalog Number	Cermet							Uncoated			PCD		Dimension (inch)			
	DL1000	ACK200	ACK300	ACP100	ACP200	ACP300	T250A	A30N	EH520	H1	DA2200	DA1000	L	T	Facet Width	Facet Radii
SEET13T3AGFNL	▲		▲						▲	▲						
SEET13T3AGSNG		▲	▲	▲	▲	▲	▲		▲							
SEET13T3AGSNN		▲	▲	▲	▲	▲	▲	▲								
SEMT13T3AGSNG		▲	▲	▲	▲	▲		▲					0.528	0.156	0.0639	0.0394
SEMT13T3AGSNH		▲	▲	▲	▲	▲										
SEMT13T3AGSNL		▲	▲	▲	▲	▲										
NF-SECW13T3AGTNN											▲	▲				
XEEW13T3AGERW			▲										0.707	0.156	0.320	-
NF-XEEW13T3AGFRW											▲	▲				

Note: SEET is a close tolerance, peripheral ground insert type which may provide better surface finish and repeatability

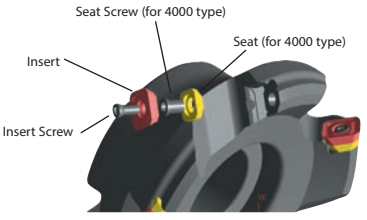
- USA stocked item

▲ USA limited availability item

See pages 593-594 for recommended running parameters

Hardware

Catalog Number	Seat	Insert Screw*	Seat Screw**	Insert Wrench	Seat Wrench
WGC4□□□EW	–	BFTX03512IP	–	TRDR15IP	–
WGC/F4□□□EW/RS	WGCS13R	BFTX03512IP	BW0507F	TRDR15IP	LH035



* Torque specifications for insert screw=24-29 in/lbs.

**Torque specifications for seat screw=42-46 in/lbs.

Metric WGC/F4000

Applicable Insert: SEET, SEMT, SECW, XEEW

Fig 1

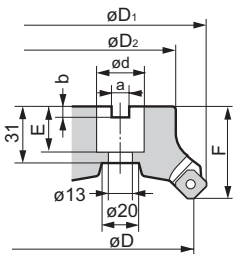


Fig 2

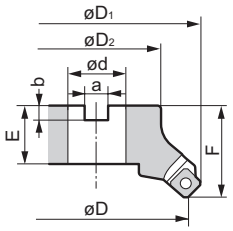
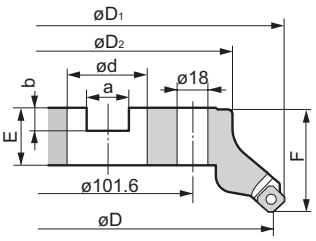


Fig 3



Shell Mill Series (WGC 4000 Type)

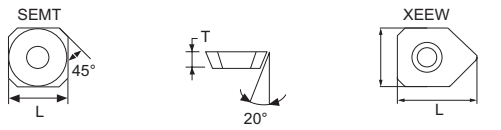
Catalog Number	Stock	Dimensions								No. of Teeth	Weight (kg)	Fig.
		ØD	$ØD_1$	$ØD_2$	F	Ød	a	b	E			
WGC4080R	▲	80	93	60	50	25.4	9.5	6	25	4	1.0	1
WGC4100R	▲	100	113	70	50	31.75	12.7	8	32	5	1.5	2
WGC4125R	▲	125	138	80	63	38.1	15.9	10	38	6	2.6	2
WGC4160R	▲	160	173	100	63	50.8	19	11	38	7	4.0	2
WGC4200R	▲	200	213	130	63	47.625	25.4	14	35	8	6.6	3

Shell Mill Series (WGCF 4000 Type)

Catalog Number	Stock	Dimensions								No. of Teeth	Weight (kg)	Fig.
		ØD	$ØD_1$	$ØD_2$	F	Ød	a	b	E			
WGCF4080R	▲	80	93	60	50	25.4	9.5	6	25	8	1.0	1
WGCF4100R	▲	100	113	70	50	31.75	12.7	8	32	10	1.5	2
WGCF4125R	▲	125	138	80	63	38.1	15.9	10	38	12	2.6	2
WGCF4160R	▲	160	173	100	63	50.8	19	11	38	16	4.0	2
WGCF4200R	▲	200	213	130	63	47.625	25.4	14	35	20	6.6	3

▲ USA limited availability item

Inserts



Sumitomo Catalog Number	Cermet			Uncoated			PCD		Dimension (inch)			
	DL1000	ACK200	ACK300	ACP100	ACP200	ACP300	T250A	A30N	EH520	H1	DA2200	DA1000	L	T	Facet Width	Facet Radii
SEET13T3AGFNL	▲		▲						▲	▲						
SEET13T3AGSNG		▲	▲	▲	▲	▲	▲		▲							
SEET13T3AGSNN		▲	▲	▲	▲	▲	▲	▲								
SEMT13T3AGSNG		▲	▲	▲	▲	▲		▲					0.528	0.156	0.0639	0.0394
SEMT13T3AGSNH		▲	▲	▲	▲	▲										
SEMT13T3AGSNL		▲	▲	▲	▲	▲										
NF-SECW13T3AGTNN											▲	▲				
XEEW13T3AGERW			▲										0.707	0.156	0.320	-
NF-XEEW13T3AGFRW											▲	▲				

Note: SEET is a close tolerance, peripheral ground insert type which may provide better surface finish and repeatability

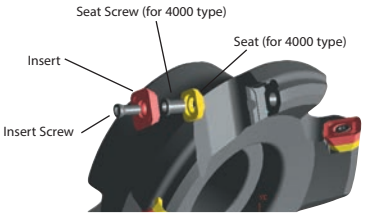
• USA stocked item

▲ USA limited availability item

See pages 593-594 for recommended running parameters

Hardware

Catalog Number	Seat	Insert Screw*	Seat Screw**	Insert Wrench	Seat Wrench
WGC/F 4□□□R	WGCS13R	BFTX03512IP	BW0507F	TRDR15IP	LH035



* Torque specifications for insert screw=24-29 in/lbs.

**Torque specifications for seat screw=42-46 in/lbs.

UFO Series

Section of Discontinued Milling Cutters

■ **UFO Fine Pitch Face Mill Series**
UFO "400" Face Mills

■ **UFO Coarse Pitch Face Mill Series**
UFO "400 & 500" Face Mills

■ **UFO End Mill Series**

Inserts Apply to UFO Endmills, 400 & 500 Face Mills

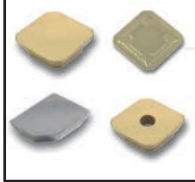


Figure 1

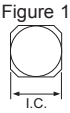
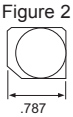


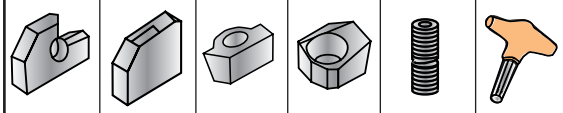
Figure 2



Sumitomo Cat. No.	Coated: ACZ310	ACZ330	ACZ350	AC230	AC325	AC211	EH20Z	K245R2	ACK200	ACK300	ACP100	ACP200	ACP300	Cermet: T250A	T110A		Uncoated: A30N	G10E	H10E	H1		I.C.	T	Facet Width	Figure
SFEN12T3AZFN																				▲					
SFKN12T3AZTN		▲	▲	▲	▲						▲	▲	▲	▲			▲					0.500	0.156	0.088	1
SFKN12T3AZFN	▲					▲	▲		▲	▲								▲							
SFKR12T3AZEN				▲																					
SFKN1504AZTN*		▲	▲	▲	▲						▲	▲	▲				▲					0.625	0.1875	0.088	
SFKN1504AZFN*	▲					▲	▲		▲	▲								▲							
UW12500R															▲				▲			0.500	0.156	0.218	2

TN = "T" land FN = honed ▲ USA limited Availablity Item *: UFO 500 Face Mill Coarse Pitch

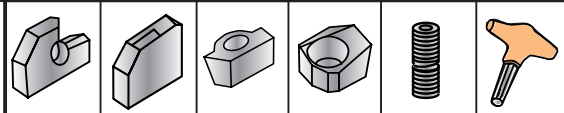
Hardware for UFO 400 Face Mills



Catalog Number	Locator	Seat	*Insert Clamp	**Locator Clamp	Clamp Screw	Wrench
UFO4 □ □ EXR8	UF4KR	UF4SR	UFTWR	UFKWR	WB715T	TT25

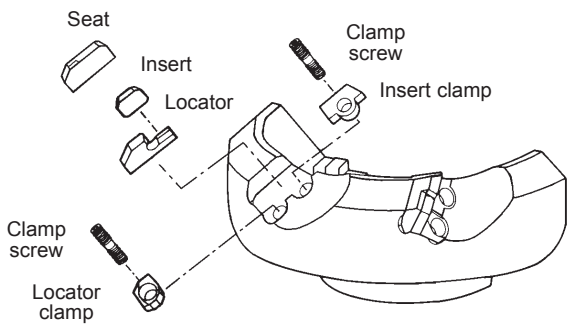
* Torque specifications for insert clamp screw=49-53 in/lbs.
**Torque specifications for locator clamp screws=62-66 in/lbs.

Hardware for UFO 400 & 500 Face Mills



Catalog Number	Locator	Seat	*Insert Clamp	**Locator Clamp	Clamp Screw	Wrench
UFO402R	UF4KR	UF4SRS	UFTWR	UFKWR	WB715T	TT25
UFO4 □ □ R		UF4SR				
UFO402L	UF4KL	UF4SLS	UFTWL	UFKWL	WB715T	TT25
UFO4 □ □ L		UF4SL				
UFO5 □ □ R	UF5KR	UF5SR	UFTWR	UFKWR	WB715T	TT25
UFO5 □ □ L	UF5KL	UF5SL	UFTWL	UFKWL	WB715T	TT25

*Torque specifications for insert clamp screw=49-53 in/lbs.
**Torque specifications for locator clamp screws=62-66 in/lbs.



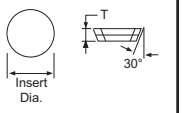
INDEXABLE SHELL MILLS
UFO SERIES
Applicable Insert: RGMN

■ UFOR Face Mill Series
UFOR "600" Face Mills

■ CHE Bridgeport Shank Series
CHE Shoulder Mills

■ CHE Weldon Shank Series
CHE Shoulder Mills

Inserts Apply to UFOR 600 Face Mills

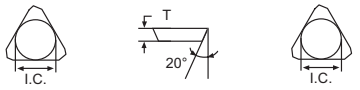


Sumitomo Cat. No.	Coated AC325	Coated EH20Z	Dimensions Insert Dia.	Dimensions T
RGMN2004SNS Edge prep = 0.008" x -30°	▲		0.7874 (20 mm)	0.1875
RGMN2004SNI Edge prep = 0.002" x -15°		▲		
RGMN2004SNT Edge prep = 0.002" x -30°		▲		

Note: use "SNS" for Steel applications
use "SNI" for Inconel applications
use "SNT" for Titanium applications

▲ USA limited availability item

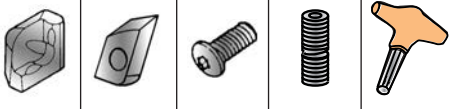
Inserts Apply to CHE Shoulder Mills



Sumitomo Cat. No.	Coated AC230	Coated AC325	Coated AC211	Cermet T250A	Uncoated A30N	Uncoated G10E	Uncoated H1	PCD DA2200	PCD DA150	PCD DA1000	Dimensions (Inches) I.C.	T		Figure
TECN32R							▲				0.375	0.125		1
TEEN32R						▲		▲	▲		0.375	0.125		2
NF-TEEN32R								▲		▲	0.375	0.125		2
TEKN32TR		▲									0.375	0.125		1
TECN43R							▲				0.500	0.1875		1
TEEN43R								▲	▲		0.500	0.1875		2
NF-TEEN43R								▲		▲	0.500	0.1875		2
TEKN43R	▲		▲			▲					0.500	0.1875		1
TEKN43TR		▲	▲	▲	▲						0.500	0.1875		1

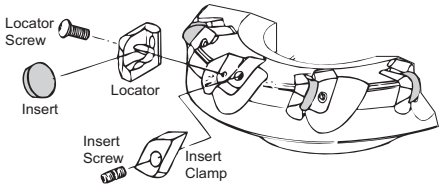
"T" denotes inserts with a T-Land

Hardware for UFOR 600 Face Mills

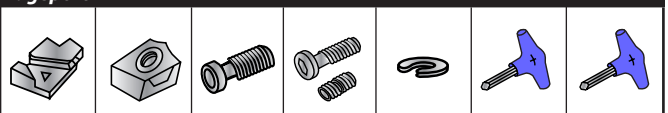


Catalog Number	Locator	Insert Clamp	Locator Screw**	Insert Screw*	Wrench
UFOR6 □ □ R	GRKR	GRWR	BH0410T	WB8-20	TH040 / TRD15

*Torque specifications for insert clamp screw=58-62 in/lbs.
**Torque specifications for locator clamp screws=35-40 in/lbs.



Hardware for CHE Bridgeport



Catalog Number	Locator	Clamp	Locator Screw	Clamp Screw	Retaining Ring	Clamp Wrench	Locator Wrench
CHE3-1 □ □ □ RR8	–	CCH5R	–	BHE0510	ER04	–	LH030
CHE4-2000RR8	LCE4R	CEWR	FBH0512	WB8R-16T	–	TT27	TH030

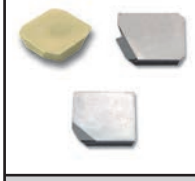
Hardware for CHE Weldon

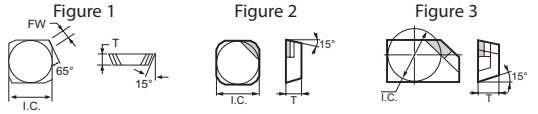
Catalog Number	Locator	Clamp	Locator Screw	Clamp Screw	Retaining Ring	Clamp Wrench	Locator Wrench
CHE2- □ □ □ □ RW	–	CCH4R	–	BHE0407	ER03	–	TH025
CHE3- 1 □ □ □ RW	–	CCH5R	–	BHE0510	ER04	–	LH030
CHE4- 2000RW	LCE4R	CEWR	FBH0512	WB8R-16T	–	TT27	TH030

Section of Discontinued Milling Cutters

■ **APG Face Mill Series**
APG 400 Face Mills

Inserts Apply to APG 400 Face Mills



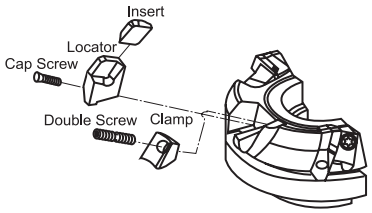


Sumitomo Cat. No.	Coated: AC325	Uncoated: A30N	Uncoated: H1	PCD: DA2200	PCD: DA150	PCD: DA200	PCD: DA1000	I.C.	T	Facet Width	Figure
SDC42R			▲	▲	▲			0.500	0.125	0.0938	1
SDC42TR	▲	▲						0.500	0.125	0.0938	1
NF-SDC42R				▲			▲	0.500	0.125	0.0938	2
APW4R				▲		▲		0.500	0.125	0.193	3

"T" denotes inserts with T-Land
▲ USA limited availability item

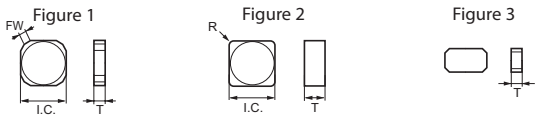
Hardware for APG 400 Face Mills

Catalog Number	Locator	Insert Clamp	Clamp Bolt	Cap Screw	Wrench
APG403R	LAP40RL	ATW45RL	WB820	BXF0520RL	TH040
APG404R					
APG405R			WB824T WB824TL		TT27
APG406R					
APG408R					



■ **DNF Face Mill Series**

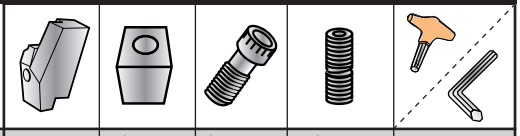
Inserts Apply to DNF Face Mills



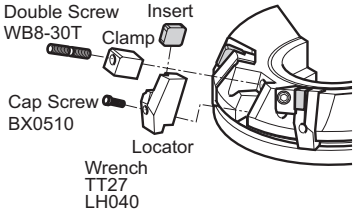
Sumitomo Cat. No.	Coated: ACZ310	Coated: AC325	Cermet: T250A	Uncoated: H10E	CBN: BNS800	I.C.	T	R	Facet Width	Figure
CSNH43M	▲					0.500	0.189	–	0.500	1
SNG432		▲			•			0.0312	–	
SNG433					•	0.500	0.1875	0.0469		2
SNG434					•			0.0625		
SNMN433	▲	▲	▲		▲	0.500	0.1875	0.0469	–	
NW100*			▲			–	0.197	–	–	3

▲ USA limited availability item • USA stocked item
*Wiper requires LNFW40R cartridge

Hardware for DNF Face Mills



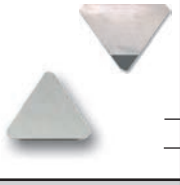
Catalog Number	Locator	Insert Clamp	Locator Clamp	Insert Screw*	Wrench
DNF □ □ □ □ R	LNF40R	FTW40R	BX0510	WB830T	TT27 LH040



Torque specifications for locator clamp (WB830T)= 71-75 in/lbs.
Torque specifications for insert clamp (WB830T)= 57-62 in/lbs.

■ **CHG Face Mill Series**

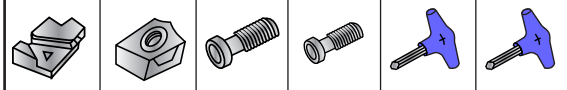
Inserts Apply to CHG Face Mills



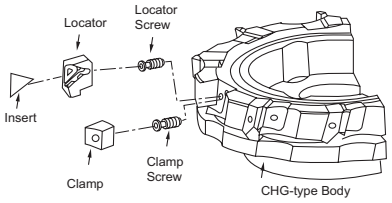
Sumitomo Cat. No.	Coated AC230	Coated AC325	Coated AC211	Cermet T250A	Cermet	Cermet	Cermet	Uncoated A30N	Uncoated G10E	Uncoated H1	PCD DA2200	PCD DA150	PCD DA1000	Dimensions (Inches) I.C.	T	Figure
TECN43R										▲				0.500	0.1875	1
TEEN43R											▲	▲		0.500	0.1875	2
NF-TEEN43R											▲		▲	0.500	0.1875	2
TEKN43R	▲		▲						▲					0.500	0.1875	1
TEKN43TR	▲	▲		▲					▲					0.500	0.1875	1

"T" denotes inserts with a T-Land.
▲ USA limited availability item

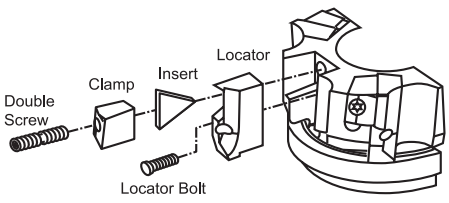
Hardware for CHG Face Mills



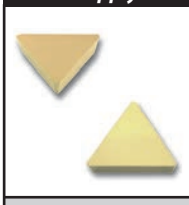
Catalog Number	Locator	Clamp	Clamp Bolt	Locator Screw	Clamp Wrench	Locator Wrench
CHG403R	LCH4R	CHWR	FBX0811	FBH0512	TH040	TH030
CHG404R						
CHG405R			FBX0817			
CHG406R						
CHG408R						



■ **CPG 400 & 500 Face Mill Series**



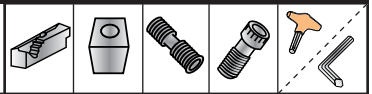
Inserts Apply to CPG 400 & 500 Face Mills



Sumitomo Cat. No.	Coated AC230	Coated AC325	Coated AC211	Coated EH20Z	Cermet T250A	Cermet	Cermet	Uncoated A30N	Uncoated G10E	Uncoated	Dimensions (Inches) I.C.	T	R	Figure
TPCH43R			▲						▲		0.500	0.1875		1
TPCH43TR	▲	▲			▲			▲			0.500	0.1875		1
TPC53P12R								▲			0.625	0.1875		2
TPC53P12RA								▲			0.625	0.1875		2
TPG431		▲						▲	▲		0.500	0.1875	0.0156	3
TPG432		▲		▲				▲	▲		0.500	0.1875	0.0312	3
TPG433		▲		▲							0.500	0.1875	0.0469	3
TPMN431		▲						▲			0.500	0.1875	0.0156	3
TPMN432		▲						▲			0.500	0.1875	0.0312	3
TPMN433		▲							▲		0.500	0.1875	0.0469	3
TPMN434								▲			0.500	0.1875	0.0625	3

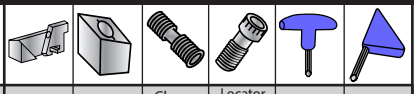
"T" denotes inserts with a T-Land.
▲ USA limited availability item

Hardware for 400 Series



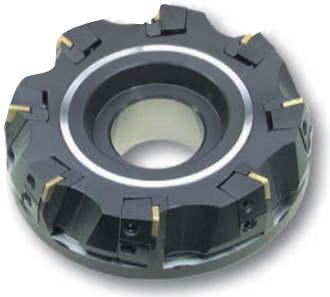
Catalog Number	Locator	Clamp	Clamp Bolt	Locator Bolt	Wrench
CPG03R	LCP40R	PTW40R	WB8-24T	BX0510	TT27
CPG04R		PTW41R			LH040
CPG05R					
CPG06R					

Hardware for 500 Series



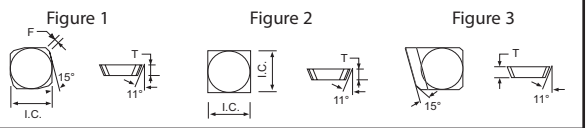
Catalog Number	Locator	Clamp	Clamp Bolt	Locator Clamp Bolt	Wrench	Wrench
CPG504R	LCP50R	PTW50R	WB8-24T	BH0408	TT27	TT25
CPG505R						
CPG506R		PTW51R				
CPG508R						
CPG510R						

Section of Discontinued Milling Cutters



■ DPG 400 Face Mill Series

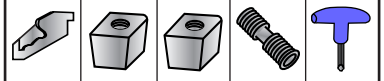
Inserts for DPG 400 Face Mills



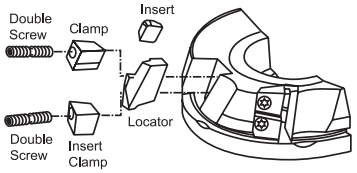
Sumitomo Cat. No.	Coated ACZ310	Coated AC230	Coated AC325	Coated AC211	Coated EH20Z	Uncoated A30N	Uncoated G10E	I.C.	T	Facet Width	R	Figure
SPCH42R	▲			▲				0.500	0.125	0.125	N/A	1
SPCH42TR		▲				▲						
SPG421							▲	0.500	0.125	N/A	0.0156	2
SPG422			▲		▲		▲				0.0312	
SPG423					▲						0.0469	
SPMN421						▲					0.0156	
SPMN422			▲								0.0312	
SPMN423			▲			▲	▲				0.0469	
SPMN424			▲								0.0625	
DPW500R				▲				0.480	0.126	0.126	N/A	3

"T" denotes inserts with a T-Land.
▲ USA limited availability item

Hardware for DPG 400 Face Mills



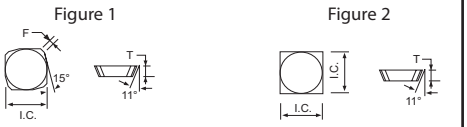
Catalog Number	Locator	Locator Clamp	Insert Clamp	Clamp Bolt	Wrench
DPG403R	GL40R	GLW40R	GTW40R	WB830T	TT27
DPG404R		GLW41R	GTW41R	WB824T	
DPG406R					
DPG408R		GLW42R	GTW42R	WB830T	
DPG410R					
DPG412R					



Torque specifications for locator clamp (WB830T)=71-75 in/lbs.
Torque specifications for insert clamp (WB830T)=57-62 in/lbs.

■ DPG 500 Face Mill Series

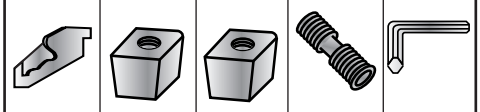
Inserts Apply to DPG 500 Face Mills



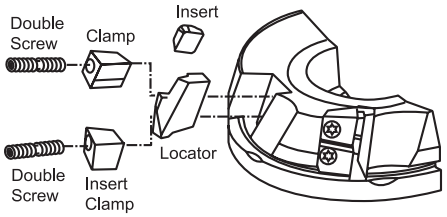
Sumitomo Cat. No.	Coated ACZ310	Coated AC230	Coated AC325	Coated AC211	Coated EH20Z	Uncoated A30N	Uncoated G10E	I.C.	T	Facet Width	R	Figure
SPCH53TR			▲			▲		0.625	0.1875	0.1875	N/A	1
SPCH53TRR		▲										
SPMN533			▲			▲	▲	0.625	0.1875	0.0469	N/A	2

"T" denotes inserts with a T-Land.
▲ USA limited availability item

Hardware for DPG 500 Face Mills



Catalog Number	Locator	Locator Clamp	Insert Clamp	Clamp Bolt	Wrench
DPG503R	GL50R	GLW50R	GTW50R	WB830T	TT27
DPG504R		GLW51R	GTW51R	WB824T	
DPG506R					
DPG508R		GLW52R	GTW52R	WB830T	
DPG510R					
DPG512R					



Torque specifications for locator clamp (WB830T)=71-75 in/lbs.
Torque specifications for insert clamp (WB830T)=57-62 in/lbs.

■ EHG 400 Face Mill Series

Inserts Apply to EHG Face Mills

Figure 1

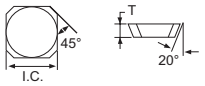
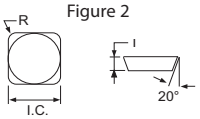


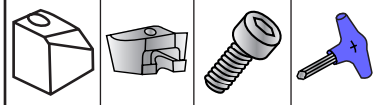
Figure 2



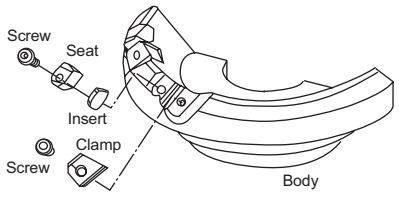
Sumitomo Cat. No.	Coated: AC2310	AC2330	AC2350	AC230	AC325	AC211	EH20Z	Cermet: T250A			Uncoated: A30	A30N	G10E	I.C.	T	R	Facet Width	Fig.
SEKN42M	▲					▲	▲						▲	0.500	0.125	N/A	0.0625	1
SEKN42MT			▲	▲	▲			▲				▲						
SEKN53M	▲													0.625	0.1875			
SEKN53MT		▲	▲	▲	▲			▲				▲						
SEMR42M				▲										0.500	0.125			
SEC422					▲						▲		▲			0.0312	N/A	2

"M" denotes honed inserts
"MT" denotes inserts with a T-Land
▲ USA limited availability item

Hardware for EHG Face Mills

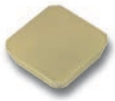


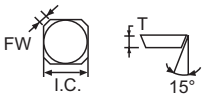
Catalog Number	Seat	Clamp	Clamp & Locator Screw	Wrench
EHG4 □ □	EHK4R	EHW4R	EHBX0512	TH040



■ FPG 400 & 500 Face Mill Series

Inserts Apply to FPG Face Mills

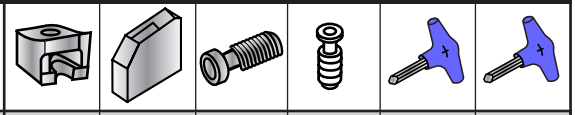




Sumitomo Cat. No.	Coated: AC2310	AC2330	AC2350	AC230	AC325	AC211	EH20Z	Cermet: T250A			Uncoated: A30N	G10E		PCD: DA150		I.C.	T	Facet Width
SDKN42M	▲					▲	▲							▲		0.500	0.125	0.0781
SDKN42MT			▲	▲	▲			▲			▲							
SDKN53M						▲	▲					▲				0.625	0.1875	
SDKN53MT			▲	▲	▲			▲										

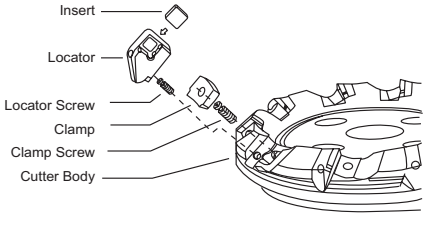
"M" denotes honed inserts
"MT" denotes inserts with a T-Land
▲ USA limited availability item

Hardware for FPG Face Mills



Catalog Number	Locator	Clamp	Clamp Screw**	Locator Screw*	Clamp Wrench	Locator Wrench
FPG4 □ □ R	LFP4R	FPWR	FBX0817	FBH0512	TH040	TH030
FPG5 □ □ R	LFP5R					

*Torque specification for FBH0512=58-62 in/lbs.
**Torque specification for FBX0817=44-49 in/lbs.



Inserts & Hardware for Discontinued and/or Limited Inventory WaveMills

WEM 4000/5000

Hardware

Catalog Number	Screw	Wrench
WEM3□□□RW□	BFTX02506N	TRD08
WEM3□□EX	BFTX02506N	TRD08

Torque specifications for BFTX02506N insert screw=10-14 inch/lbs.

Hardware for WEM

Catalog Number	Screw	Wrench
WMM10□□□M	BFTX02506N	TRD08

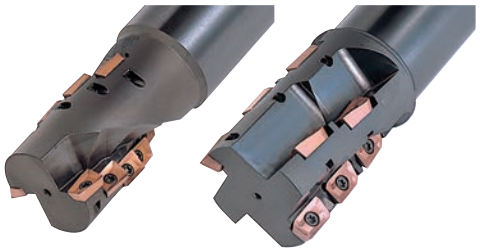
Torque specifications for BFTX02506N insert screw=10-14 inch/lbs.

Hardware

Catalog Number	Screw	Wrench
WMM16□□□M	BFTX03584	TRD15

Torque specifications for BFTX03584 insert screw=27-31 inch/lbs.

WRM 10000/16000



Hardware

Catalog Number	Screw	Wrench
WRM10□□□M	BFTX02506N	TRD08

Torque specifications for BFTX02506N insert screw=10-14 inch/lbs.

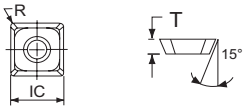
Hardware

Catalog Number	Screw	Wrench
WRM16□□□M	BFTX03588	TRD15

Torque specifications for BFTX03588 insert screw=27-31 inch/lbs.

WFM 400/500

Inserts Apply to WFM Cutters



Sumitomo Cat. No.	Coated AC230	Coated AC2310	Coated AC2330	Coated AC2350	Coated K245R2	Uncoated G10E	I.C.	T	R
XDMT120408PDEN	▲	▲	▲	▲	▲	▲	0.500	0.1875	0.031
XDMT120408PDENH	▲	▲	▲	▲		▲	0.500	0.1875	0.031
XDMT150408PDEN	▲	▲	▲	▲		▲	0.625	0.1875	0.031

▲ USA limited availability item

Hardware for WFM Cutters

Catalog Number	Seat	Insert Screw	Set Screw	Wrench	Wrench
WFM□40□R	WFMS4R	BFTX0414	BT0506	TRD20	TH025
WFM□50□R	WFMS5R	BFTX0515N	BT0506	TRD20	TH025

PWC

■ **SumiEdge Mill Cutter Bodies**

Fig. 1

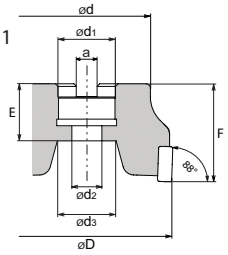
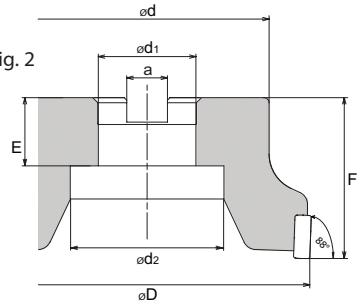
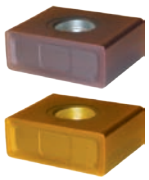


Fig. 2



Inserts Apply to SumiEdge Mill Cutter Bodies



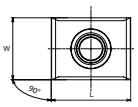


Fig. 1

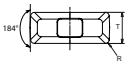
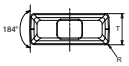


Fig. 2



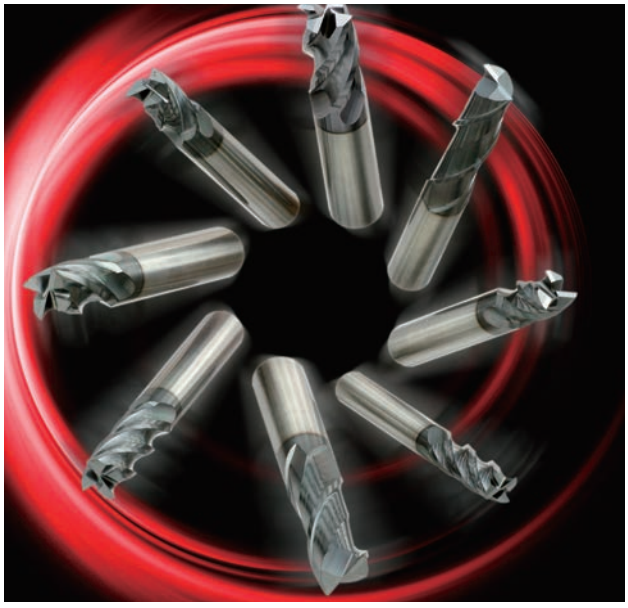
Sumitomo Cat. No.	Grade ACK200	Grade ACK300	Dimensions (Inches) L	W	T	R	Facet Width	Fig.
LNMX160608PNSN-G	▲	▲	0.634	0.476	0.250	0.032	0.218	1
LNMX160608PNSN-H	▲	▲	0.634	0.476	0.250	0.032	0.218	2
LNMX1606-W		▲	0.636	0.476	0.250	0.032	*	-

*See page 000 for facet width information.

Hardware

Applicable Cutter	Insert Screw	Wrench
PWC Series	BFTX0511N	TTX15W

Pages 427-439



SOLID CARBIDE ENDMILLS **PAGES**

SUMITOMO
CARBIDE - CBN - DIAMOND
1-800-950-5202
www.sumicarbide.com

■ Features & Benefits

- Wide variation of three flute types and four flute lengths enable use in a wide variety of applications.
- Fine carbide substrate provides high traverse rupture strength and excellent thermal shock resistance improving reliability in wet cutting applications.
- GSX Coating provides improved reliability and longer tool life.
- Large rake angle and unique flute design improve sharpness and chip evacuation.
- Corner edge with gash land improves cutting edge strength.
- Sharper edge S type and fracture resistant C type added to the 2D size series.

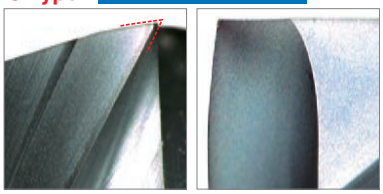
■ Product Range — Inch GSX Endmills

Application	Flutes	Flute Length					
		1.5D	2D		3D		4D
		C Type	S Type	C Type	S Type	C Type	C Type
General Purpose	2	GSX200C-1.5D φ1/16" to φ1 "	GSX200S-2D φ1/16" to φ1 "	GSX200C-2D φ1/16" to φ1 "	GSX200S-3D φ1/16" to φ1 "	GSX200C-3D φ1/16" to φ1 "	GSX200C-4D φ1/16" to φ1 "
	4	GSX400C-1.5D φ1/16" to φ1 "	GSX400S-2D φ1/16" to φ1 "	GSX400C-2D φ1/16" to φ1 "	GSX400S-3D φ1/16" to φ1 "	GSX400C-3D φ1/16" to φ1 "	GSX400C-4D φ1/16" to φ1 "

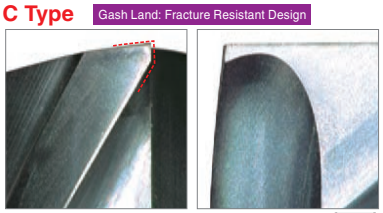
■ Product Range — Metric GSX Endmills

Application	Flutes	Flute Length					
		1.5D	2D		3D		4D
		C Type	S Type	C Type	S Type	C Type	C Type
General Purpose	2	GSX20000C-1.5D φ1.0 to φφ20.0mm	GSX20000S-2D φ0.5 to φφ20.0mm	GSX20000C-2D φ0.5 to φφ25.0mm	GSX20000S-3D φ0.5 to φφ20.0mm	GSX20000C-3D φ1.0 to φφ20.0mm	GSX20000C-4D φ1.0 to φφ20.0mm
	3	GSX30000C-1.5D φ1.0 to φφ20.0mm		GSX30000C-2D φ1.0 to φφ20.0mm			
	4	GSX40000C-1.5D φ1.0 to φφ20.0mm	GSX40000S-2D φ1.0 to φφ20.0mm	GSX40000C-2D φ1.0 to φφ25.0mm	GSX40000S-3D φ1.0 to φφ20.0mm	GSX40000C-3D φ1.0 to φφ20.0mm	GSX40000C-4D φ1.0 to φφ20.0mm

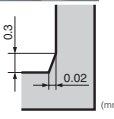
S Type Sharp Corner: Sharper Edge Design



C Type Gash Land: Fracture Resistant Design



Note: When using endmills with gash land, some material remains as shown on the right. If you need sharp corners, use the S Type.



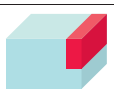
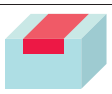
Ex.: Corner on a φ10mm hole (mm)

■ Application Range

◎ : Best ○ : Good Blank : Not recommended

P					H			M	S		K	N			
					Hardened Steel										
General Structure Rolled Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	Die Steel	45 to 55 HRC	55 to 60 HRC	60 HRC	Stainless Steel	Ti Alloy	Heat Resistant Alloy	Cast Iron	Al Alloy	Copper Alloy	Graphite	CFRP
○	◎	◎	◎	◎	◎ *1			◎	○	○	○				

■ Recommended Milling Examples

Application	Surface Milling		Groove Milling		Groove Finishing	
Form						
	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
S Type		◎		○ *2		◎
C Type	◎	○	◎	◎	◎	○

S Type is best for removing inside corners

*2 : Use with small depth of cut.

■ Multi-Purpose

Optimized flute design of slotted 3 flute (short) type reduces cutting resistance.

1. Allows drilling, slot milling and other continuous (compound) applications.
2. Perfect for use on thin walls and small machining centres.

Recommended Cutting Conditions - 1.5D, 2D, 3D & 4D

Speeds and Feeds reflect roughing and finishing applications

GSX 1.5D & 2D Endmills

ISO	Material	Hardness (Bhn)	SFM	Cutting Diameter 1/8 Feed/Tooth	3/16 Feed/Tooth	1/4 Feed/Tooth	5/16 Feed/Tooth	3/8 Feed/Tooth	7/16 Feed/Tooth	1/2 Feed/Tooth	9/16 Feed/Tooth	5/8 Feed/Tooth	3/4 Feed/Tooth	1 Feed/Tooth
P	Low and Medium Carbon Steels	<250	150-400	.0005-.0024	.0007-.0025	.0008-.0035	.0008-.0037	.001-.0045	.0012-.0055	.0014-.0066	.0016-.0075	.002-.0095	.002-.010	.002-.0105
P	Medium Carbon Alloy Steels	<250	140-375	.0005-.0024	.0007-.0025	.0008-.0035	.0008-.0037	.001-.0045	.0012-.0055	.0014-.0066	.0016-.0075	.002-.0095	.002-.010	.002-.0105
P	Medium-High Carbon Steels	>250	175-300	.0005-.0015	.0007-.002	.0008-.003	.0008-.0033	.001-.0039	.0012-.0045	.0014-.0056	.0016-.0062	.002-.0075	.002-.008	.002-.009
P	Free Machining Steels and Alloys	<250	175-350	.0005-.002	.0008-.0025	.0008-.0035	.0008-.004	.001-.0045	.0012-.0055	.0014-.0058	.0016-.0072	.002-.0075	.002-.0085	.002-.009
P	Tool Steels	<250	150-300	.0005-.0017	.0005-.0024	.0008-.003	.0008-.0035	.001-.0045	.001-.0055	.0012-.0066	.0016-.0075	.002-.0075	.002-.0085	.002-.009
P	Tool Steels	250 - 350	100-225	.0005-.0015	.0005-.0019	.0008-.0025	.0008-.003	.001-.0036	.001-.0044	.0012-.0055	.0013-.0065	.0015-.0075	.002-.0085	.002-.0088
P	Tool Steels	>350	75-150	.0005-.001	.0005-.0012	.0006-.0014	.0008-.0017	.0008-.0022	.0008-.0028	.001-.0034	.001-.0041	.001-.0046	.0015-.0051	.002-.0055
M	Stainless Steel: Martensitic and Ferritic	<250	150-350	.0005-.0013	.0008-.0013	.0008-.0016	.0008-.0019	.001-.0025	.001-.0031	.001-.0037	.001-.0044	.001-.005	.001-.0055	.001-.0062
M	Stainless Steel: Martensitic and Ferritic	<250	150-350	.0005-.0013	.0005-.0013	.0005-.0016	.0008-.0019	.0008-.0025	.001-.0031	.001-.0037	.001-.0044	.001-.005	.001-.0055	.001-.0062
M	Stainless Steel: Austenitic	<250	150-325	.0005-.0013	.0005-.0018	.0008-.003	.001-.0033	.001-.0035	.0011-.0039	.0012-.0043	.0012-.0047	.0014-.0055	.0015-.006	.002-.007
M	Stainless Steel: Precipitation Hardening	<280	90-300	.0005-.0012	.0005-.0013	.0008-.0015	.001-.0019	.001-.0025	.001-.003	.001-.0035	.001-.0041	.001-.0048	.001-.0055	.001-.0065
K	Grey Cast Iron		250-400	.0008-.0024	.001-.0028	.001-.0031	.001-.0033	.001-.004	.001-.0045	.001-.006	.001-.0067	.001-.0075	.001-.0085	.001-.010
K	Ductile Iron		160-350	.0005-.0024	.0005-.0028	.0008-.0031	.001-.0033	.001-.004	.001-.0045	.001-.0059	.001-.0067	.001-.0075	.001-.0085	.001-.010
S	Exotic Alloys: Inconel, Hastalloy, Waspalloy, etc.		75-125	.0005-.0015	.0008-.0018	.0008-.0021	.0008-.0024	.001-.0028	.001-.0033	.001-.0036	.001-.004	.001-.0045	.001-.005	.001-.006
N	Non-Ferrous Material		600-1500	.001-.0024	.001-.003	.001-.0035	.001-.004	.001-.0045	.001-.005	.001-.006	.001-.008	.001-.0095	.001-.011	.001-.012

GSX 3D Endmills

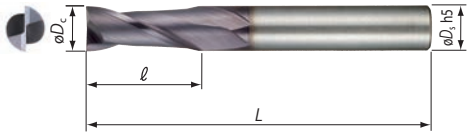
ISO	Material	Hardness (Bhn)	SFM	Cutting Diameter 1/8 Feed/Tooth	3/16 Feed/Tooth	1/4 Feed/Tooth	5/16 Feed/Tooth	3/8 Feed/Tooth	7/16 Feed/Tooth	1/2 Feed/Tooth	9/16 Feed/Tooth	5/8 Feed/Tooth	3/4 Feed/Tooth	1 Feed/Tooth
P	Low and Medium Carbon Steels	<250	125-280	.0005-.0021	.0007-.0022	.0008-.0031	.0008-.0034	.001-.0041	.0012-.005	.0014-.006	.0016-.0072	.002-.008	.002-.009	.002-.010
P	Medium Carbon Alloy Steels	<250	100-255	.0005-.0021	.0007-.0022	.0008-.0031	.0008-.0034	.001-.0041	.0012-.005	.0014-.006	.0016-.0072	.002-.008	.002-.009	.002-.010
P	Medium-High Carbon Steels	>250	90-200	.0005-.0014	.0007-.0018	.0008-.0027	.0008-.003	.001-.0036	.0012-.0041	.0014-.005	.0016-.0059	.002-.0069	.002-.008	.002-.009
P	Free Machining Steels and Alloys	<250	110-230	.0005-.0018	.0008-.0022	.0008-.0031	.0008-.0036	.001-.0041	.0012-.0049	.0014-.006	.0016-.0071	.002-.0081	.002-.0092	.002-.0103
P	Tool Steels	<250	100-200	.0005-.0015	.0005-.0019	.0008-.0027	.0008-.0031	.001-.0041	.001-.005	.0012-.0059	.0016-.0069	.002-.008	.002-.0091	.002-.0102
P	Tool Steels	250 - 350	85-165	.0005-.0013	.0005-.0017	.0008-.0022	.0008-.0029	.001-.0033	.001-.004	.0012-.0048	.0013-.0059	.0015-.007	.002-.0081	.002-.0092
P	Tool Steels	>350	75-145	.0005-.001	.0005-.0011	.0006-.0013	.0008-.0017	.001-.0023	.0008-.0026	.001-.003	.001-.0037	.001-.0042	.0015-.0047	.002-.0054
M	Stainless Steel: Martensitic and Ferritic	<250	90-230	.0005-.0013	.0008-.0011	.0008-.0015	.0008-.002	.001-.0025	.001-.0029	.001-.0033	.001-.004	.001-.0046	.001-.0051	.001-.0058
M	Stainless Steel: Martensitic and Ferritic	<250	90-230	.0005-.0013	.0005-.0011	.0005-.0015	.0008-.002	.0008-.0025	.001-.0029	.001-.0033	.001-.004	.001-.0046	.001-.0051	.001-.0058
M	Stainless Steel: Austenitic	<250	110-205	.0005-.0011	.0005-.0016	.0008-.002	.0008-.0024	.001-.0027	.0011-.0035	.0012-.0038	.0012-.0042	.0014-.0046	.0015-.005	.002-.006
M	Stainless Steel: Precipitation Hardening	<280	90-180	.0005-.0011	.0005-.0012	.0008-.0015	.0008-.0035	.001-.0022	.001-.0027	.001-.0032	.001-.0037	.001-.0043	.001-.005	.001-.006
K	Grey Cast Iron		250-280	.0008-.002	.001-.0025	.001-.0028	.0008-.0031	.001-.0035	.001-.0039	.001-.0046	.001-.005	.001-.0054	.001-.006	.001-.007
K	Ductile Iron		160-225	.0005-.002	.001-.0025	.001-.0028	.0015-.0031	.001-.0035	.001-.0039	.001-.0046	.001-.005	.001-.0054	.001-.006	.001-.007
S	Exotic Alloys: Inconel, Hastalloy, Waspalloy, etc.		75-115	.0005-.0012	.0008-.0015	.0008-.0018	.0008-.0021	.001-.0025	.001-.0029	.001-.0033	.001-.0038	.001-.0044	.001-.0051	.001-.0057
N	Non-Ferrous Material		550-1100	.001-.0021	.001-.0027	.001-.0031	.0008-.0036	.001-.0042	.001-.0053	.001-.0064	.001-.0075	.001-.0085	.001-.095	.001-.0105

GSX 4D Endmills

ISO	Material	Hardness (Bhn)	SFM	Cutting Diameter 1/8 Feed/Tooth	3/16 Feed/Tooth	1/4 Feed/Tooth	5/16 Feed/Tooth	3/8 Feed/Tooth	7/16 Feed/Tooth	1/2 Feed/Tooth	9/16 Feed/Tooth	5/8 Feed/Tooth	3/4 Feed/Tooth	1 Feed/Tooth
P	Low and Medium Carbon Steels	<250	115-260	.0005-.0018	.0007-.0019	.0008-.0028	.0008-.0031	.001-.0036	.0012-.0045	.0014-.0054	.0016-.0065	.002-.007	.002-.0075	.002-.009
P	Medium Carbon Alloy Steels	<250	90-235	.0005-.0018	.0007-.0019	.0008-.0028	.0008-.0031	.001-.0036	.0012-.0045	.0014-.0054	.0016-.0065	.002-.007	.002-.0075	.002-.009
P	Medium-High Carbon Steels	>250	80-180	.0005-.0013	.0007-.0016	.0008-.0024	.0008-.0027	.001-.0032	.0012-.0037	.0014-.0045	.0016-.0053	.002-.006	.002-.007	.002-.0081
P	Free Machining Steels and Alloys	<250	100-210	.0005-.0016	.0008-.002	.0008-.0027	.0008-.0032	.001-.0036	.0012-.004	.0014-.005	.0016-.006	.002-.007	.002-.008	.002-.009
P	Tool Steels	<250	90-160	.0005-.0013	.0005-.0017	.0008-.0024	.0008-.0027	.001-.0033	.001-.004	.0012-.005	.0016-.006	.002-.007	.002-.008	.002-.009
P	Tool Steels	250 - 350	85-145	.0005-.0011	.0005-.0015	.0008-.002	.0008-.0025	.001-.003	.001-.0035	.0012-.0043	.0013-.0052	.0015-.0062	.002-.0073	.002-.0084
P	Tool Steels	>350	75-125	.0005-.001	.0005-.0011	.0006-.0012	.0008-.0013	.0008-.0018	.0008-.0023	.001-.0027	.001-.0031	.001-.004	.0015-.0045	.002-.005
M	Stainless Steel: Martensitic and Ferritic	<250	85-210	.0005-.0011	.0008-.0011	.0008-.0012	.0008-.0015	.001-.002	.001-.0029	.001-.0033	.001-.004	.001-.0046	.001-.0051	.001-.0058
M	Stainless Steel: Martensitic and Ferritic	<250	85-210	.0005-.0011	.0005-.0011	.0005-.0012	.0008-.0015	.0008-.002	.001-.0029	.001-.0033	.001-.004	.001-.0046	.001-.0051	.001-.0058
M	Stainless Steel: Austenitic	<250	100-185	.0005-.0011	.0005-.0012	.0008-.0016	.001-.002	.001-.0024	.0011-.0028	.0012-.0032	.0012-.0036	.0014-.004	.0015-.0045	.002-.0052
M	Stainless Steel: Precipitation Hardening	<280	90-160	.0005-.0011	.0005-.0011	.0008-.0013	.001-.0015	.001-.0018	.001-.0024	.001-.0029	.001-.0033	.001-.0037	.001-.0041	.001-.0046
K	Grey Cast Iron		240-250	.0008-.002	.001-.0025	.001-.0027	.001-.0029	.001-.0033	.001-.0037	.001-.004	.001-.0044	.001-.0049	.001-.0055	.001-.0065
K	Ductile Iron		160-200	.0008-.002	.001-.0025	.001-.0027	.001-.0029	.001-.0033	.001-.0037	.001-.004	.001-.0044	.001-.0049	.001-.0055	.001-.0065
S	Exotic Alloys: Inconel, Hastalloy, Waspalloy, etc.		75-90	.0005-.001	.0008-.0012	.0008-.0015	.0008-.0018	.001-.0023	.001-.0026	.001-.003	.001-.0035	.001-.004	.001-.0046	.001-.0051
N	Non-Ferrous Material		500-1000	.001-.0017	.001-.0022	.001-.0027	.001-.0032	.001-.0038	.001-.0045	.001-.0042	.001-.005	.001-.0059	.001-.007	.001-.01

GSX Endmills - Sharp Edge (S) INCH Lineup

2X



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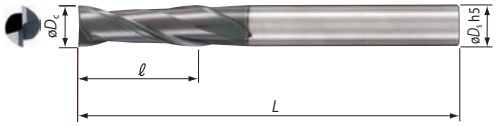


■ **Endmill Identification (GSX MILL Series Only)**

GSX 2 04 C -1.5D

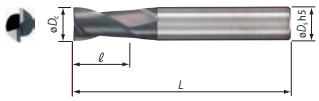
1	2	3	4	5
Series Code	# of Flutes	Diameter in 64ths (4/64 = 0.0625")	Cutting Edge S: Sharp Edge C: Gash Land	Cutting Edge Length

Sharp Edge (S)	Diameter φD_C		Shank Diameter	2 Flute				3 Flute			
Cat. No.	Fraction	Inch	φD_S Inch	2	4	OAL L (Inch)	Flute Length ℓ (Inch)	2	4	OAL L (Inch)	Flute Length ℓ (Inch)
GSXΔ04S-ΔD	1/16	0.0625	0.1250	●	●	1.500	0.1250	●	●	1.500	0.1875
GSXΔ06S-ΔD	3/32	0.0938	0.1250	●	●	1.500	0.1875	●	●	1.500	0.2813
GSXΔ08S-ΔD	1/8	0.1250	0.1250	●	●	2.000	0.2500	●	●	2.000	0.3750
GSXΔ10S-ΔD	5/32	0.1563	0.1875	●	●	2.000	0.3125	●	●	2.000	0.4688
GSXΔ12S-ΔD	3/16	0.1875	0.1875	●	●	2.000	0.3750	●	●	2.000	0.5625
GSXΔ14S-ΔD	7/32	0.2188	0.2500	●	●	2.000	0.4376	●	●	2.000	0.6564
GSXΔ16S-ΔD	1/4	0.2500	0.2500	●	●	2.000	0.5000	●	●	2.000	0.7500
GSXΔ18S-ΔD	9/32	0.2813	0.3125	●	●	2.500	0.5626	●	●	3.000	0.8439
GSXΔ20S-ΔD	5/16	0.3125	0.3125	●	●	2.500	0.6250	●	●	3.000	0.9375
GSXΔ24S-ΔD	3/8	0.3750	0.3750	●	●	3.000	0.7500	●	●	3.500	1.1250
GSXΔ28S-ΔD	7/16	0.4375	0.4375	●	●	3.000	0.8750	●	●	3.500	1.3125
GSXΔ32S-ΔD	1/2	0.5000	0.5000	●	●	3.000	1.0000	●	●	3.500	1.5000
GSXΔ36S-ΔD	9/16	0.5625	0.5625	●	●	3.500	1.1250	●	●	4.500	1.6875
GSXΔ40S-ΔD	5/8	0.6250	0.6250	●	●	3.500	1.2500	●	●	4.500	1.8750
GSXΔ44S-ΔD	11/16	0.6875	0.6875	●	●	4.000	1.3750	●	●	4.500	2.0625
GSXΔ48S-ΔD	3/4	0.7500	0.7500	●	●	4.000	1.5000	●	●	5.000	2.2500
GSXΔ56S-ΔD	7/8	0.8750	0.8750	●	●	4.000	1.7500	●	●	5.000	2.6250
GSXΔ64S-ΔD	1	1.0000	1.0000	●	●	4.000	2.0000	●	●	5.500	3.0000

●: USA stock standard

GSX Endmills - Gash Land (C) INCH Lineup

1.5X



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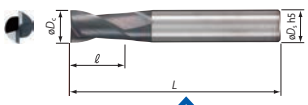

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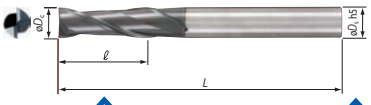

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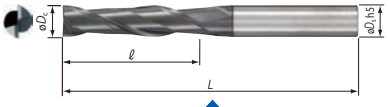
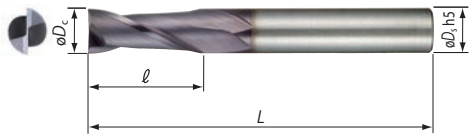


Gash Land (C)	Diameter φD_C		Shank Diameter	1.5 Flute				2 Flute				3 Flute				4 Flute			
Cat. No.	Fraction	Inch	φD_S (Inch)	2	4	OAL L (Inch)	Flute Length ℓ (Inch)	2	4	OAL L (Inch)	Flute Length ℓ (Inch)	2	4	OAL L (Inch)	Flute Length ℓ (Inch)	2	4	OAL L (Inch)	Flute Length ℓ (Inch)
GSXΔ04C-ΔD	1/16	0.0625	0.1250	●	●	1.500	0.0938	●	●	1.500	0.1250	●	●	1.500	0.1875	●	●	1.500	0.2500
GSXΔ06C-ΔD	3/32	0.0938	0.1250	●	●	1.500	0.1406	●	●	1.500	0.1875	●	●	1.500	0.2813	●	●	1.500	0.3750
GSXΔ08C-ΔD	1/8	0.1250	0.1250	●	●	2.000	0.1875	●	●	2.000	0.2500	●	●	2.000	0.3750	●	●	2.000	0.5000
GSXΔ10C-ΔD	5/32	0.1563	0.1875	●	●	2.000	0.2344	●	●	2.000	0.3125	●	●	2.000	0.4688	●	●	2.000	0.6250
GSXΔ12C-ΔD	3/16	0.1875	0.1875	●	●	2.000	0.2813	●	●	2.000	0.3750	●	●	2.000	0.5625	●	●	2.500	0.7500
GSXΔ14C-ΔD	7/32	0.2188	0.2500	●	●	2.000	0.3282	●	●	2.000	0.4376	●	●	2.000	0.6564	●	●	2.500	0.8752
GSXΔ16C-ΔD	1/4	0.2500	0.2500	●	●	2.000	0.3750	●	●	2.000	0.5000	●	●	2.000	0.7500	●	●	2.500	1.0000
GSXΔ18C-ΔD	9/32	0.2813	0.3125	●	●	2.500	0.4219	●	●	2.500	0.5626	●	●	3.000	0.8439	●	●	3.000	1.1252
GSXΔ20C-ΔD	5/16	0.3125	0.3125	●	●	2.500	0.4688	●	●	2.500	0.6250	●	●	3.000	0.9375	●	●	3.000	1.2500
GSXΔ24C-ΔD	3/8	0.3750	0.3750	●	●	3.000	0.5625	●	●	3.000	0.7500	●	●	3.500	1.1250	●	●	3.500	1.5000
GSXΔ28C-ΔD	7/16	0.4375	0.4375	●	●	3.000	0.6563	●	●	3.000	0.8750	●	●	3.500	1.3125	●	●	4.000	1.7500
GSXΔ32C-ΔD	1/2	0.5000	0.5000	●	●	3.000	0.7500	●	●	3.000	1.0000	●	●	3.500	1.5000	●	●	4.000	2.0000
GSXΔ36C-ΔD	9/16	0.5625	0.5625	●	●	3.500	0.8438	●	●	3.500	1.1250	●	●	4.500	1.6875	●	●	5.000	2.2500
GSXΔ40C-ΔD	5/8	0.6250	0.6250	●	●	3.500	0.9375	●	●	3.500	1.2500	●	●	4.500	1.8750	●	●	5.000	2.5000
GSXΔ44C-ΔD	11/16	0.6875	0.6875	●	●	4.000	1.0313	●	●	4.000	1.3750	●	●	4.500	2.0625	●	●	5.000	2.7500
GSXΔ48C-ΔD	3/4	0.7500	0.7500	●	●	4.000	1.1250	●	●	4.000	1.5000	●	●	5.000	2.2500	●	●	5.500	3.0000
GSXΔ56C-ΔD	7/8	0.8750	0.8750	●	●	4.000	1.3125	●	●	4.000	1.7500	●	●	5.000	2.6250	●	●	5.500	3.5000
GSXΔ64C-ΔD	1	1.0000	1.0000	●	●	4.000	1.5000	●	●	4.000	2.0000	●	●	5.500	3.0000	●	●	6.000	4.0000

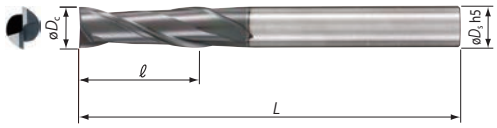
●: USA stock standard

GSX Endmills - Sharp Edge (S) METRIC Lineup

2X



3X



■ **Endmill Identification (GSXMILL Series Only)**

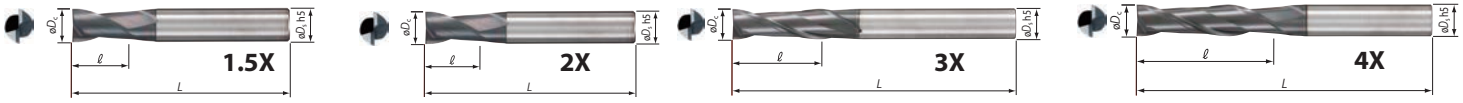
GSX 3 0100 C - 1.5D

1	2	3	4	5
Series Code	No. of Flutes	Diameter x 100	Cutting Edge	Cutting Edge Length

Sharp Edge (S) Cat. No.	Diameter φDc (mm)	Shank Diameter φDs (mm)	2 Flute 2	2 Flute 4	2 OAL L (mm)	2 Flute Length ℓ (mm)	3 Flute 2	3 Flute 4	3 OAL L (mm)	3 Flute Length ℓ (mm)
GSXΔ0050S-ΔD	0.5	4.0	★		40.0	1.3	★		40.0	1.5
GSXΔ0100S-ΔD	1.0	4.0	★	★	40.0	2.5	★	★	40.0	3.0
GSXΔ0150S-ΔD	1.5	3.0	★	★	40.0	3.8	★		40.0	4.5
GSXΔ0150S-ΔD-S3	1.5	4.0	★	★	38.0	3.8				
GSXΔ0200S-ΔD	2.0	4.0	★	★	40.0	5.0	★	★	40.0	6.0
GSXΔ0200S-ΔD-S3	2.0	3.0	★	★	38.0	5.0				
GSXΔ0250S-ΔD	2.5	4.0	★	★	40.0	6.3	★		40.0	7.5
GSXΔ0300S-ΔD	3.0	6.0	★	★	45.0	7.5	★	★	50.0	9.0
GSXΔ0300S-ΔD-S3	3.0	3.0	★	★	38.0	7.5				
GSXΔ0350S-ΔD	3.5	6.0	★	★	45.0	8.8				
GSXΔ0400S-ΔD	4.0	6.0	★	★	45.0	11.0	★	★	50.0	12.0
GSXΔ0400S-ΔD-S3	4.0	4.0	★	★	45.0	11.0				
GSXΔ0450S-ΔD	4.5	6.0	★	★	50.0	11.3				
GSXΔ0500S-ΔD	5.0	6.0	★	★	50.0	13.0	★	★	50.0	15.0
GSXΔ0550S-ΔD	5.5	6.0	★	★	50.0	13.0				
GSXΔ0600S-ΔD	6.0	6.0	★	★	50.0	13.0	★	★	50.0	18.0
GSXΔ0700S-ΔD	7.0	8.0	★	★	60.0	16.0		★	70.0	21.0
GSXΔ0800S-ΔD	8.0	8.0	★	★	60.0	19.0	★	★	70.0	24.0
GSXΔ0900S-ΔD	9.0	10.0	★	★	70.0	19.0				
GSXΔ1000S-ΔD	10.0	10.0	★	★	70.0	22.0	★	★	90.0	30.0
GSXΔ1200S-ΔD	12.0	12.0	★	★	75.0	26.0	★	★	90.0	36.0
GSXΔ1600S-ΔD	16.0	16.0	★	★	90.0	32.0	★	★	110.0	48.0
GSXΔ2000S-ΔD	20.0	20.0	★	★	100.0	40.0				

★ - World Wide Warehouse Item

GSX Endmills - Gash Land (C) METRIC Lineup



Gash Land (C) Cat. No.	Diameter φDc (mm)	Shank Diameter φDs (mm)	1.5 Flute 2	1.5 Flute 4	1.5 OAL L (mm)	1.5 Flute Length ℓ (mm)	2 Flute 2	2 Flute 4	2 OAL L (mm)	2 Flute Length ℓ (mm)	3 Flute 2	3 Flute 4	3 OAL L (mm)	3 Flute Length ℓ (mm)	4 Flute 2	4 Flute 4	4 OAL L (mm)	4 Flute Length ℓ (mm)	Flute 3	OAL L (mm)	1.5 Flute Length ℓ (mm)	2 Flute Length ℓ (mm)
GSXΔ0050C-ΔD	0.5	4.0					★		40.0	1.0												
GSXΔ0100C-ΔD	1.0	4.0	★	★	40.0	1.5	★	★	40.0	2.0	★	★	40.0	3.0	★	★	40.0	4.0	★	40.0	1.5	2.5
GSXΔ0150C-ΔD	1.5	4.0	★	★	40.0	2.3	★	★	40.0	3.0	★	★	40.0	4.5	★	★	40.0	6.0	★	40.0	2.3	3.8
GSXΔ0200C-ΔD	2.0	4.0	★	★	40.0	3.0	★	★	40.0	4.0	★	★	40.0	6.0	★	★	40.0	8.0	★	40.0	3.0	5.0
GSXΔ0250C-ΔD	2.5	4.0	★	★	40.0	3.8	★	★	40.0	5.0	★	★	40.0	7.5	★	★	50.0	10.0	★	40.0	3.8	6.3
GSXΔ0300C-ΔD	3.0	6.0	★	★	45.0	4.5	★	★	45.0	6.0	★	★	50.0	9.0	★	★	50.0	16.0	★	45.0	4.5	7.5
GSXΔ0350C-ΔD	3.5	6.0	★	★	45.0	5.3	★	★	45.0	7.0												
GSXΔ0400C-ΔD	4.0	6.0	★	★	45.0	6.0	★	★	45.0	8.0	★	★	50.0	12.0	★	★	50.0	20.0	★	45.0	6.0	11.0
GSXΔ0450C-ΔD	4.5	6.0	★	★	50.0	6.8	★	★	50.0	9.0												
GSXΔ0500C-ΔD	5.0	6.0	★	★	50.0	7.5	★	★	50.0	10.0	★	★	50.0	15.0	★	★	60.0	24.0	★	50.0	7.5	11.0
GSXΔ0550C-ΔD	5.5	6.0	★	★	50.0	9.3	★	★	50.0	11.0												
GSXΔ0600C-ΔD	6.0	6.0	★	★	50.0	9.0	★	★	50.0	12.0	★	★	50.0	18.0	★	★	60.0	24.0	★	50.0	9.0	13.0
GSXΔ0700C-ΔD	7.0	8.0	★	★	60.0	11.0	★	★	60.0	14.0									★	60.0	11.0	13.0
GSXΔ0800C-ΔD	8.0	8.0	★	★	60.0	12.0	★	★	60.0	16.0	★	★	70.0	24.0	★	★	80.0	32.0	★	60.0	12.0	19.0
GSXΔ0900C-ΔD	9.0	10.0	★	★	70.0	14.0	★	★	70.0	18.0									★	70.0	14.0	19.0
GSXΔ1000C-ΔD	10.0	10.0	★	★	70.0	15.0	★	★	70.0	20.0	★	★	90.0	30.0	★	★	90.0	40.0	★	70.0	15.0	22.0
GSXΔ1200C-ΔD	12.0	12.0	★	★	75.0	18.0	★	★	75.0	24.0	★	★	90.0	36.0	★	★	100.0	48.0	★	75.0	18.0	26.0
GSXΔ1600C-ΔD	16.0	16.0					★	★	90.0	32.0	★	★	110.0	48.0		★	120.0	64.0				
GSXΔ2000C-ΔD	20.0	20.0					★	★	100.0	40.0												
GSXΔ2500C-ΔD	25.0	25.0					★	★	120.0	50.0												

★ - World Wide Warehouse Item

Product Range - GSXB Ballnose Endmills

GSXB Endmills	
Application	Inch
General Purpose	GSXB200  φ1/16″ -φ 1″
	Metric
	GSXB2000  φ0.4mm -φ 20mm

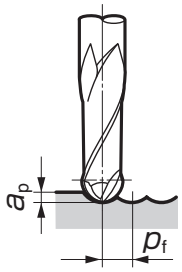
Recommended Cutting Conditions - GSXB

Speeds and Feeds reflect roughing and finishing applications

■ **Recommended Cutting Conditions**

1. If cutting noise and vibration are present, please change the cutting conditions accordingly.

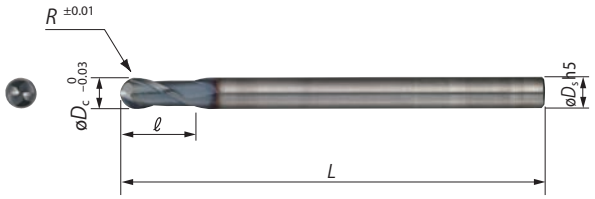
2. If the machine is not designed to achieve the recommended spindle speed, please use the max. spindle speed available.



■ **Radius Milling**

Work Material / Cutting Conditions / R(in)	Carbon Steel, Alloy Steel (Below 25HRC)		Carbon Steel, Alloy Steel (Below 50HRC)		Cast Iron Special Cast Iron		Stainless Steel Titanium Alloy	
	Spindle Speed (SFM)	Feed Rate (in/min)	Spindle Speed (SFM)	Feed Rate (in/min)	Spindle Speed (SFM)	Feed Rate (in/min)	Spindle Speed (SFM)	Feed Rate (in/min)
0.0313	200 - 450	98	100 - 400	53	210 - 550	98	120 - 400	82
0.0469		118		62		118		98
0.0625		118		65		126		98
0.0781		118		67		153		98
0.0938		118		67		153		98
0.1094		118		67		153		98
0.1250		149		82		161		106
0.1407		169		86		181		98
0.1563		185		98		208		98
0.1875		165		82		177		86
0.2188		137		75		157		75
0.2500		110		59		130		59
0.2813		94		49		110		49
0.3125		82		43		94		43
0.3438		70		37		82		37
0.3750		63		33		74		34
0.4375		57		29		67		29
0.5000		45		24		53		24
Standard Depth-of-cut a_p	0.02 x D_c		0.02 x D_c		0.02 x D_c		0.02 x D_c	
Standard Depth-of-cut p_f	0.05 x D_c		0.05 x D_c		0.05 x D_c		0.05 x D_c	

GSXB Ballnose Endmills



Ballnose (B) Cat. No.	Stock	φDc Inch	φDc mm	φDs Inch & *mm*	L Inch & *mm*	ℓ Inch & *mm*	R Inch & *mm*
GSXB204	●	0.063	1.588	0.1250	2.000	0.0938	0.0313
GSXB206	●	0.094	2.381	0.1250	2.500	0.1406	0.0469
GSXB208	●	0.125	3.175	0.1250	2.500	0.1875	0.0625
GSXB210	●	0.156	3.969	0.1875	3.000	0.2344	0.0781
GSXB212	●	0.188	4.763	0.1875	3.000	0.2813	0.0938
GSXB214	●	0.219	5.558	0.2500	3.000	0.3282	0.1094
GSXB216	●	0.250	6.350	0.2500	3.000	0.3750	0.1250
GSXB218	●	0.281	7.144	0.3125	3.500	0.4220	0.1407
GSXB220	●	0.313	7.938	0.3125	3.500	0.4688	0.1563
GSXB224	●	0.375	9.525	0.3750	4.000	0.5652	0.1875
GSXB228	●	0.438	11.113	0.4375	4.000	0.6563	0.2188
GSXB232	●	0.500	12.700	0.5000	4.500	0.7500	0.2500
GSXB236	●	0.563	14.288	0.5625	4.500	0.8438	0.2813
GSXB240	●	0.625	15.875	0.6250	5.500	0.9375	0.3125
GSXB244	●	0.688	17.463	0.6875	5.500	1.0313	0.3438
GSXB248	●	0.750	19.050	0.7500	6.000	1.1250	0.3750
GSXB256	●	0.875	22.225	0.8750	6.500	1.3125	0.4375
GSXB264	●	1.000	25.400	1.0000	7.000	1.5000	0.5000
GSXB20020	★	.0158	0.4	*4*	*50*	*0.6*	*0.20*
GSXB20030	★	.0237	0.6	*4*	*50*	*0.9*	*0.30*
GSXB20050	★	.0394	1.0	*4*	*50*	*1.5*	*0.50*
GSXB20075	★	.0591	1.5	*4*	*50*	*2.3*	*0.75*
GSXB20100	★	.0788	2.0	*6*	*60*	*3.0*	*1.00*
GSXB20125	★	.0985	2.5	*6*	*60*	*4.0*	*1.25*
GSXB20150	★	.1182	3.0	*6*	*60*	*4.5*	*1.50*
GSXB20200	★	.1575	4.0	*6*	*70*	*6.0*	*2.00*
GSXB20250	★	.1969	5.0	*6*	*80*	*7.5*	*2.50*
GSXB20300	★	.2363	6.0	*6*	*80*	*9.0*	*3.00*
GSXB20350	★	.2756	7.0	*8*	*90*	*11.0*	*3.50*
GSXB20400	★	.3150	8.0	*8*	*90*	*12.0*	*4.00*
GSXB20500	★	.3937	10.0	*10*	*100*	*15.0*	*5.00*
GSXB20600	★	.4725	12.0	*12*	*110*	*18.0*	*6.00*
GSXB20700	★	.5512	14.0	*16*	*110*	*21.0*	*7.00*
GSXB20800	★	.6300	16.0	*16*	*140*	*24.0*	*8.00*
GSXB20900	★	.7087	18.0	*20*	*140*	*27.0*	*9.00*
GSXB21000	★	.7874	20.0	*20*	*160*	*30.0*	*10.00*

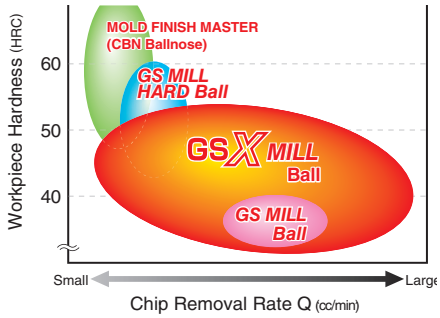
★ - World Wide Warehouse Item ●: USA stock standard

■ Recommended Milling Examples

Application	Radius Milling		Copy Millimg		Pocket Millimg	
	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
Ballnose Type	◎	◎	◎	◎	◎	◎

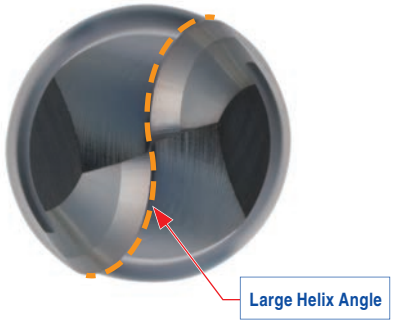
■ Diameter

■ Application Range



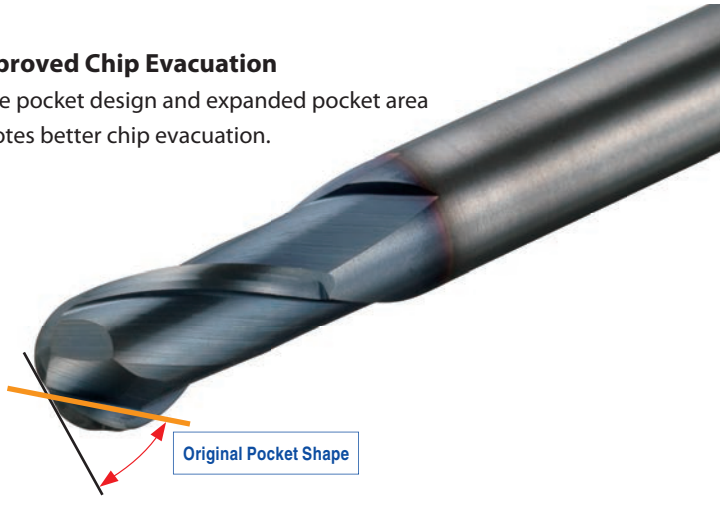
■ Reduced Cutting Resistance

Large helix angle on cutting edge reduces cutting resistance.



■ Improved Chip Evacuation

Unique pocket design and expanded pocket area promotes better chip evacuation.



Product Range - GSXVL Anti-vibratrion Type

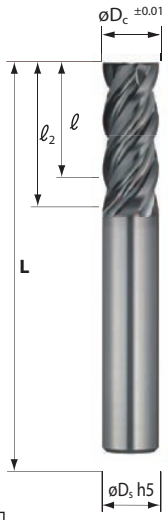
GSXVL Endmills	
Application	Radius Type
General Purpose	GSXVL4000-R02-2.5D  φ3mm -φ 25mm
	Square Type
	 φ2mm -φ 25mm

Recommended Cutting Conditions - GSXVL

Speeds and Feeds reflect roughing and finishing applications

ISO	GSXVL Endmills Material		Hardness (Bhn)	SFM	Cutting Diameter 1/8 Feed/Tooth	3/16 Feed/Tooth	1/4 Feed/Tooth	5/16 Feed/Tooth	3/8 Feed/Tooth	7/16 Feed/Tooth	1/2 Feed/Tooth	9/16 Feed/Tooth	5/8 Feed/Tooth	3/4 Feed/Tooth	1 Feed/Tooth
P	Low and Medium Carbon Steels		<250	200-450	.0005-.003	.0007-.0033	.0008-.0036	.0008-.0039	.001-.0042	.0012-.0055	.0014-.0066	.0016-.0085	.002-.0105	.002-.0118	.002-.0125
	Medium Carbon Alloy Steels		<250	200-425	.0005-.003	.0007-.0033	.0008-.0035	.0008-.0038	.001-.0042	.0012-.0055	.0014-.0066	.0016-.0085	.002-.0105	.002-.0118	.002-.0125
	Medium-High Carbon Steels		>250	175-350	.0005-.0027	.0007-.003	.0008-.0033	.0008-.0036	.001-.0042	.0012-.0045	.0014-.0066	.0016-.007	.002-.0079	.002-.0089	.002-.011
	Free Machining Steels and Alloys		<250	200-375	.0005-.003	.0008-.0033	.0008-.0035	.0008-.0039	.001-.0042	.0012-.0055	.0014-.0066	.0016-.008	.002-.0088	.002-.0099	.002-.011
	Tool Steels		<250	150-350	.0005-.003	.0005-.0033	.0008-.0035	.0008-.0039	.001-.0042	.001-.0055	.0012-.0066	.0016-.008	.002-.0088	.002-.0099	.002-.011
			250 - 350	100-275	.0005-.0025	.0005-.0028	.0008-.0031	.0008-.0034	.001-.0036	.001-.0044	.0012-.0055	.0013-.0067	.0015-.0077	.002-.0081	.002-.0095
			>350	75-175	.0005-.002	.0005-.0023	.0006-.0026	.0008-.0029	.0008-.0031	.0008-.0033	.001-.0036	.001-.0042	.001-.0047	.0015-.0055	.002-.0065
M	Stainless Steel	Martensitic and Ferritic	<250	150-375	.0005-.0025	.0008-.0028	.0008-.003	.0008-.0033	.001-.0036	.001-.0035	.001-.004	.001-.0046	.001-.0055	.001-.0065	.001-.0075
			<250	150-375	.0005-.0025	.0005-.0028	.0005-.0031	.0008-.0033	.0008-.0036	.001-.0035	.001-.004	.001-.0046	.001-.0055	.001-.0065	.001-.0075
		Austenitic	<250	150-350	.0005-.0025	.0005-.0028	.0008-.0031	.001-.0033	.001-.0037	.0011-.0042	.0012-.0049	.0012-.0055	.0014-.0061	.0015-.0068	.002-.0075
		Precipitation Hardening	<280	90-325	.0005-.0022	.0005-.0025	.0008-.0028	.001-.0031	.001-.0033	.001-.0035	.001-.0038	.001-.0041	.001-.0048	.001-.0055	.001-.0065
K	Grey Cast Iron			250-550	.0008-.003	.001-.0033	.001-.0035	.001-.0037	.001-.004	.001-.0053	.001-.0062	.001-.007	.001-.0076	.001-.0089	.001-.0105
	Ductile Iron			175-350	.0005-.003	.0005-.0033	.0008-.0035	.001-.0037	.001-.004	.001-.0053	.001-.0062	.001-.007	.001-.0076	.001-.0089	.001-.0105
S	Exotic Alloys: Inconel, Hastalloy, Waspalloy, etc.			75-125	.0005-.002	.0008-.0023	.0008-.0026	.0008-.0029	.001-.0032	.001-.0036	.001-.004	.001-.0046	.001-.0052	.001-.006	.001-.0071
N	Non-Ferrous Material			600-1500	.001-.003	.001-.0033	.001-.0033	.001-.0038	.001-.0045	.001-.0055	.001-.007	.001-.008	.001-.010	.001-.0115	.001-.0125

GSXVL Endmills - METRIC
Anti-vibratrion Type



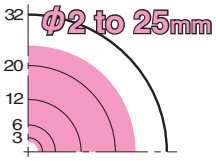
Catalog No. R- Radius S- Square	Stock	Type	φDc mm	φDc mm	ℓ mm	ℓ2 mm	L mm	Corner Radius
GSXVL4030-R02-2.5D	★	R	3.0	6	8.0	9.5	50	0.2
GSXVL4030-R05-2.5D	★	R	3.0	6	8.0	9.5	50	0.5
GSXVL4040-R02-2.5D	★	R	4.0	6	10.0	11.5	50	0.2
GSXVL4040-R05-2.5D	★	R	4.0	6	10.0	11.5	50	0.5
GSXVL4040-R10-2.5D	★	R	4.0	6	10.0	11.5	50	1.0
GSXVL4050-R02-2.5D	★	R	5.0	6	13.0	14.5	60	0.2
GSXVL4050-R05-2.5D	★	R	5.0	6	13.0	14.5	60	0.5
GSXVL4050-R10-2.5D	★	R	5.0	6	13.0	14.5	60	1.0
GSXVL4060-R03-2.5D	★	R	6.0	6	15.0	-	60	0.3
GSXVL4060-R05-2.5D	★	R	6.0	6	15.0	-	60	0.5
GSXVL4060-R10-2.5D	★	R	6.0	6	15.0	-	60	1.0
GSXVL4060-R15-2.5D	★	R	6.0	6	15.0	-	60	1.5
GSXVL4080-R03-2.5D	★	R	8.0	8	20.0	-	80	0.3
GSXVL4080-R05-2.5D	★	R	8.0	8	20.0	-	80	0.5
GSXVL4080-R10-2.5D	★	R	8.0	8	20.0	-	80	1.0
GSXVL4080-R15-2.5D	★	R	8.0	8	20.0	-	80	1.5
GSXVL4080-R20-2.5D	★	R	8.0	8	20.0	-	80	2.0
GSXVL4100-R03-2.5D	★	R	10.0	10	25.0	-	90	0.3
GSXVL4100-R05-2.5D	★	R	10.0	10	25.0	-	90	0.5
GSXVL4100-R10-2.5D	★	R	10.0	10	25.0	-	90	1.0
GSXVL4100-R15-2.5D	★	R	10.0	10	25.0	-	90	1.5
GSXVL4100-R20-2.5D	★	R	10.0	10	25.0	-	90	2.0
GSXVL4120-R05-2.5D	★	R	12.0	12	30.0	-	90	0.5
GSXVL4120-R10-2.5D	★	R	12.0	12	30.0	-	90	1.0
GSXVL4120-R15-2.5D	★	R	12.0	12	30.0	-	90	1.5
GSXVL4120-R20-2.5D	★	R	12.0	12	30.0	-	90	2.0
GSXVL4120-R30-2.5D	★	R	12.0	12	30.0	-	90	3.0
GSXVL4160-R10-2.5D	★	R	16.0	16	40.0	-	115	1.0
GSXVL4160-R15-2.5D	★	R	16.0	16	40.0	-	115	1.5
GSXVL4160-R20-2.5D	★	R	16.0	16	40.0	-	115	2.0
GSXVL4160-R30-2.5D	★	R	16.0	16	40.0	-	115	3.0
GSXVL4200-R10-2.5D	★	R	20.0	20	50.0	-	125	1.0
GSXVL4200-R15-2.5D	★	R	20.0	20	50.0	-	125	1.5
GSXVL4200-R20-2.5D	★	R	20.0	20	50.0	-	125	2.0
GSXVL4200-R30-2.5D	★	R	20.0	20	50.0	-	125	3.0
GSXVL4250-R10-2.5D	★	R	25.0	25	63.0	-	140	1.0
GSXVL4250-R15-2.5D	★	R	25.0	25	63.0	-	140	1.5
GSXVL4250-R20-2.5D	★	R	25.0	25	63.0	-	140	2.0
GSXVL4250-R30-2.5D	★	R	25.0	25	63.0	-	140	3.0
GSXVL4020-2.5D	★	S	2.0	4	5.0	6.5	50	-
GSXVL4030-2.5D	★	S	3.0	6	8.0	9.5	50	-
GSXVL4040-2.5D	★	S	4.0	6	10.0	11.5	50	-
GSXVL4050-2.5D	★	S	5.0	6	13.0	14.5	60	-
GSXVL4060-2.5D	★	S	6.0	6	15.0	-	60	-
GSXVL4070-2.5D	★	S	7.0	8	18.0	20.0	70	-
GSXVL4080-2.5D	★	S	8.0	8	20.0	-	80	-
GSXVL4090-2.5D	★	S	9.0	10	23.0	25.0	90	-
GSXVL4100-2.5D	★	S	10.0	10	25.0	-	90	-
GSXVL4110-2.5D	★	S	11.0	12	28.0	30.5	90	-
GSXVL4120-2.5D	★	S	12.0	12	30.0	-	90	-
GSXVL4140-2.5D	★	S	14.0	16	35.0	37.5	110	-
GSXVL4150-2.5D	★	S	15.0	16	38.0	41.0	110	-
GSXVL4160-2.5D	★	S	16.0	16	40.0	-	115	-
GSXVL4180-2.5D	★	S	18.0	20	45.0	48.0	120	-
GSXVL4200-2.5D	★	S	20.0	20	50.0	-	125	-
GSXVL4250-2.5D	★	S	25.0	25	63.0	-	140	-

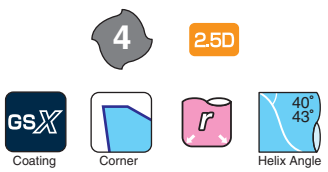
★ - World Wide Warehouse Item

■ Recommended Milling Examples

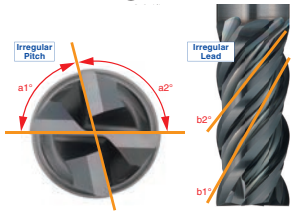
Application	Side Milling		Groove Milling		Groove Finishing	
	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
Square Type	◎	○	◎	◎	◎	○
Radius Type	◎	○	◎	◎	◎	○

■ Diameter

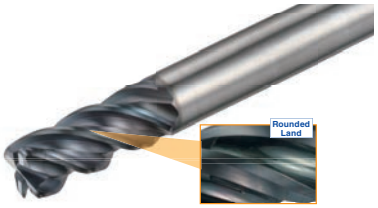




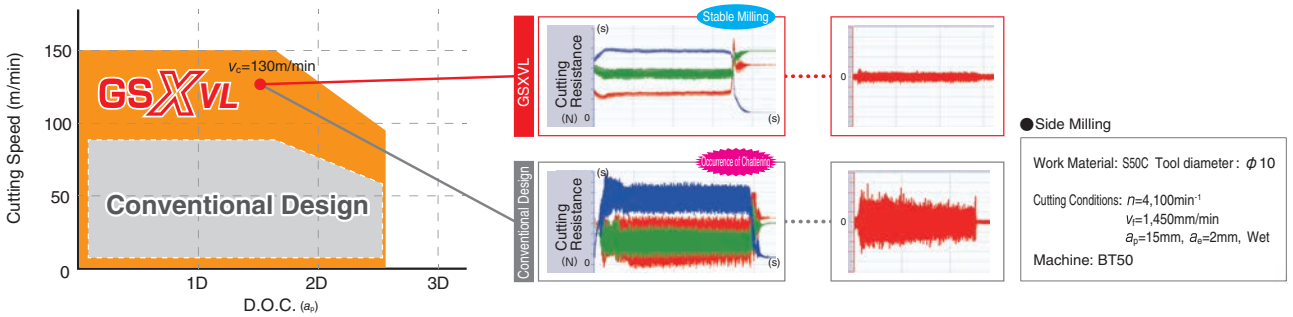
■ Irregular Pitch and Irregular Lead

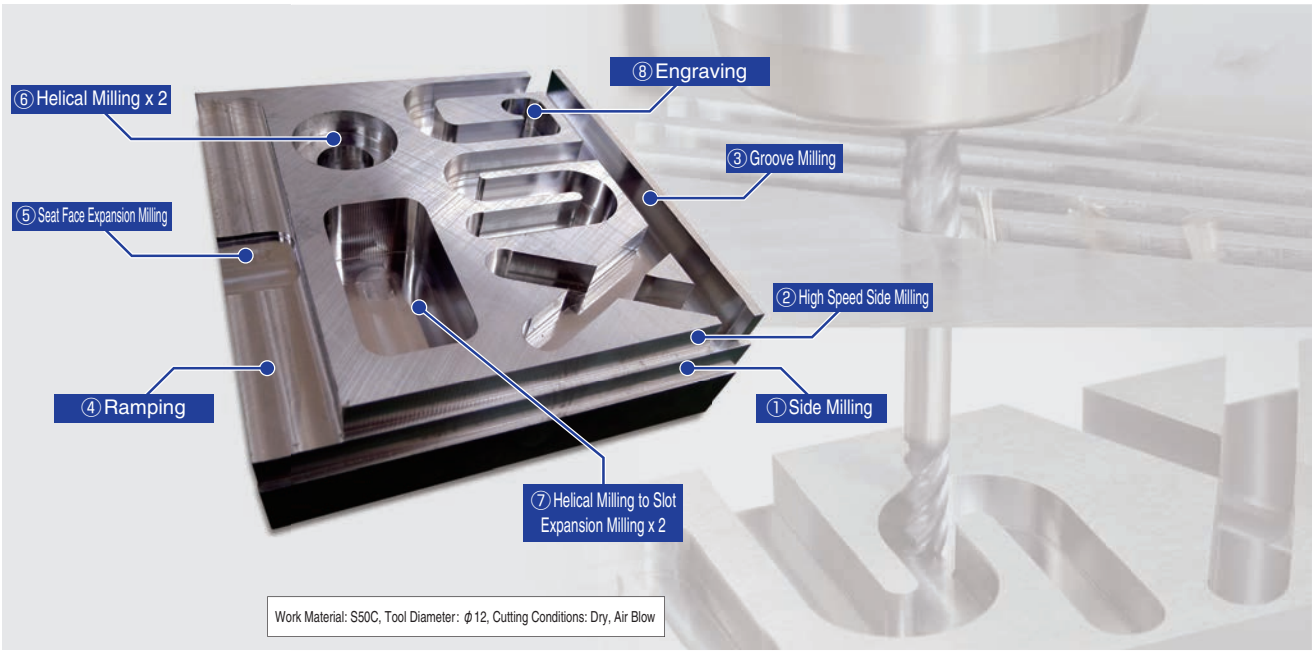


■ Drastically Improved Surface Quality



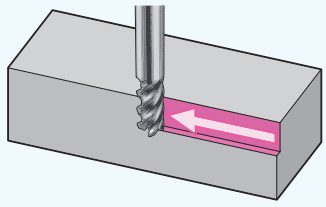
■ Performance Data





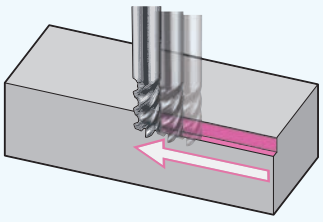
Work Material: S50C, Tool Diameter: ϕ12, Cutting Conditions: Dry, Air Blow

①Side Milling



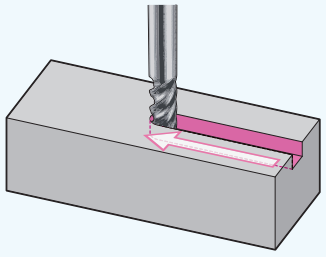
Cutting Conditions: V_c=102m/min (n=4,100min^{-1})
V_f=1,080mm/min (0.1mm/t)
a_p=24mm, a_e=2.0mm

②High Speed Side Milling



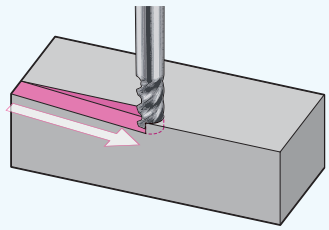
Cutting Conditions: V_c=151m/min (n=4,000min^{-1})
V_f=4,800mm/min (0.3mm/t)
a_p=12mm, a_e=2.0mm

③Groove Milling



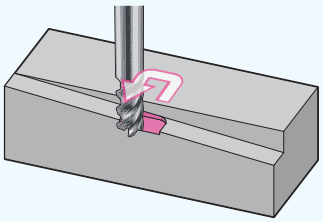
Cutting Conditions: V_c=90m/min (n=2,400min^{-1})
V_f=960mm/min (0.1mm/t)
a_p=12mm

④Ramping



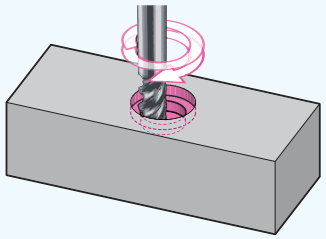
Cutting Conditions: V_c=90m/min (n=2,400min^{-1})
V_f=480mm/min (0.05mm/t)
Ramp Angle 5°

⑤Seat Face Expansion Milling



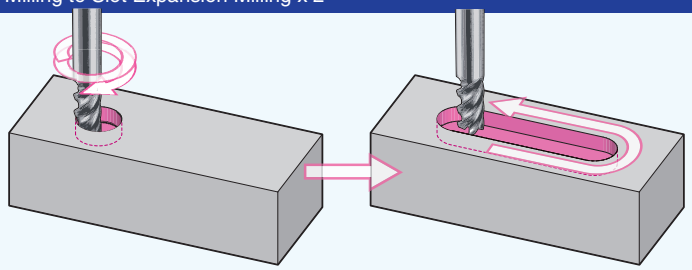
Cutting Conditions: V_c=90m/min (n=2,400min^{-1})
V_f=960mm/min (0.1mm/t)

⑥Helical Milling x 2



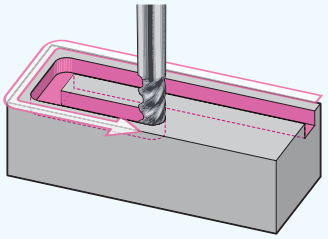
Cutting Conditions: V_c=90m/min (n=2,400min^{-1})
V_f=480mm/min (0.05mm/t)
Ramp Angle 3°

⑦Helical Milling to Slot Expansion Milling x 2



Cutting Conditions: V_c=90m/min (n=2,400min^{-1})
[Helical] V_f=480mm/min (0.05mm/t) [Slot Expansion] V_f=672mm/min (0.07mm/t) [Finishing] V_f=1,920mm/min (0.2mm/t)
Ramp Angle 3°
a_p=24mm, a_e=0.1mm

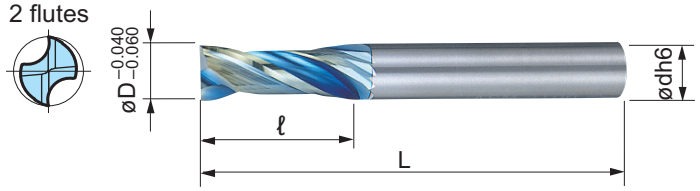
⑧Engraving



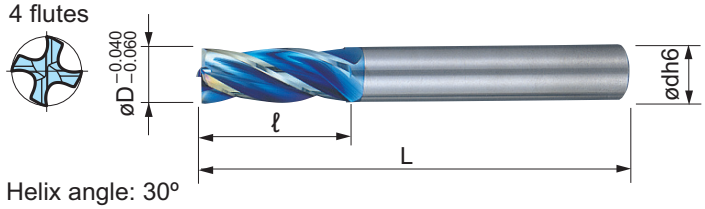
Cutting Conditions: V_c=79m/min (n=2,100min^{-1})
V_f=588mm/min (0.07mm/t)
a_p=12mm

DLC (Diamond Like Carbon) AURORA COAT Series for Non-ferrous Materials

2 flutes



4 flutes



Helix angle: 30°
Corner: Sharp edge
Dia. Range: ø2~16mm

Features & Benefits

- Very smooth AURORA COAT provides low adhesion and good surface finish in non-ferrous alloys.
- With lower cutting forces and rigidity, this series is suitable for low rigidity machines.
- Available in two and four flutes in both square and ballnose type endmills *(see page 437 for SNB Series Ballnose.)*

Two Flutes - METRIC

Catalog No.	Stock	Cutter Dia.d ø	Shank Dia.Dø	Flute Length ℓ	Overall Length L
ASM2020DL	★	2.0mm	4.0mm	6.0mm	40.0mm
ASM2030DL	★	3.0mm	6.0mm	10.0mm	45.0mm
ASM2040DL	★	4.0mm	6.0mm	12.0mm	45.0mm
ASM2050DL	★	5.0mm	6.0mm	15.0mm	50.0mm
ASM2060DL	★	6.0mm	6.0mm	15.0mm	50.0mm
ASM2080DL	★	8.0mm	8.0mm	18.0mm	60.0mm
ASM2100DL	★	10.0mm	10.0mm	22.0mm	71.0mm
ASM2120DL	★	12.0mm	12.0mm	25.0mm	75.0mm
ASM2160DL	★	16.0mm	16.0mm	32.0mm	90.0mm

Grade: DL1000

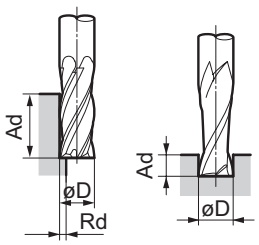
Four Flutes - METRIC

Catalog No.	Stock	Cutter Dia.d ø	Shank Dia.Dø	Flute Length ℓ	Overall Length L
ASM4020DL	★	2.0mm	4.0mm	6.0mm	40.0mm
ASM4030DL	★	3.0mm	6.0mm	10.0mm	45.0mm
ASM4040DL	★	4.0mm	6.0mm	12.0mm	45.0mm
ASM4050DL	★	5.0mm	6.0mm	15.0mm	50.0mm
ASM4060DL	★	6.0mm	6.0mm	15.0mm	50.0mm
ASM4080DL	★	8.0mm	8.0mm	18.0mm	60.0mm
ASM4100DL	★	10.0mm	10.0mm	22.0mm	71.0mm
ASM4120DL	★	12.0mm	12.0mm	25.0mm	75.0mm
ASM4160DL	★	16.0mm	16.0mm	32.0mm	90.0mm

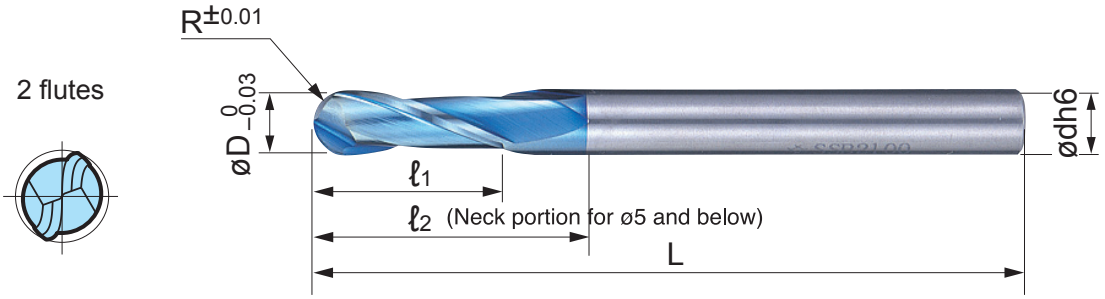
Grade: DL1000

Recommended Running Conditions

Radius mm		Aluminum Alloy							
		Wet (Emulsion)				Dry			
		Side Milling (4 flute)		Groove Milling (2 flute)		Side Milling (4 flute)		Groove Milling (2 flute)	
		RPM	Feed Rate mm/min. (ipt)	RPM	Feed Rate mm/min. (ipt)	RPM	Feed Rate mm/min. (ipt)	RPM	Feed Rate mm/min. (ipt)
2		40,000	1,400 (55)	28,000	280 (11)	40,000	980 (38)	28,000	200 (7)
3		32,000	2,000 (80)	22,000	400 (16)	32,000	1,400 (55)	22,000	280 (11)
4		26,000	2,600 (102)	18,000	520 (20)	26,000	1,800 (70)	18,000	360 (14)
5		20,000	2,600 (102)	14,000	520 (20)	20,000	1,800 (70)	14,000	360 (14)
6		17,000	2,700 (106)	12,000	540 (21)	17,000	1,900 (74)	12,000	370 (14)
8		13,000	2,700 (106)	9,000	540 (21)	13,000	1,900 (74)	9,000	370 (14)
10		11,000	2,800 (110)	7,200	560 (22)	11,000	2,000 (80)	7,200	390 (15)
12		8,500	2,800 (110)	6,000	560 (22)	8,500	2,000 (80)	6,000	390 (15)
16		6,400	2,800 (110)	4,500	560 (22)	6,400	2,000 (80)	4,500	390 (15)
D.O.C.	Ad	1.5D		1.0D		1.5D		0.5D	
	Pf	0.2D		1.0D		0.2D		1.0D	



- For groove milling of stainless steel, use 60% recommended RPM and 40% feed rate.
- If cutting noise and vibration occur, please reduce the cutting speed accordingly.



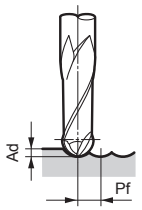
Helix angle :30°

Two Flutes - METRIC							
Sumitomo Catalog No.	Stock	R	øD	ℓ1	ℓ2	L	ød
SNB2020DL	★	1.0mm	2.0mm	3.0mm	5.0mm	60mm	6.0mm
SNB2030DL	★	1.5mm	3.0mm	4.5mm	8.0mm	80mm	6.0mm
SNB2040DL	★	2.0mm	4.0mm	6.0mm	12.0mm	80mm	6.0mm
SNB2050DL	★	2.5mm	5.0mm	7.5mm	14.0mm	90mm	6.0mm
SNB2060DL	★	3.0mm	6.0mm	9.0mm	-	100mm	6.0mm
SNB2080DL	★	4.0mm	8.0mm	12.0mm	-	100mm	8.0mm
SNB2100DL	★	5.0mm	10.0mm	15.0mm	-	120mm	10.0mm
SNB2120DL	★	6.0mm	12.0mm	18.0mm	-	120mm	12.0mm
SNB2160DL	★	8.0mm	16.0mm	24.0mm	-	160mm	16.0mm

Grade: DL1200

Recommended Running Conditions

Radius. mm		Aluminum Alloy			
		Wet (Emulsion)		Dry	
		RPM	Feed Rate mm/min. (ipt)	RPM	Feed Rate mm/min. (ipt)
2		48,000	1,500 (60)	48,000	1,000 (40)
3		38,000	2,100 (83)	38,000	1,500 (60)
4		31,000	2,800 (110)	31,000	2,000 (80)
5		24,000	2,800 (110)	24,000	2,000 (80)
6		20,000	2,800 (110)	20,000	2,000 (80)
8		15,000	2,800 (110)	15,000	2,000 (80)
10		13,000	3,000 (118)	13,000	2,100 (83)
12		10,000	3,000 (118)	10,000	2,100 (83)
16		7,700	3,000 (118)	7,700	2,100 (83)
D.O.C.	Ad	0.1D		0.1D	
	Pf	0.2D		0.2D	



- If cutting noise and vibration occur, please reduce the cutting speed accordingly.
- If the machine cannot reach recommended speed, use the maximum speed that can be achieved.

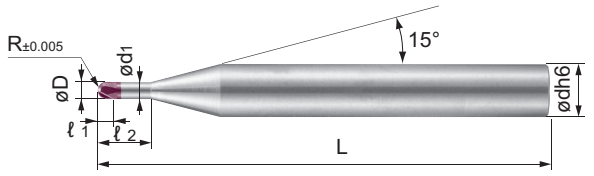
Mold Finish Master BNBP Type

High Speed, High Precision SUMIBORON Endmill for Pre-Hardened/Hardened Steel

Features & Benefits

- Longer tool life in high speed, high precision machining of pre-hardened and hardened steel (~HRC70.)
- Uses SUMIBORON BN350 for excellent chipping resistance.
- High precision radial cutting edge profile accuracy of ± 0.0002 in. (0.005mm.)
- Excellent surface finish with a polishing process that is greatly reduced compared to solid carbide endmills.

BNBP Endmill Availability - METRIC



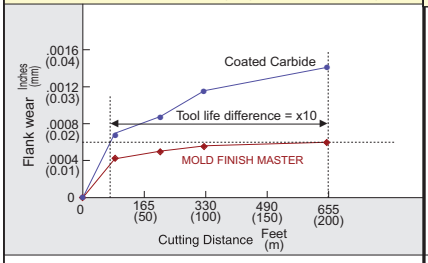
BNBP 2 R030-015 4

- MOLD FINISH MASTER
- # of flutes
- Length from neck to tip (ℓ2)
- Radius of ballnose (R)
- Diameter of shank (ød)

Size	Sumitomo Cat. No.	Stock	Dimensions (mm)						
		BN350	R	øD	L	ød1	ød	ℓ1	ℓ2
ø4 Shank	BNBP2R020-0124	●	0.20	0.4	50	0.37	4.0	0.3	1.2
	BNBP2R030-0154	●	0.30	0.6	50	0.57	4.0	0.4	1.5
	BNBP2R050-0254	●	0.50	1.0	50	0.97	4.0	0.6	2.5
	BNBP2R075-0404	●	0.75	1.5	50	1.47	4.0	0.9	4.0
	BNBP2R100-0554	●	1.00	2.0	50	1.97	4.0	1.4	5.5
ø6 Shank	BNBP2R020-0126	●	0.20	0.4	50	0.37	4.0	0.3	1.2
	BNBP2R030-0156	●	0.30	0.6	50	0.57	4.0	0.4	1.5
	BNBP2R050-0256	●	0.50	1.0	50	0.97	4.0	0.6	2.5
	BNBP2R075-0406	●	0.75	1.5	50	1.47	4.0	0.9	4.0
	BNBP2R100-0556	●	1.00	2.0	50	1.97	4.0	1.4	5.5

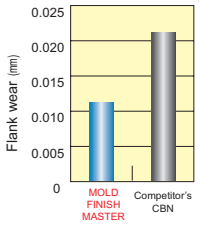
BNBP Performance

Comparison of flank wear during high speed machining

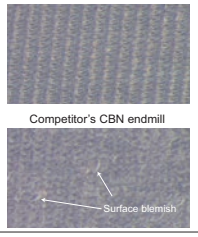


R1.0 Endmill Work: SKD11 (60HRC) N=40,000 min^{-1} f=0.002 ipt (0.05mm/tooth) F=157 ipm (F=4,000mm/min) Ad=0.002 in. (0.05mm) Rd=0.002 in. (0.05mm) Oil mist

Wear amount at the ballnose tip



Machined surface



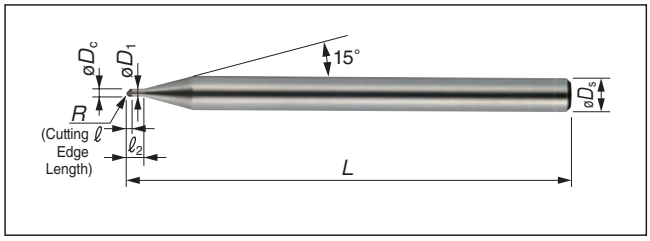
R1.0 Endmill Work: SKD11(60HRC)Milling length: 100m N=20,000 min^{-1} f=0.05mm/tooth (F=2,000mm/min) Ad=0.05mm Rd=0.05mm, Air blow

Recommended Running Conditions

Ballnose Radius mm (in)	STAVAX, NAK80, SKD61 (~52HRC)				SDK11 (~62HRC)				SKH (~70HRC)			
	RPM	Feedrate mm/tooth (ipt)	D.O.C. Ad mm (in)	D.O.C. Rd mm (in)	RPM	Feedrate mm/tooth (ipt)	D.O.C. Ad mm (in)	D.O.C. Rd mm (in)	RPM	Feedrate mm/tooth (ipt)	D.O.C. Ad mm (in)	D.O.C. Rd mm (in)
R0.2 (.008)	20,000~ 50,000	.02 (.0008)	.03 (.001)	.03 (.001)	20,000~ 50,000	.02 (.0008)	.01 (.0004)	.02 (.008)	20,000~ 50,000	.015 (.0006)	.01 (.0004)	.02 (.0008)
R0.3 (.012)	20,000~ 50,000	.02 (.0008)	.03 (.001)	.03 (.001)	20,000~ 50,000	.02 (.0008)	.01 (.0004)	.02 (.0008)	20,000~ 50,000	.015 (.0006)	.01 (.0004)	.02 (.0008)
R0.5 (.020)	20,000~ 50,000	.03 (.001)	.05 (.002)	.05 (.002)	20,000~ 50,000	.03 (.001)	.03 (.001)	.04 (.002)	20,000~ 50,000	.02 (.0008)	.02 (.0008)	.03 (.001)
R0.75 (.030)	20,000~ 50,000	.04 (.002)	.08 (.003)	0.1 (.004)	20,000~ 50,000	.04 (.002)	.05 (.002)	.05 (.002)	20,000~ 50,000	.03 (.001)	.02 (.0008)	.05 (.002)
R1.0 (.040)	20,000~ 50,000	.05 (.002)	0.1 (.004)	0.1 (.004)	17,000~ 50,000	.05 (.002)	.05 (.002)	.05 (.002)	17,000~ 50,000	.03 (.001)	.03 (.001)	.05 (.002)

NOTES:
- For stable machining, a more rigid machine is recommended.
- Air blow or oil mist coolant is recommended.
- Shorten overhang as much as possible.

NPDB Endmills



■ Endmill Identification

NPDB 1 030 – 010

Series Code	No. of Flutes	Ballnose Radius	Length Below Neck

■ Body

Type	Cat. No.	Stock	Dimensions (mm)							Effective Length by Inclined Angles				
			R	øDc	L	B	L	øD1	øDs	0.5°	1°	1.5°	2°	3°
Precise Finishing	NPDB 1010-004	★	0.1	0.2	0.1	0.4	40	0.18	4	0.44	0.45	0.46	0.47	0.49
	NPDB 1020-008	★	0.2	0.4	0.2	0.8	40	0.38	4	0.83	0.84	0.85	0.86	0.89
	NPDB 1030-010	★	0.3	0.6	0.3	1.0	40	0.58	4	1.05	1.08	1.10	1.13	1.20
	NPDB 1050-020	★	0.5	1.0	0.5	2.0	40	0.95	4	2.08	2.13	2.19	2.24	2.38
	NPDB 1100-030	★	1.0	2.0	1.0	3.0	40	1.95	4	3.13	3.20	3.27	3.35	3.53
Standard Finishing	NPDBS1010-004	★	0.1	0.2	0.1	0.4	40	0.18	4	0.44	0.45	0.46	0.47	0.49
	NPDBS1020-008	★	0.2	0.4	0.2	0.8	40	0.38	4	0.83	0.84	0.85	0.86	0.89
	NPDBS1030-010	★	0.3	0.6	0.3	1.0	40	0.58	4	1.05	1.08	1.10	1.13	1.20
	NPDBS1050-020	★	0.5	1.0	0.5	2.0	40	0.95	4	2.08	2.13	2.19	2.24	2.38
	NPDBS1100-030	★	1.0	2.0	1.0	3.0	40	1.95	4	3.13	3.20	3.27	3.35	3.53

Grade: NPD10

■ Recommended Cutting Conditions

(1) Use a machine with high rigidity for stable cutting.
(2) Non-water soluble coolant recommended. Supply as a mist or external coolant.
Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
(3) Shorten overhang as much as possible.
(4) Adjust cuttings conditions as necessary as machine rigidity and other conditions may vary.
(5) Depth of cut shown in the table of conditions are maximum depths. Adjust the actual depth of cut to the desired machined surface finish.

■ Flat Surface Finishing

Work Material		Carbide			
R (mm)	B (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (mm)	p_f (mm)
0.3	1.0	40,000	200	0.001	0.001
0.5	2.0	40,000	400	0.001	0.003
1.0	3.0	40,000	600	0.001	0.005

■ Profile Finishing

Work Material		Carbide			
R (mm)	B (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (mm)	p_f (mm)
0.3	1.0	40,000	200	0.003	0.001
0.5	2.0	40,000	400	0.005	0.003
1.0	3.0	40,000	600	0.010	0.005

1-800-950-5202
www.sumicarbide.com

Drill Systems

Pages 441-526

Drill Selection

■ Drill Identification

MDW 1400 P HV
- Drill dia. (φ15.0 mm)
- Classification code
- Length code (P)
- Series name

MDW 01250 GS 2
- Drill dia. (φ.125 in)
- Classification code
- Length code (2,5,8,15,20,25)
- Series name

Application	Type	Series	Coolant: Internal	Coolant: External	Coating/ Insert Grade	Dia. Min to Max (in / *mm*)	Drilling Depth	Catalog Number	P: Soft Steel	P: General Steel	H: 45HRC	H: 60HRC	M: Stainless Steel	S: Titanium Alloy	S: Inconel	K: Gray Cast Iron	K: Ductile Cast Iron	N: Aluminum Alloy	N: Copper Alloy	Page #
General Purpose	Solid	**GS** Solid Carbide - Internal Coolant		●	DEX Coat	.1110-.6250 *2.00-16.00*	2XD	MDW□□□□□GS2	✓	✓	●		●			✓	✓			443 - 453
						.2010-.6250 *2.00-16.00*	4XD	MDW□□□□□GS4												
		HGS Solid Carbide - External Coolant	●		DEX Coat	.1094-.6250 *1.50-16.00*	3XD	MDW□□□□□HGS3	✓	✓	●		✓	✓	✓	✓	✓	▲	●	454 - 471
						.1250-.6250 *2.00-16.00*	5XD	MDW□□□□□HGS5												
						.1250-.6250 *2.00-16.00*	8XD	MDW□□□□□HGS8												
Spot Facing		**MDF** - Flat Bottom Drill		●	PVD Coat	.1250-.4725 *2.00-12.00*	2XD	MDF□□□□S2D	✓	✓	●		●			●	●	●		472 - 473
Deep Hole		**XHV** - Deep Hole Drill	●		DEX Coat	.1250-.7500 *3.00-14.00*	12XD	MDW□□□□XHV12	✓	✓	●		●			✓	✓	●	●	475 - 480
						.1250-.5310 *3.00-14.00*	20XD	MDW□□□□XHV20												
Small Diameter		**MDUS** - Small Diamter Drill		●	PVD Coat	*0.03-0.18*	10XD	MDUS□□□□-30C	✓	✓			✓	●					✓	484
		MDSS - Small Diamter Drill		●	FB Coat	*0.20-1.00*	10XD	MDSS□□□□	✓	✓	✓	●	✓	●	●	✓	✓	●	●	485
		MLDH - Small Diamter Drill	●		PVD Coat	*0.80-2.00*	5XD	MLDH□□□□□L5	✓	✓	●		✓			✓	✓	●		482 - 483
							12XD	MLDH□□□□□L12												
							20XD	MLDH□□□□□L20												
							30XD	MLDH□□□□□L30												
Non-Ferrous Materials		**NHGS**	●		Aurora DLC Coat	*3.00-16.00*	5XD	MDW□□□□NHGS5								●	●	✓	✓	486 - 487
Replacable Tip Drill		**SMD** (MTL, MEL, MTL-C)	●		DEX Coat	.4688-1.2125 *12.00-30.80*	1.5XD	SMDH□□□S	✓	✓	●		●			●	✓		●	490 - 499
						.4688-1.3189 *12.00-33.50*	3XD	SMDH□□□M	✓	✓	●		●			●	✓		●	
						..4688-1.3189 *12.00-33.50*	5XD	SMDH□□□L	✓	●			✓	●	●	✓	✓	●	●	
						.4688-1.2125 *13.50-30.80*	8XD	SMDH□□□D								✓	✓			
						.5512-.98425 *14.00-25.00*	12XD	SMDH□□□-12D	✓	✓	●		●			●	✓		●	
Indexable		**WDX**		●	ACP	.5620-2.625 *13.00-68.00*	2XD	WDX□□□□D2S1□□	✓	✓			✓	●	●					501- 511
							3XD	WDX□□□□D3S1□□												
					ACK		4XD	WDX□□□□D4S1□□								✓	✓			

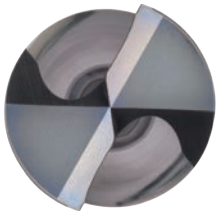
✓: Best ●: Good ▲: Requires sharp edge

P Steel **K** Cast Iron **S** Exotic Materials
M Stainless Steel **N** Non-ferrous **H** Hardened Steel

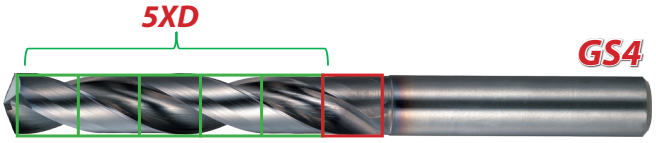
Super Drill for Super Alloys!

Longer flute lengths for deeper hole capability and more material available for regrinding.

Newly developed PVD DEX coating provides improved heat and wear resistance at increased speeds.

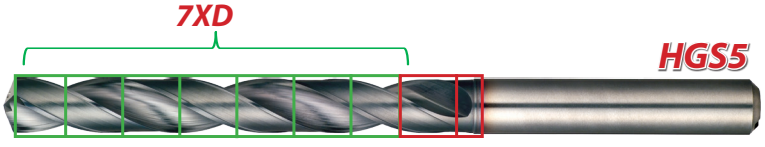


GS Series - *External Coolant*:
- GS2 (2XD) - Possible to drill to 3XD*
- GS4 (4XD) - Possible to drill to 5XD*



Unique thinning design promotes stable drilling performance.

HGS Series - *Internal Coolant*:
- HGS3 (3XD) - Possible to drill to 4XD*
- HGS5 (5XD) - Possible to drill to 7XD*
- HGS8 (8XD) - Possible to drill to 10XD*



J-Flute design offers a wide chip pocket, producing more compact chips while achieving higher speeds.

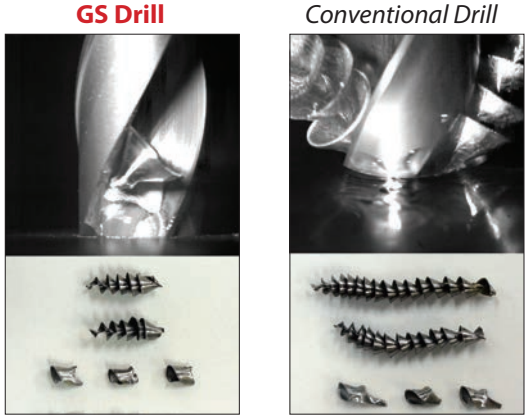
* Not all drills can achieve this depth and some drills may have even deeper capability. ***Always check for sufficient flute length.***

■ Features & Benefits

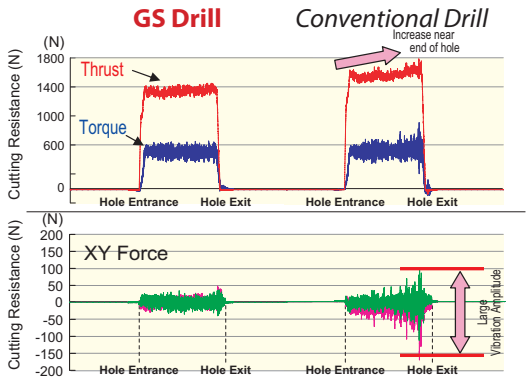
- **Long Tool Life**
  New cutting edge design and special DEX coating provide long tool life in a wide variety of work materials
- **Stable Chip Evacuation**
  New flute design and wide chip pocket allows for excellent chip management and evacuation
- **Quiet Cutting & Stable Cutting**
  Stable drilling with minimal vibration even in small machine applications
- **Environmentally Friendly**
  Compatible with MQL (Minimum Quantity Lubrication) Systems

■ Performance

Chip Control Comparison



Performance Comparison

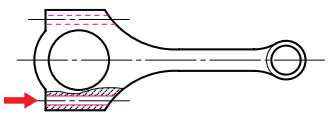


The GS Drill provides better stability throughout the drilling process.

Tool: MDW0800GS4
Work Material: 1049 steel (200HB)
Cutting Conditions: V_c = 80m/min (262 sfm)
f = 0.25mm/rev (0.10 ipr)
H = 24mm (0.945 in)
External coolant (water soluble)

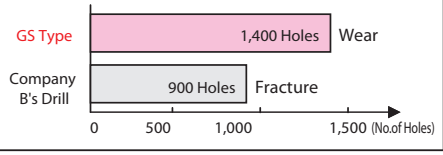
■ Application Examples

S43C (250HB) Automotive Component

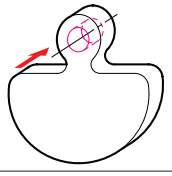


· Tool: MDW0970GS4
· Cutting Conditions: 262 SFM f=0.0098 IPR H= 1 in.
External Coolant (Water Soluble)

Achieving 1.5x tool life!
Reduced wear on peripheral cutting edge

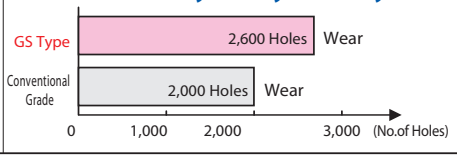


Boron Steel (30HRC) Machine Component

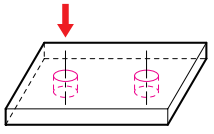


· Tool: MDW0980GS2
· Cutting Conditions: v_c=230 SFM f=0.0059 IPR H= .276 in.
External Coolant (Water Soluble)

1.3x tool life of conventional tools!
Good circularity and cylindricity.

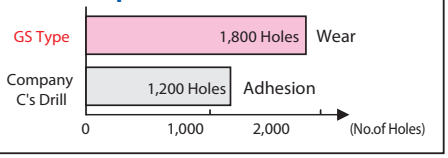


SS400 Machine Component

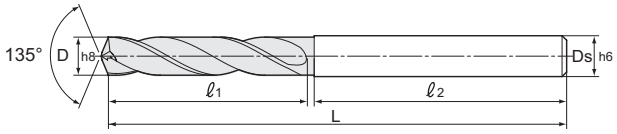


· Tool: MDW1050GS4
· Cutting Conditions: v_c= 500 SFM f=0.012 IPR H= .012 in.
External Coolant (Water Soluble)

Achieving 1.5x tool life!
Good chip control



SERIES
MDW-GS2



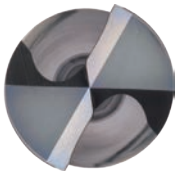
MDW-GS2 2XD drill for excellent chip management and long tool life (External coolant)

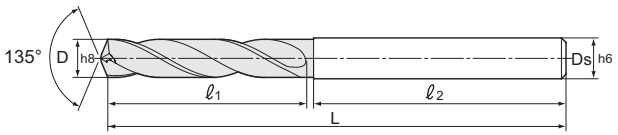
Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW0200GS2	●		0.0787	*2.00*	*45.0*	*8.0*	*34.0*	*3.0*	
MDW0210GS2	●		0.0827	*2.10*	*45.0*	*10.0*	*32.0*	*3.0*	3-56
MDW0220GS2	●		0.0866	*2.20*	*45.0*	*10.0*	*32.0*	*3.0*	
MDW0230GS2	●		0.0906	*2.30*	*45.0*	*10.0*	*32.0*	*3.0*	
MDW00937GS2	●	3/32	0.0940	*2.38*	1.772	0.394	1.260	0.1250	
MDW0240GS2	●		0.0945	*2.40*	*45.0*	*10.0*	*32.0*	*3.0*	
MDW0250GS2	●		0.0984	*2.50*	*45.0*	*10.0*	*32.0*	*3.0*	
MDW0260GS2	●		0.1024	*2.60*	*45.0*	*13.0*	*30.0*	*3.0*	
MDW0270GS2	●		0.1063	*2.70*	*45.0*	*13.0*	*30.0*	*3.0*	6-32
MDW0280GS2	●		0.1102	*2.80*	*45.0*	*13.0*	*30.0*	*3.0*	
MDW01110GS2	●		0.1110	*2.82*	1.7717	0.5118	1.1811	0.1250	
MDW01130GS2	●		0.1130	*2.87*	1.7717	0.5118	1.1811	0.1250	6-40
MDW0290GS2	●		0.1142	*2.90*	*45.0*	*13.0*	*30.0*	*3.0*	3.5x.6
MDW01160GS2	●		0.1160	*2.95*	1.7717	0.5118	1.1811	0.1250	
MDW0300GS2	●		0.1181	*3.00*	*45.0*	*13.0*	*30.0*	*3.0*	
MDW01200GS2	●		0.1200	*3.05*	1.7717	0.5118	1.1811	0.1250	
MDW0310GS2	●		0.1220	*3.10*	*54.0*	*19.0*	*33.0*	*4.0*	
MDW01250GS2	●	1/8	0.1250	*3.18*	1.7717	0.5118	1.1811	0.1250	
MDW0320GS2	●		0.1260	*3.20*	*54.0*	*19.0*	*33.0*	*4.0*	
MDW01285GS2	●		0.1285	*3.26*	2.1260	0.7480	1.2992	0.1562	
MDW0330GS2	●		0.1299	*3.30*	*54.0*	*19.0*	*33.0*	*4.0*	M4x.7
MDW0340GS2	●		0.1339	*3.40*	*54.0*	*19.0*	*33.0*	*4.0*	
MDW01360GS2	●		0.1360	*3.45*	2.1260	0.7480	1.2992	0.1562	8-32/8-36
MDW0350GS2	●		0.1378	*3.50*	*54.0*	*19.0*	*33.0*	*4.0*	
MDW01405GS2	●		0.1405	*3.57*	2.1260	0.8268	1.2992	0.1562	
MDW01406GS2	●		0.1406	*3.57*	2.1260	0.8268	1.2992	0.1562	
MDW0360GS2	●		0.1417	*3.60*	*54.0*	*21.0*	*33.0*	*4.0*	
MDW01440GS2	●		0.1440	*3.66*	2.1260	0.8268	1.2992	0.1562	
MDW0370GS2	●		0.1457	*3.70*	*54.0*	*21.0*	*33.0*	*4.0*	M4.5x.7
MDW01470GS2	●		0.1470	*3.73*	2.1260	0.8268	1.2992	0.1562	
MDW01495GS2	●		0.1495	*3.797*	2.1260	0.8268	1.2992	0.1562	10-24
MDW0380GS2	●		0.1496	*3.80*	*54.0*	*21.0*	*33.0*	*4.0*	
MDW01520GS2	●		0.1520	*3.86*	2.1260	0.8268	1.2992	0.1562	
MDW0390GS2	●		0.1535	*3.90*	*54.0*	*21.0*	*33.0*	*4.0*	
MDW01540GS2	●		0.1540	*3.91*	2.1260	0.8268	1.2992	0.1562	
MDW01562GS2	●	5/32	0.1562	*3.97*	2.1260	0.8268	1.2992	0.1562	
MDW01570GS2	●		0.1570	*3.99*	2.4016	0.9055	1.4173	0.1875	
MDW0400GS2	●		0.1575	*4.00*	*54.0*	*21.0*	*33.0*	*4.0*	
MDW01590GS2	●	#21	0.1590	*4.04*	2.4016	0.9055	1.4173	0.1875	10-32
MDW01610GS2	●		0.1610	*4.09*	2.4016	0.9055	1.4173	0.1875	
MDW0410GS2	●		0.1614	*4.10*	*61.0*	*23.0*	*36.0*	*5.0*	
MDW0420GS2	●		0.1654	*4.20*	*61.0*	*23.0*	*36.0*	*5.0*	M5x.8
MDW01660GS2	●		0.1660	*4.22*	2.4016	0.9055	1.4173	0.1875	
MDW0430GS2	●		0.1693	*4.30*	*61.0*	*23.0*	*36.0*	*5.0*	
MDW01695GS2	●		0.1695	*4.31*	2.4016	0.9055	1.4173	0.1875	
MDW01719GS2	●	11/64	0.1719	*4.37*	2.4016	0.9055	1.4173	0.1875	
MDW01730GS2	●		0.1730	*4.39*	2.4016	0.9055	1.4173	0.1875	
MDW0440GS2	●		0.1732	*4.40*	*61.0*	*23.0*	*36.0*	*5.0*	
MDW01770GS2	●		0.1770	*4.49*	2.4016	0.9055	1.4173	0.1875	12-24
MDW0450GS2	●		0.1772	*4.50*	*61.0*	*23.0*	*36.0*	*5.0*	
MDW01800GS2	●		0.1800	*4.57*	2.4016	0.9843	1.4173	0.1875	
MDW0460GS2	●		0.1811	*4.60*	*61.0*	*25.0*	*36.0*	*5.0*	
MDW01820GS2	●		0.1820	*4.62*	2.4016	0.9843	1.4173	0.1875	12-28
MDW01850GS2	●		0.1850	*4.70*	2.4016	0.9843	1.4173	0.1875	
MDW0470GS2	●		0.1850	*4.70*	*61.0*	*25.0*	*36.0*	*5.0*	

●=USA stocked item
Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

MDW-GS2 Series Solid Carbide Drills

(continued from previous page)





MDW-GS2 2XD drill for excellent chip management and long tool life (External coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW01875GS2	●	3/16	0.1875	*4.76*	2.4016	0.9843	1.4173	0.1875	
MDW0480GS2	●		0.1890	*4.80*	*61.0*	*25.0*	*36.0*	*5.0*	
MDW01890GS2	●		0.1890	*4.80*	2.5591	0.9843	1.4961	0.2344	
MDW01910GS2	●		0.1910	*4.85*	2.5591	0.9843	1.4961	0.2344	
MDW0490GS2	●		0.1929	*4.90*	*61.0*	*25.0*	*36.0*	*5.0*	
MDW01935GS2	●		0.1935	*4.91*	2.5591	0.9843	1.4961	0.2344	
MDW01960GS2	●		0.1960	*4.98*	2.5591	0.9843	1.4961	0.2344	
MDW0500GS2	●		0.1969	*5.00*	*61.0*	*25.0*	*36.0*	*5.0*	M6x1
MDW0510GS2	●		0.2008	*5.10*	*65.0*	*25.0*	*38.0*	*6.0*	
MDW02010GS2	●	#7	0.2010	*5.11*	2.5591	0.9843	1.4961	0.2344	1/4-20
MDW02031GS2	●	13/64	0.2031	*5.16*	2.5591	0.9843	1.4961	0.2344	
MDW02040GS2	●		0.2040	*5.18*	2.5591	0.9843	1.4961	0.2344	
MDW0520GS2	●		0.2047	*5.20*	*65.0*	*25.0*	*38.0*	*6.0*	
MDW02055GS2	●		0.2055	*5.22*	2.5591	0.9843	1.4961	0.2344	
MDW0530GS2	●		0.2087	*5.30*	*65.0*	*25.0*	*38.0*	*6.0*	
MDW02090GS2	●		0.2090	*5.31*	2.5591	0.9843	1.4961	0.2344	
MDW0540GS2	●		0.2126	*5.40*	*65.0*	*25.0*	*38.0*	*6.0*	
MDW02130GS2	●	#3	0.2130	*5.41*	2.5591	0.9843	1.4961	0.2344	
MDW0550GS2	●		0.2165	*5.50*	*65.0*	*25.0*	*38.0*	*6.0*	
MDW02188GS2	●	7/32	0.2188	*5.56*	2.5591	1.0630	1.4961	0.2344	1/4-28
MDW0560GS2	●		0.2205	*5.60*	*65.0*	*27.0*	*38.0*	*6.0*	
MDW02210GS2	●	#2	0.2210	*5.61*	2.5591	1.0630	1.4961	0.2344	
MDW0570GS2	●		0.2244	*5.70*	*65.0*	*27.0*	*38.0*	*6.0*	
MDW02280GS2	●		0.2280	*5.79*	2.5591	1.0630	1.4961	0.2344	
MDW0580GS2	●		0.2283	*5.80*	*65.0*	*27.0*	*38.0*	*6.0*	
MDW0590GS2	●		0.2323	*5.90*	*65.0*	*27.0*	*38.0*	*6.0*	
MDW02340GS2	●		0.2340	*5.94*	2.5591	1.0630	1.4961	0.2344	
MDW02344GS2	●	15/64	0.2344	*5.95*	2.5591	1.0630	1.4961	0.2344	
MDW0600GS2	●		0.2362	*6.00*	*65.0*	*27.0*	*38.0*	*6.0*	M7x1
MDW02380GS2	●		0.2380	*6.05*	2.8740	1.2205	1.5748	0.2812	
MDW0610GS2	●		0.2402	*6.10*	*73.0*	*31.0*	*40.0*	*7.0*	
MDW02420GS2	●	#C	0.2420	*6.15*	2.8740	1.2205	1.5748	0.2812	
MDW0620GS2	●		0.2441	*6.20*	*73.0*	*31.0*	*40.0*	*7.0*	
MDW02460GS2	●		0.2460	*6.25*	2.8740	1.2205	1.5748	0.2812	
MDW0630GS2	●		0.2480	*6.30*	*73.0*	*31.0*	*40.0*	*7.0*	
MDW02500GS2	●	1/4	0.2500	*6.35*	2.8740	1.2205	1.5748	0.2812	
MDW0640GS2	●		0.2520	*6.40*	*73.0*	*31.0*	*40.0*	*7.0*	
MDW0650GS2	●		0.2559	*6.50*	*73.0*	*31.0*	*40.0*	*7.0*	
MDW02570GS2	●	#F	0.2570	*6.53*	2.8740	1.2992	1.5748	0.2812	5/16-18
MDW0660GS2	●		0.2598	*6.60*	*73.0*	*33.0*	*40.0*	*7.0*	
MDW02600GS2	●		0.2600	*6.604*	2.8740	1.2992	1.5748	0.2812	
MDW02610GS2	●		0.2610	*6.63*	2.8740	1.2992	1.5748	0.2812	
MDW0670GS2	●		0.2638	*6.70*	*73.0*	*33.0*	*40.0*	*7.0*	
MDW02656GS2	●	17/64	0.2656	*6.75*	2.8740	1.2992	1.5748	0.2812	
MDW02660GS2	●	#H	0.2660	*6.76*	2.8740	1.2992	1.5748	0.2812	
MDW02677GS2	●		0.2677	*6.80*	2.8740	1.2992	1.5748	0.2812	
MDW0680GS2	●		0.2677	*6.80*	*73.0*	*33.0*	*40.0*	*7.0*	
MDW0690GS2	●		0.2717	*6.90*	*73.0*	*33.0*	*40.0*	*7.0*	
MDW02720GS2	●	#I	0.2720	*6.91*	2.8740	1.2992	1.5748	0.2812	5/16-24
MDW0700GS2	●		0.2756	*7.00*	*73.0*	*33.0*	*40.0*	*7.0*	
MDW02756GS2	●		0.2756	*7.00*	2.8740	1.2992	1.5748	0.2812	
MDW02770GS2	●	#J	0.2770	*7.04*	2.8740	1.2992	1.5748	0.2812	
MDW0710GS2	●		0.2795	*7.10*	*78.0*	*33.0*	*43.0*	*8.0*	
MDW02810GS2	●		0.2810	*7.14*	2.8740	1.2992	1.5748	0.2812	

●=USA stocked item ★ = Worldwide Warehouse item available in 10 business days
Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

SERIES
MDW-GS2

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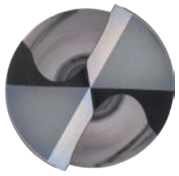
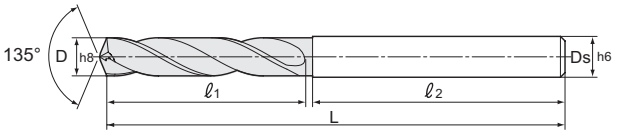


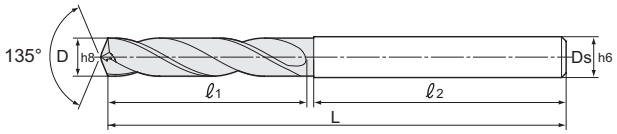


MDW-GS2 2XD drill for excellent chip management and long tool life (External coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW02812GS2	●	9/32	0.2812	*7.142*	2.8740	1.2992	1.5748	0.2812	
MDW0720GS2	●		0.2835	*7.20*	*78.0*	*33.0*	*43.0*	*8.0*	
MDW0730GS2	●		0.2874	*7.30*	*78.0*	*33.0*	*43.0*	*8.0*	
MDW02900GS2	●		0.2900	*7.37*	3.0709	1.2992	1.6929	0.3125	
MDW0740GS2	●		0.2913	*7.40*	*78.0*	*33.0*	*43.0*	*8.0*	
MDW02950GS2	●		0.2950	*7.49*	3.0709	1.2992	1.6929	0.3125	
MDW0750GS2	●		0.2953	*7.50*	*78.0*	*33.0*	*43.0*	*8.0*	
MDW02969GS2	●	19/64	0.2969	*7.54*	3.0709	1.4173	1.6535	0.3125	
MDW0760GS2	●		0.2992	*7.60*	*78.0*	*36.0*	*42.0*	*8.0*	
MDW03020GS2	●		0.3020	*7.67*	3.0709	1.4173	1.6535	0.3125	
MDW0770GS2	●		0.3031	*7.70*	*78.0*	*36.0*	*42.0*	*8.0*	
MDW0780GS2	●		0.3071	*7.80*	*78.0*	*36.0*	*42.0*	*8.0*	M9x1.25
MDW0790GS2	●		0.3110	*7.90*	*78.0*	*36.0*	*42.0*	*8.0*	
MDW03125GS2	●	5/16	0.3125	*7.94*	3.0709	1.4173	1.6535	0.3125	3/8-16
MDW0800GS2	●		0.3150	*8.00*	*78.0*	*36.0*	*42.0*	*8.0*	
MDW03160GS2	●		0.3160	*8.03*	3.2283	1.4173	1.7323	0.3594	
MDW0810GS2	●		0.3189	*8.10*	*82.0*	*36.0*	*44.0*	*9.0*	
MDW0820GS2	●		0.3228	*8.20*	*82.0*	*36.0*	*44.0*	*9.0*	
MDW03230GS2	●	#P	0.3230	*8.204*	3.2283	1.4173	1.7323	0.3594	
MDW0830GS2	●		0.3268	*8.30*	*82.0*	*36.0*	*44.0*	*9.0*	
MDW03281GS2	●	21/64	0.3281	*8.33*	3.2283	1.4173	1.7323	0.3594	
MDW03307GS2	●		0.3307	*8.40*	3.2283	1.4173	1.7323	0.3594	
MDW0840GS2	●		0.3307	*8.40*	*82.0*	*36.0*	*44.0*	*9.0*	
MDW03320GS2	●	#Q	0.3320	*8.43*	3.2283	1.4173	1.7323	0.3594	
MDW0850GS2	●		0.3346	*8.50*	*82.0*	*36.0*	*44.0*	*9.0*	M10x1.5
MDW0860GS2	●		0.3386	*8.60*	*82.0*	*38.0*	*44.0*	*9.0*	
MDW03386GS2	●		0.3386	*8.60*	3.2283	1.4961	1.7323	0.3594	
MDW03390GS2	●		0.3390	*8.61*	3.2283	1.4961	1.7323	0.3594	3/8-24
MDW0870GS2	●		0.3425	*8.70*	*82.0*	*38.0*	*44.0*	*9.0*	
MDW03438GS2	●	11/32	0.3438	*8.73*	3.2283	1.4961	1.7323	0.3594	
MDW0880GS2	●		0.3465	*8.80*	*82.0*	*38.0*	*44.0*	*9.0*	
MDW03475GS2	●		0.3475	*8.83*	3.2283	1.4961	1.7323	0.3594	
MDW03480GS2	●		0.3480	*8.84*	3.2283	1.4961	1.7323	0.3594	
MDW0890GS2	●		0.3504	*8.90*	*82.0*	*38.0*	*44.0*	*9.0*	
MDW0900GS2	●		0.3543	*9.00*	*82.0*	*38.0*	*44.0*	*9.0*	
MDW03580GS2	●		0.3580	*9.09*	3.2283	1.4961	1.7323	0.3594	
MDW0910GS2	●		0.3583	*9.10*	*87.0*	*38.0*	*47.0*	*10.0*	
MDW03594GS2	●	23/64	0.3594	*9.13*	3.2283	1.4961	1.7323	0.3594	
MDW0920GS2	●		0.3622	*9.20*	*87.0*	*38.0*	*47.0*	*10.0*	
MDW0930GS2	●		0.3661	*9.30*	*87.0*	*38.0*	*47.0*	*10.0*	
MDW03680GS2	●	#U	0.3680	*9.35*	3.4252	1.4961	1.8504	0.3906	7/16-14
MDW0940GS2	●		0.3701	*9.40*	*87.0*	*38.0*	*47.0*	*10.0*	
MDW0950GS2	●		0.3740	*9.50*	*87.0*	*38.0*	*47.0*	*10.0*	
MDW03750GS2	●	3/8	0.3750	*9.53*	3.4252	1.6142	1.8110	0.3906	
MDW03770GS2	●		0.3770	*9.58*	3.4252	1.6142	1.8110	0.3906	
MDW0960GS2	●		0.3780	*9.60*	*87.0*	*41.0*	*46.0*	*10.0*	
MDW03780GS2	●		0.3780	*9.60*	3.4252	1.6142	1.8110	0.3906	
MDW0970GS2	●		0.3819	*9.70*	*87.0*	*41.0*	*46.0*	*10.0*	
MDW0980GS2	●		0.3858	*9.80*	*87.0*	*41.0*	*46.0*	*10.0*	
MDW03860GS2	●		0.3860	*9.804*	3.4252	1.6142	1.8110	0.3906	
MDW0990GS2	●		0.3898	*9.90*	*87.0*	*41.0*	*46.0*	*10.0*	
MDW03906GS2	●	25/64	0.3906	*9.92*	3.4252	1.6142	1.8110	0.3906	7/16-20
MDW1000GS2	●		0.3937	*10.00*	*87.0*	*41.0*	*46.0*	*10.0*	
MDW03970GS2	●		0.3970	*10.08*	3.6614	1.6142	1.9685	0.4375	

●=USA stocked item
Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

MDW-GS2 Series Solid Carbide Drills



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MDW-GS2 2XD drill for excellent chip management and long tool life (External coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW1010GS2	●		0.3976	*10.10*	*93.0*	*41.0*	*50.0*	*11.0*	
MDW1020GS2	●		0.4016	*10.20*	*93.0*	*41.0*	*50.0*	*11.0*	M12x1.75
MDW04040GS2	●		0.4040	*10.26*	3.6614	1.6142	1.9685	0.4375	
MDW1030GS2	●		0.4055	*10.30*	*93.0*	*41.0*	*50.0*	*11.0*	
MDW04062GS2	●	13/32	0.4062	*10.32*	3.6614	1.6142	1.9685	0.4375	
MDW1040GS2	●		0.4094	*10.40*	*93.0*	*41.0*	*50.0*	*11.0*	
MDW04130GS2	●		0.4130	*10.49*	3.6614	1.6142	1.9685	0.4375	
MDW1050GS2	●		0.4134	*10.50*	*93.0*	*41.0*	*50.0*	*11.0*	
MDW1060GS2	●		0.4173	*10.60*	*93.0*	*45.0*	*48.0*	*11.0*	
MDW1070GS2	●		0.4213	*10.70*	*93.0*	*45.0*	*48.0*	*11.0*	
MDW04219GS2	●	27/64	0.4219	*10.72*	3.6614	1.7717	1.8898	0.4375	1/2-13
MDW1080GS2	●		0.4252	*10.80*	*93.0*	*45.0*	*48.0*	*11.0*	
MDW1090GS2	●		0.4291	*10.90*	*93.0*	*45.0*	*48.0*	*11.0*	
MDW1100GS2	●		0.4331	*11.00*	*93.0*	*45.0*	*48.0*	*11.0*	
MDW1110GS2	●		0.4370	*11.10*	*100.0*	*45.0*	*53.0*	*12.0*	
MDW04375GS2	●	7/16	0.4375	*11.11*	3.6614	1.7717	1.8898	0.4375	
MDW1120GS2	●		0.4409	*11.20*	*100.0*	*45.0*	*53.0*	*12.0*	
MDW1130GS2	●		0.4449	*11.30*	*100.0*	*45.0*	*53.0*	*12.0*	
MDW1140GS2	●		0.4488	*11.40*	*100.0*	*45.0*	*53.0*	*12.0*	
MDW1150GS2	●		0.4528	*11.50*	*100.0*	*45.0*	*53.0*	*12.0*	
MDW04531GS2	●	29/64	0.4531	*11.51*	3.9370	1.8504	2.0866	0.4688	1/2-20
MDW1160GS2	●		0.4567	*11.60*	*100.0*	*47.0*	*53.0*	*12.0*	
MDW04570GS2	●		0.4570	*11.61*	3.9370	1.8504	2.0866	0.4688	
MDW1170GS2	●		0.4606	*11.70*	*100.0*	*47.0*	*53.0*	*12.0*	
MDW1180GS2	●		0.4646	*11.80*	*100.0*	*47.0*	*53.0*	*12.0*	
MDW1190GS2	●		0.4685	*11.90*	*100.0*	*47.0*	*53.0*	*12.0*	
MDW04688GS2	●	15/32	0.4688	*11.91*	3.9370	1.8504	2.0866	0.4688	
MDW1200GS2	●		0.4724	*12.00*	*100.0*	*47.0*	*53.0*	*12.0*	M14x2
MDW1210GS2	●		0.4764	*12.10*	*100.0*	*47.0*	*51.0*	*13.0*	
MDW1220GS2	●		0.4803	*12.20*	*100.0*	*47.0*	*51.0*	*13.0*	
MDW1230GS2	●		0.4843	*12.30*	*100.0*	*47.0*	*51.0*	*13.0*	9/16-12
MDW04844GS2	●	31/64	0.4844	*12.304*	3.9370	1.8504	2.0079	0.5156	
MDW1240GS2	●		0.4882	*12.40*	*100.0*	*47.0*	*51.0*	*13.0*	
MDW1250GS2	●		0.4921	*12.50*	*100.0*	*47.0*	*51.0*	*13.0*	
MDW1260GS2	●		0.4961	*12.60*	*100.0*	*49.0*	*51.0*	*13.0*	
MDW1270GS2	●	1/2	0.5000	*12.70*	*100.0*	*49.0*	*51.0*	*13.0*	
MDW05000GS2	●	1/2	0.5000	*12.70*	3.9370	1.9291	2.0079	0.5156	
MDW1280GS2	●		0.5039	*12.80*	*100.0*	*49.0*	*51.0*	*13.0*	
MDW05050GS2	●		0.5050	*12.83*	3.9370	1.9291	2.0079	0.5156	
MDW1290GS2	●		0.5079	*12.90*	*100.0*	*49.0*	*51.0*	*13.0*	
MDW1300GS2	●		0.5118	*13.00*	*100.0*	*49.0*	*51.0*	*13.0*	
MDW05156GS2	●	33/64	0.5156	*13.09*	3.9370	1.9291	2.0079	0.5156	9/16-18
MDW1310GS2	●		0.5157	*13.10*	*105.0*	*50.0*	*53.0*	*14.0*	
MDW1320GS2	●		0.5197	*13.20*	*105.0*	*50.0*	*53.0*	*14.0*	
MDW1330GS2	●		0.5236	*13.30*	*105.0*	*50.0*	*53.0*	*14.0*	
MDW1340GS2	●		0.5276	*13.40*	*105.0*	*50.0*	*53.0*	*14.0*	
MDW05312GS2	●	17/32	0.5312	*13.49*	4.1339	1.9685	2.0866	0.5469	5/8-11
MDW1350GS2	●		0.5315	*13.50*	*105.0*	*50.0*	*53.0*	*14.0*	
MDW1360GS2	●		0.5354	*13.60*	*105.0*	*52.0*	*53.0*	*14.0*	
MDW1370GS2	●		0.5394	*13.70*	*105.0*	*52.0*	*53.0*	*14.0*	
MDW1380GS2	●		0.5433	*13.80*	*105.0*	*52.0*	*53.0*	*14.0*	
MDW05469GS2	●	35/64	0.5469	*13.89*	4.1339	2.0472	2.0866	0.5469	M16x2
MDW1390GS2	●		0.5472	*13.90*	*105.0*	*52.0*	*53.0*	*14.0*	
MDW1400GS2	●		0.5512	*14.00*	*105.0*	*52.0*	*53.0*	*14.0*	

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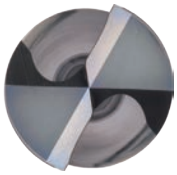
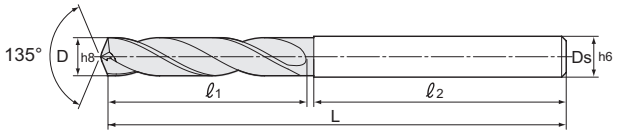
●=USA stocked item

Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

SERIES
MDW-GS2





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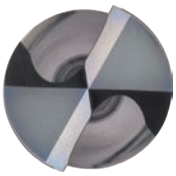
MDW-GS2 2XD drill for excellent chip management and long tool life (External coolant)

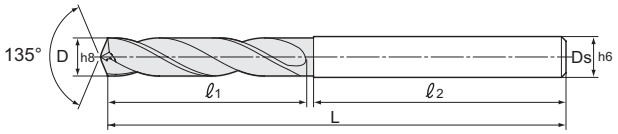
Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW1410GS2	●		0.5551	*14.10*	*108.0*	*52.0*	*55.0*	*15.0*	
MDW1420GS2	●		0.5591	*14.20*	*108.0*	*52.0*	*55.0*	*15.0*	
MDW05625GS2	●	9/16	0.5625	*14.29*	4.2520	2.0472	2.1654	0.5937	
MDW1430GS2	●		0.5630	*14.30*	*108.0*	*52.0*	*55.0*	*15.0*	
MDW1440GS2	●		0.5669	*14.40*	*108.0*	*52.0*	*55.0*	*15.0*	
MDW1450GS2	●		0.5709	*14.50*	*108.0*	*52.0*	*55.0*	*15.0*	
MDW1460GS2	●		0.5748	*14.60*	*108.0*	*53.0*	*55.0*	*15.0*	
MDW05781GS2	●	37/64	0.5781	*14.68*	4.2520	2.0866	2.1654	0.5937	5/8-18
MDW1470GS2	●		0.5787	*14.70*	*108.0*	*53.0*	*55.0*	*15.0*	
MDW1480GS2	●		0.5827	*14.80*	*108.0*	*53.0*	*55.0*	*15.0*	
MDW1490GS2	●		0.5866	*14.90*	*108.0*	*53.0*	*55.0*	*15.0*	
MDW1500GS2	●		0.5906	*15.00*	*108.0*	*53.0*	*55.0*	*15.0*	
MDW05937GS2	●	19/32	0.5937	*15.08*	4.2520	2.0866	2.1654	0.5937	
MDW1510GS2	●		0.5945	*15.10*	*112.0*	*53.0*	*57.0*	*16.0*	
MDW1520GS2	●		0.5984	*15.20*	*112.0*	*53.0*	*57.0*	*16.0*	
MDW1530GS2	●		0.6024	*15.30*	*112.0*	*53.0*	*57.0*	*16.0*	
MDW1540GS2	●		0.6063	*15.40*	*112.0*	*53.0*	*57.0*	*16.0*	
MDW06094GS2	●	39/64	0.6094	*15.48*	4.4094	2.0866	2.2441	0.6250	11/16-12
MDW1550GS2	●		0.6102	*15.50*	*112.0*	*53.0*	*57.0*	*16.0*	M18x2.5
MDW1560GS2	●		0.6142	*15.60*	*112.0*	*55.0*	*57.0*	*16.0*	
MDW1570GS2	●		0.6181	*15.70*	*112.0*	*55.0*	*57.0*	*16.0*	
MDW1580GS2	●		0.6220	*15.80*	*112.0*	*55.0*	*57.0*	*16.0*	
MDW06250GS2	●	5/8	0.6250	*15.88*	4.4094	2.1654	2.2441	0.6250	11/16-16
MDW1590GS2	●		0.6260	*15.90*	*112.0*	*55.0*	*57.0*	*16.0*	
MDW1600GS2	●		0.6299	*16.00*	*112.0*	*55.0*	*57.0*	*16.0*	
MDW06406GS2	●	41/64	0.6406	*16.27*	4.567	2.205	2.323	0.669	
MDW1650GS2	★		0.6496	*16.50*	*116*	*56*	*59*	*17*	
MDW06562GS2	●	21/32	0.6562	*16.67*	*4.567*	*2.244*	*2.323*	*0.669*	3/4-10
MDW1700GS2	★		0.6693	*17.00*	*116*	*57*	*59*	*17*	
MDW06875GS2	●	11/16	0.6875	*17.46*	*4.724*	*2.283*	*2.402*	*0.709*	3/4-16
MDW1750GS2	★		0.6890	*17.50*	120	58	61	18	
MDW07031GS2	●	45/64	0.7031	*17.86*	*4.724*	*2.323*	*2.402*	*0.709*	
MDW1800GS2	★		0.7087	*18.00*	*120*	*59*	*61*	*18*	
MDW07187GS2	●	23/32	0.7187	*18.25*	*4.843*	*2.323*	*2.480*	*0.748*	
MDW1850GS2	★		0.7283	*18.50*	*123*	*59*	*63*	*19*	
MDW07344GS2	●	47/64	0.7344	*18.65*	4.843	2.362	2.480	0.748	7/8-9
MDW1900GS2	★		0.7480	*19.00*	*123*	*60*	*63*	*19*	
MDW07500GS2	●	3/4	0.7500	*19.05*	*5.000*	*2.402*	*2.559*	*0.787*	
MDW1950GS2	★		0.7677	*19.50*	*127*	*61*	*65*	*20*	
MDW07812GS2	●	25/32	0.7812	*19.84*	*5.000*	*2.441*	*2.559*	*0.787*	
MDW2000GS2	★		0.7874	*20.00*	127	62	65	20	

●=USA stocked item
Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

= Product expansion

MDW-GS4 Series Solid Carbide Drills





MDW-GS4 4XD drill for excellent chip management and long tool life (External coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW0200GS4	●		0.0787	*2.00*	*49.0*	*15.0*	*31.0*	*3.0*	
MDW0210GS4	●		0.0827	*2.10*	*49.0*	*17.0*	*30.0*	*3.0*	3-56
MDW0220GS4	●		0.0866	*2.20*	*49.0*	*17.0*	*30.0*	*3.0*	
MDW0230GS4	●		0.0906	*2.30*	*49.0*	*17.0*	*30.0*	*3.0*	
MDW00937GS4	●	3/32	0.0937	2.38	1.9291	0.6693	1.1811	0.125	
MDW0240GS4	●		0.0945	*2.40*	*49.0*	*17.0*	*30.0*	*3.0*	
MDW0250GS4	●		0.0984	*2.50*	*49.0*	*17.0*	*30.0*	*3.0*	
MDW0260GS4	●		0.1024	*2.60*	*49.0*	*19.0*	*30.0*	*3.0*	
MDW0270GS4	●		0.1063	*2.70*	*49.0*	*19.0*	*30.0*	*3.0*	6-32
MDW0280GS4	●		0.1102	*2.80*	*49.0*	*19.0*	*30.0*	*3.0*	
MDW0290GS4	●		0.1142	*2.90*	*49.0*	*19.0*	*30.0*	*3.0*	3.5x.6
MDW0300GS4	●		0.1181	*3.00*	*49.0*	*19.0*	*30.0*	*3.0*	
MDW0310GS4	●		0.1220	*3.10*	*60.0*	*24.0*	*34.0*	*4.0*	
MDW0320GS4	●		0.1260	*3.20*	*60.0*	*24.0*	*34.0*	*4.0*	
MDW0330GS4	●		0.1299	*3.30*	*60.0*	*24.0*	*34.0*	*4.0*	M4x.7
MDW0340GS4	●		0.1339	*3.40*	*60.0*	*24.0*	*34.0*	*4.0*	
MDW0350GS4	●		0.1378	*3.50*	*60.0*	*24.0*	*34.0*	*4.0*	
MDW0360GS4	●		0.1417	*3.60*	*60.0*	*27.0*	*33.0*	*4.0*	
MDW0370GS4	●		0.1457	*3.70*	*60.0*	*27.0*	*33.0*	*4.0*	M4.5x.7
MDW0380GS4	●		0.1496	*3.80*	*60.0*	*27.0*	*33.0*	*4.0*	
MDW0390GS4	●		0.1535	*3.90*	*60.0*	*27.0*	*33.0*	*4.0*	
MDW0400GS4	●		0.1575	*4.00*	*60.0*	*27.0*	*33.0*	*4.0*	
MDW0410GS4	●		0.1614	*4.10*	*76.0*	*31.0*	*43.0*	*5.0*	
MDW0420GS4	●		0.1654	*4.20*	*76.0*	*31.0*	*43.0*	*5.0*	M5x.8
MDW0430GS4	●		0.1693	*4.30*	*76.0*	*31.0*	*43.0*	*5.0*	
MDW0440GS4	●		0.1732	*4.40*	*76.0*	*31.0*	*43.0*	*5.0*	
MDW0450GS4	●		0.1772	*4.50*	*76.0*	*31.0*	*43.0*	*5.0*	
MDW0460GS4	●		0.1811	*4.60*	*76.0*	*38.0*	*38.0*	*5.0*	
MDW0470GS4	●		0.1850	*4.70*	*76.0*	*38.0*	*38.0*	*5.0*	
MDW0480GS4	●		0.1890	*4.80*	*76.0*	*38.0*	*38.0*	*5.0*	
MDW0490GS4	●		0.1929	*4.90*	*76.0*	*38.0*	*38.0*	*5.0*	
MDW0500GS4	●		0.1969	*5.00*	*76.0*	*38.0*	*38.0*	*5.0*	M6x1
MDW0510GS4	●		0.2008	*5.10*	*81.0*	*39.0*	*40.0*	*6.0*	
MDW02010GS4	●	#7	0.2010	*5.11*	3.1890	1.5354	1.5748	0.2344	1/4-20
MDW0520GS4	●		0.2047	*5.20*	*81.0*	*39.0*	*40.0*	*6.0*	
MDW0530GS4	●		0.2087	*5.30*	*81.0*	*39.0*	*40.0*	*6.0*	
MDW0540GS4	●		0.2126	*5.40*	*81.0*	*39.0*	*40.0*	*6.0*	
MDW0550GS4	●		0.2165	*5.50*	*81.0*	*39.0*	*40.0*	*6.0*	
MDW0560GS4	●		0.2205	*5.60*	*81.0*	*41.0*	*40.0*	*6.0*	
MDW0570GS4	●		0.2244	*5.70*	*81.0*	*41.0*	*40.0*	*6.0*	
MDW0580GS4	●		0.2283	*5.80*	*81.0*	*41.0*	*40.0*	*6.0*	
MDW0590GS4	●		0.2323	*5.90*	*81.0*	*41.0*	*40.0*	*6.0*	
MDW0600GS4	●		0.2362	*6.00*	*81.0*	*41.0*	*40.0*	*6.0*	M7x1
MDW0610GS4	●		0.2402	*6.10*	*83.0*	*42.0*	*40.0*	*7.0*	
MDW0620GS4	●		0.2441	*6.20*	*83.0*	*42.0*	*40.0*	*7.0*	
MDW02460GS4	●		0.2460	*6.25*	3.2677	1.6535	1.5748	0.2812	
MDW0630GS4	●		0.2480	*6.30*	*83.0*	*42.0*	*40.0*	*7.0*	
MDW02500GS4	●	1/4	0.2500	*6.35*	3.2677	1.6535	1.5748	0.2812	
MDW0640GS4	●		0.2520	*6.40*	*83.0*	*42.0*	*40.0*	*7.0*	
MDW0650GS4	●		0.2559	*6.50*	*83.0*	*42.0*	*40.0*	*7.0*	
MDW02570GS4	●	#F	0.2570	*6.53*	3.2677	1.6929	1.5748	0.2812	5/16-18
MDW0660GS4	●		0.2598	*6.60*	*83.0*	*43.0*	*40.0*	*7.0*	
MDW02610GS4	●		0.2610	*6.63*	3.2677	1.6929	1.5748	0.2812	
MDW0670GS4	●		0.2638	*6.70*	*83.0*	*43.0*	*40.0*	*7.0*	

●=USA stocked item
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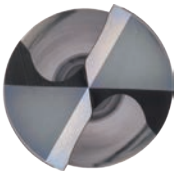
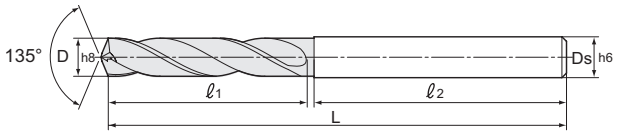
SERIES MDW-GS4





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MDW-GS4 4XD drill for excellent chip management and long tool life (External coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ_1 (in/*mm*)	Shank Length ℓ_2 (in/*mm*)	Shank Diameter D_s (in/*mm*)	Tap Size
MDW02656GS4	●	17/64	0.2656	*6.75*	3.2677	1.6929	1.5748	0.2812	
MDW02660GS4	●	#H	0.2660	*6.76*	3.2677	1.6929	1.5748	0.2812	
MDW0680GS4	●		0.2677	*6.80*	*83.0*	*43.0*	*40.0*	*7.0*	
MDW0690GS4	●		0.2717	*6.90*	*83.0*	*43.0*	*40.0*	*7.0*	
MDW02720GS4	●	#I	0.2720	*6.91*	3.2677	1.6929	1.5748	0.2812	5/16-24
MDW0700GS4	●		0.2756	*7.00*	*83.0*	*43.0*	*40.0*	*7.0*	
MDW02770GS4	●	#J	0.2770	*7.04*	3.2677	1.6929	1.5748	0.2812	
MDW0710GS4	●		0.2795	*7.10*	*90.0*	*45.0*	*43.0*	*8.0*	
MDW02810GS4	●		0.2810	*7.14*	3.2677	1.6929	1.5748	0.2812	
MDW02812GS4	●	9/32	0.2812	*7.142*	3.2677	1.6929	1.5748	0.2812	
MDW0720GS4	●		0.2835	*7.20*	*90.0*	*45.0*	*43.0*	*8.0*	
MDW0730GS4	●		0.2874	*7.30*	*90.0*	*45.0*	*43.0*	*8.0*	
MDW02900GS4	●		0.2900	*7.37*	3.5433	1.7717	1.6929	0.3125	
MDW0740GS4	●		0.2913	*7.40*	*90.0*	*45.0*	*43.0*	*8.0*	
MDW02950GS4	●		0.2950	*7.49*	3.5433	1.7717	1.6929	0.3125	
MDW0750GS4	●		0.2953	*7.50*	*90.0*	*45.0*	*43.0*	*8.0*	
MDW02969GS4	●	19/64	0.2969	*7.54*	3.5433	1.8898	1.6535	0.3125	
MDW0760GS4	●		0.2992	*7.60*	*90.0*	*48.0*	*42.0*	*8.0*	
MDW03020GS4	●		0.3020	*7.67*	3.5433	1.8898	1.6535	0.3125	
MDW0770GS4	●		0.3031	*7.70*	*90.0*	*48.0*	*42.0*	*8.0*	
MDW0780GS4	●		0.3071	*7.80*	*90.0*	*48.0*	*42.0*	*8.0*	M9x1.25
MDW0790GS4	●		0.3110	*7.90*	*90.0*	*48.0*	*42.0*	*8.0*	
MDW03125GS4	●	5/16	0.3125	*7.94*	3.5433	1.8898	1.6535	0.3125	3/8-16
MDW0800GS4	●		0.3150	*8.00*	*90.0*	*48.0*	*42.0*	*8.0*	
MDW03160GS4	●		0.3160	*8.03*	3.8583	2.0866	1.6929	0.3594	
MDW0810GS4	●		0.3189	*8.10*	*98.0*	*53.0*	*43.0*	*9.0*	
MDW0820GS4	●		0.3228	*8.20*	*98.0*	*53.0*	*43.0*	*9.0*	
MDW03230GS4	●	#P	0.3230	*8.204*	3.8583	2.0866	1.6929	0.3594	
MDW0830GS4	●		0.3268	*8.30*	*98.0*	*53.0*	*43.0*	*9.0*	
MDW03281GS4	●	21/64	0.3281	*8.33*	3.8583	2.0866	1.6929	0.3594	
MDW0840GS4	●		0.3307	*8.40*	*98.0*	*53.0*	*43.0*	*9.0*	
MDW03320GS4	●	#Q	0.3320	*8.43*	3.8583	2.0866	1.6929	0.3594	
MDW0850GS4	●		0.3346	*8.50*	*98.0*	*53.0*	*43.0*	*9.0*	M10x1.5
MDW0860GS4	●		0.3386	*8.60*	*98.0*	*55.0*	*43.0*	*9.0*	
MDW03390GS4	●		0.3390	*8.61*	3.8583	2.1654	1.6929	0.3594	3/8-24
MDW0870GS4	●		0.3425	*8.70*	*98.0*	*55.0*	*43.0*	*9.0*	
MDW03438GS4	●	11/32	0.3438	*8.73*	3.8583	2.1654	1.6929	0.3594	
MDW0880GS4	●		0.3465	*8.80*	*98.0*	*55.0*	*43.0*	*9.0*	
MDW03480GS4	●		0.3480	*8.84*	3.8583	2.1654	1.6929	0.3594	
MDW0890GS4	●		0.3504	*8.90*	*98.0*	*55.0*	*43.0*	*9.0*	
MDW0900GS4	●		0.3543	*9.00*	*98.0*	*55.0*	*43.0*	*9.0*	
MDW03580GS4	●		0.3580	*9.09*	3.8583	2.1654	1.6929	0.3594	
MDW0910GS4	●		0.3583	*9.10*	*105.0*	*58.0*	*45.0*	*10.0*	
MDW03594GS4	●	23/64	0.3594	*9.13*	3.8583	2.1654	1.6929	0.3594	
MDW0920GS4	●		0.3622	*9.20*	*105.0*	*58.0*	*45.0*	*10.0*	
MDW0930GS4	●		0.3661	*9.30*	*105.0*	*58.0*	*45.0*	*10.0*	
MDW03680GS4	●	#U	0.3680	*9.35*	4.1339	2.2835	1.7717	0.3906	7/16-14
MDW0940GS4	●		0.3701	*9.40*	*105.0*	*58.0*	*45.0*	*10.0*	
MDW0950GS4	●		0.3740	*9.50*	*105.0*	*58.0*	*45.0*	*10.0*	
MDW03750GS4	●	3/8	0.3750	*9.53*	4.1339	2.3622	1.7717	0.3906	
MDW03770GS4	●		0.3770	*9.58*	4.1339	2.3622	1.7717	0.3906	
MDW0960GS4	●		0.3780	*9.60*	*105.0*	*60.0*	*45.0*	*10.0*	

●=USA stocked item

Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

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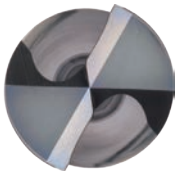
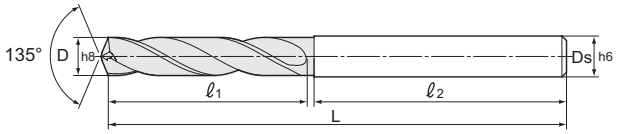
MDW-GS4 Series Solid Carbide Drills





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MDW-GS4 4XD drill for excellent chip management and long tool life (External coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW0970GS4	●		0.3819	*9.70*	*105.0*	*60.0*	*45.0*	*10.0*	
MDW0980GS4	●		0.3858	*9.80*	*105.0*	*60.0*	*45.0*	*10.0*	
MDW03860GS4	●		0.3860	*9.804*	4.1339	2.3622	1.7717	0.3906	
MDW0990GS4	●		0.3898	*9.90*	*105.0*	*60.0*	*45.0*	*10.0*	
MDW03906GS4	●	25/64	0.3906	*9.92*	4.1339	2.3622	1.7717	0.3906	7/16-20
MDW1000GS4	●		0.3937	*10.00*	*105.0*	*60.0*	*45.0*	*10.0*	
MDW03970GS4	●		0.3970	*10.08*	4.4882	2.5984	1.8110	0.4375	
MDW1010GS4	●		0.3976	*10.10*	*114.0*	*66.0*	*46.0*	*11.0*	
MDW1020GS4	●		0.4016	*10.20*	*114.0*	*66.0*	*46.0*	*11.0*	M12x1.75
MDW04040GS4	●		0.4040	*10.26*	4.4882	2.5984	1.8110	0.4375	
MDW1030GS4	●		0.4055	*10.30*	*114.0*	*66.0*	*46.0*	*11.0*	
MDW04062GS4	●	13/32	0.4062	*10.32*	4.4882	2.5984	1.8110	0.4375	
MDW1040GS4	●		0.4094	*10.40*	*114.0*	*66.0*	*46.0*	*11.0*	
MDW04130GS4	●		0.4130	*10.49*	4.4882	2.5984	1.8110	0.4375	
MDW1050GS4	●		0.4134	*10.50*	*114.0*	*66.0*	*46.0*	*11.0*	
MDW1060GS4	●		0.4173	*10.60*	*114.0*	*68.0*	*46.0*	*11.0*	
MDW1070GS4	●		0.4213	*10.70*	*114.0*	*68.0*	*46.0*	*11.0*	
MDW04219GS4	●	27/64	0.4219	*10.72*	4.4882	2.6772	1.8110	0.4375	1/2-13
MDW1080GS4	●		0.4252	*10.80*	*114.0*	*68.0*	*46.0*	*11.0*	
MDW1090GS4	●		0.4291	*10.90*	*114.0*	*68.0*	*46.0*	*11.0*	
MDW1100GS4	●		0.4331	*11.00*	*114.0*	*68.0*	*46.0*	*11.0*	
MDW1110GS4	●		0.4370	*11.10*	*121.0*	*71.0*	*48.0*	*12.0*	
MDW04375GS4	●	7/16	0.4375	*11.11*	4.4882	2.6772	1.8110	0.4375	
MDW1120GS4	●		0.4409	*11.20*	*121.0*	*71.0*	*48.0*	*12.0*	
MDW1130GS4	●		0.4449	*11.30*	*121.0*	*71.0*	*48.0*	*12.0*	
MDW1140GS4	●		0.4488	*11.40*	*121.0*	*71.0*	*48.0*	*12.0*	
MDW1150GS4	●		0.4528	*11.50*	*121.0*	*71.0*	*48.0*	*12.0*	
MDW04531GS4	●	29/64	0.4531	*11.51*	4.7638	2.8740	1.8898	0.4688	1/2-20
MDW1160GS4	●		0.4567	*11.60*	*121.0*	*73.0*	*48.0*	*12.0*	
MDW1170GS4	●		0.4606	*11.70*	*121.0*	*73.0*	*48.0*	*12.0*	
MDW1180GS4	●		0.4646	*11.80*	*121.0*	*73.0*	*48.0*	*12.0*	
MDW1190GS4	●		0.4685	*11.90*	*121.0*	*73.0*	*48.0*	*12.0*	
MDW04688GS4	●	15/32	0.4688	*11.91*	4.7638	2.8740	1.8898	0.4688	
MDW1200GS4	●		0.4724	*12.00*	*121.0*	*73.0*	*48.0*	*12.0*	M14x2
MDW1210GS4	●		0.4764	*12.10*	*137.0*	*76.0*	*59.0*	*13.0*	
MDW1220GS4	●		0.4803	*12.20*	*137.0*	*76.0*	*59.0*	*13.0*	
MDW1230GS4	●		0.4843	*12.30*	*137.0*	*76.0*	*59.0*	*13.0*	9/16-12
MDW04844GS4	●	31/64	0.4844	*12.308*	5.3937	2.9921	2.3228	0.5156	
MDW1240GS4	●		0.4882	*12.40*	*137.0*	*76.0*	*59.0*	*13.0*	
MDW1250GS4	●		0.4921	*12.50*	*137.0*	*76.0*	*59.0*	*13.0*	
MDW1260GS4	●		0.4961	*12.60*	*137.0*	*78.0*	*59.0*	*13.0*	
MDW1270GS4	●	1/2	0.5000	*12.70*	*137.0*	*78.0*	*59.0*	*13.0*	
MDW05000GS4	●	1/2	0.5000	*12.70*	5.3937	3.0709	2.3228	0.5156	
MDW1280GS4	●		0.5039	*12.80*	*137.0*	*78.0*	*59.0*	*13.0*	
MDW05050GS4	●		0.5050	*12.83*	5.3937	3.0709	2.3228	0.5156	
MDW1290GS4	●		0.5079	*12.90*	*137.0*	*78.0*	*59.0*	*13.0*	
MDW1300GS4	●		0.5118	*13.00*	*137.0*	*78.0*	*59.0*	*13.0*	
MDW05156GS4	●	33/64	0.5156	*13.09*	5.3937	3.0709	2.3228	0.5156	9/16-18
MDW1310GS4	●		0.5157	*13.10*	*147.0*	*84.0*	*61.0*	*14.0*	
MDW1320GS4	●		0.5197	*13.20*	*147.0*	*84.0*	*61.0*	*14.0*	
MDW1330GS4	●		0.5236	*13.30*	*147.0*	*84.0*	*61.0*	*14.0*	
MDW1340GS4	●		0.5276	*13.40*	*147.0*	*84.0*	*61.0*	*14.0*	

●=USA stocked item
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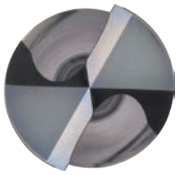
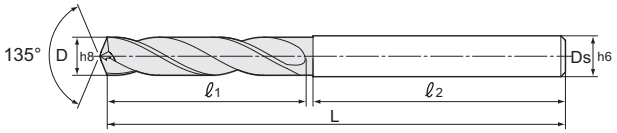
SERIES MDW-GS4





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MDW-GS4 4XD drill for excellent chip management and long tool life (External coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ_1 (in/*mm*)	Shank Length ℓ_2 (in/*mm*)	Shank Diameter D_S (in/*mm*)	Tap Size
MDW05312GS4	●	17/32	0.5312	*13.49*	5.7874	3.3071	2.4016	0.5469	5/8-11
MDW1350GS4	●		0.5315	*13.50*	*147.0*	*84.0*	*61.0*	*14.0*	
MDW1360GS4	●		0.5354	*13.60*	*147.0*	*86.0*	*61.0*	*14.0*	
MDW1370GS4	●		0.5394	*13.70*	*147.0*	*86.0*	*61.0*	*14.0*	
MDW1380GS4	●		0.5433	*13.80*	*147.0*	*86.0*	*61.0*	*14.0*	
MDW05469GS4	●	35/64	0.5469	*13.89*	5.7874	3.3858	2.4016	0.5469	M16x2
MDW1390GS4	●		0.5472	*13.90*	*147.0*	*86.0*	*61.0*	*14.0*	
MDW1400GS4	●		0.5512	*14.00*	*147.0*	*86.0*	*61.0*	*14.0*	
MDW1410GS4	●		0.5551	*14.10*	*153.0*	*89.0*	*62.0*	*15.0*	
MDW1420GS4	●		0.5591	*14.20*	*153.0*	*89.0*	*62.0*	*15.0*	
MDW05625GS4	●	9/16	0.5625	*14.29*	6.0236	3.5039	2.4409	0.5937	
MDW1430GS4	●		0.5630	*14.30*	*153.0*	*89.0*	*62.0*	*15.0*	
MDW1440GS4	●		0.5669	*14.40*	*153.0*	*89.0*	*62.0*	*15.0*	
MDW1450GS4	●		0.5709	*14.50*	*153.0*	*89.0*	*62.0*	*15.0*	
MDW1460GS4	●		0.5748	*14.60*	*153.0*	*91.0*	*62.0*	*15.0*	
MDW05781GS4	●	37/64	0.5781	*14.68*	6.0236	3.5827	2.4409	0.5937	5/8-18
MDW1470GS4	●		0.5787	*14.70*	*153.0*	*91.0*	*62.0*	*15.0*	
MDW1480GS4	●		0.5827	*14.80*	*153.0*	*91.0*	*62.0*	*15.0*	
MDW1490GS4	●		0.5866	*14.90*	*153.0*	*91.0*	*62.0*	*15.0*	
MDW1500GS4	●		0.5906	*15.00*	*153.0*	*91.0*	*62.0*	*15.0*	
MDW05937GS4	●	19/32	0.5937	*15.08*	6.0236	3.5827	2.4409	0.5937	
MDW1510GS4	●		0.5945	*15.10*	*160.0*	*94.0*	*64.0*	*16.0*	
MDW1520GS4	●		0.5984	*15.20*	*160.0*	*94.0*	*64.0*	*16.0*	
MDW1530GS4	●		0.6024	*15.30*	*160.0*	*94.0*	*64.0*	*16.0*	
MDW1540GS4	●		0.6063	*15.40*	*160.0*	*94.0*	*64.0*	*16.0*	
MDW06094GS4	●	39/64	0.6094	*15.48*	6.2992	3.7008	2.5197	0.6250	11/16-12
MDW1550GS4	●		0.6102	*15.50*	*160.0*	*94.0*	*64.0*	*16.0*	M18x2.5
MDW1560GS4	●		0.6142	*15.60*	*160.0*	*96.0*	*64.0*	*16.0*	
MDW1570GS4	●		0.6181	*15.70*	*160.0*	*96.0*	*64.0*	*16.0*	
MDW1580GS4	●		0.6220	*15.80*	*160.0*	*96.0*	*64.0*	*16.0*	
MDW06250GS4	●	5/8	0.6250	*15.88*	6.2992	3.7795	2.5197	0.6250	11/16-16
MDW1590GS4	●		0.6260	*15.90*	*160.0*	*96.0*	*64.0*	*16.0*	
MDW1600GS4	●		0.6299	*16.00*	*160.0*	*96.0*	*64.0*	*16.0*	
MDW06406GS4	●	41/64	0.6406	*16.27*	*6.575*	*3.858*	*2.559*	*0.669*	
MDW1650GS4	●		0.6496	*16.50*	*167*	*98*	*65*	*17*	
MDW06562GS4	●	21/32	0.6562	*16.67*	*6.575*	*3.858*	*2.559*	*0.669*	3/4-10
MDW1700GS4	●		0.6693	*17.00*	*167*	*98*	*65*	*17*	
MDW06875GS4	●	11/16	0.6875	*17.46*	*6.575*	*3.937*	*2.559*	*0.709*	3/4-16
MDW1750GS4	★		0.6890	*17.50*	*167*	*100*	*65*	*18*	
MDW07031GS4	●	45/64	0.7031	*17.86*	*6.575*	*4.016*	*2.559*	*0.709*	
MDW1800GS4	●		0.7087	*18.00*	*167*	*102*	*65*	*18*	
MDW07187GS4	●	23/32	0.7187	*18.25*	*7.047*	*4.094*	*2.559*	*0.748*	
MDW1850GS4	★		0.7283	*18.50*	*179*	*104*	*65*	*19*	
MDW07344GS4	●	47/64	0.7344	*18.65*	*7.047*	*4.173*	*2.559*	*0.748*	7/8-9
MDW1900GS4	★		0.7480	*19.00*	*179*	*106*	*65*	*19*	
MDW07500GS4	●	3/4	0.7500	*19.05*	*7.047*	*4.331*	*2.559*	*0.787*	
MDW1950GS4	★		0.7677	*19.50*	*179*	*110*	*65*	*20*	
MDW07812GS4	●	25/32	0.7812	*19.84*	*7.047*	*4.488*	*2.559*	*0.787*	
MDW2000GS4	★		0.7874	*20.00*	*179*	*114*	*65*	*20*	

●=USA stocked item

Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

= Product expansion

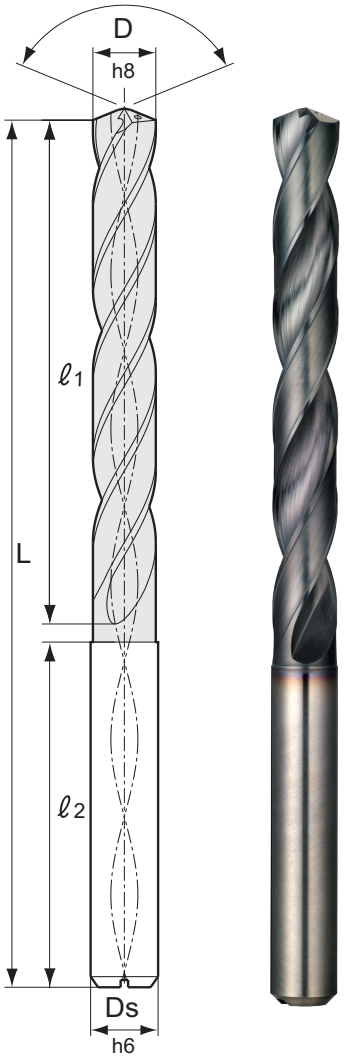
MDW-HGS3 Series Solid Carbide Drills

Coolant Through Drills

Carbon Steel, Alloy Steel		Tempered Steel	Hardened Steel		Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite
Up to 0.28%	From 0.29%		Up to 45HRC	From 46HRC								CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 3D

135°



Items labeled in purple represent drills that fit in Shrink Fit Holders

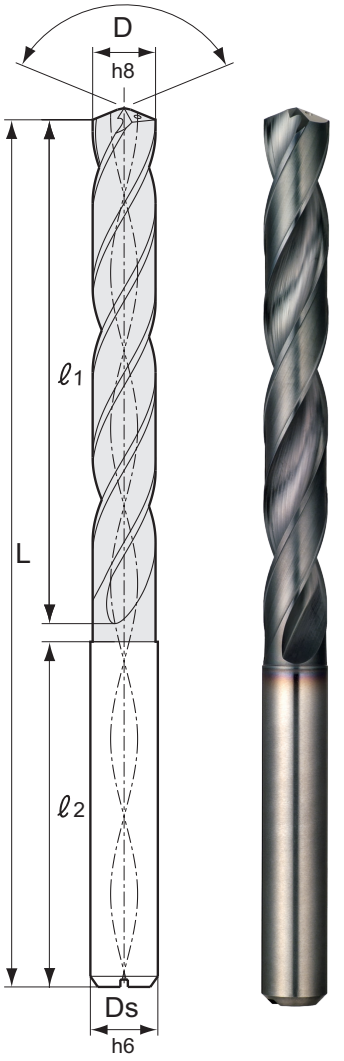
Catalog Number (inch/metric) Ex: *MDW0900HGS3 or MDW0900HGS3S*	Type	Stock	D_C mm	D_C Inch	Shank Diameter D_S (in/mm)	Overall Length L (in/mm)	Flute Length ℓ_1 (in/mm)	Shank Length ℓ_2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW0150	HGS3	●	1.50	0.059	3.0	63.0	10	50		
	HGS3S									
MDW0160	HGS3	●	1.60	0.063	3.0	63.0	12	50	M2x.4	
	HGS3S									
MDW0170	HGS3	●	1.70	0.067	3.0	63.0	12	50		
	HGS3S									
MDW0180	HGS3	●	1.80	0.071	3.0	63.0	12	50		
	HGS3S									
MDW0190	HGS3	●	1.90	0.075	3.0	63.0	12	50		
	HGS3S									
MDW0200	HGS3	●	2.00	0.079	3.0	63.0	12.5	48		
	HGS3S									
MDW0210	HGS3	●	2.10	0.083	3.0	68.0	15	51	3-56	
	HGS3S									
MDW0220	HGS3	●	2.20	0.087	3.0	68.0	15	51		
	HGS3S									
MDW0230	HGS3	●	2.30	0.091	3.0	68.0	15	51		
	HGS3S									
MDW00937	HGS3	●	2.38	0.094	.125	2.677	0.689	1.929		3/32
	HGS3S	●			3.0					
MDW0240	HGS3	●	2.40	0.095	3.0	68.0	15	51		
	HGS3S									
MDW0250	HGS3	●	2.50	0.098	3.0	68.0	15	51		
	HGS3S									
MDW0260	HGS3	●	2.60	0.102	3.0	68.0	17.5	49		
	HGS3S									
MDW0270	HGS3	●	2.70	0.106	3.0	68.0	17.5	49	6-32	
	HGS3S									
MDW01094	HGS3	●	2.78	0.109	.125	2.677	0.689	1.929		7/64
	HGS3S	●			3.0					
MDW0280	HGS3	●	2.80	0.110	3.0	68.0	17.5	49		
	HGS3S									
MDW0290	HGS3	●	2.90	0.114	3.0	68.0	17.5	49	3.5x.6	
	HGS3S									
MDW0300	HGS3	●	3.00	0.118	3.0	68.0	17.5	49		
	HGS3S	●			6.0					
MDW0310	HGS3	●	3.10	0.122	4.0	72.0	20	50		
	HGS3S	●			6.0					
MDW01250	HGS3	●	3.18	0.125	.125	2.677	0.689	1.929		1/8
	HGS3S	●			6.0					
MDW0320	HGS3	●	3.20	0.126	4.0	72.0	20	50		
	HGS3S	●			6.0					
MDW0330	HGS3	●	3.30	0.130	4.0	72.0	20	50	M4x.7	
	HGS3S	●			6.0					
MDW0340	HGS3	●	3.40	0.134	4.0	72.0	20	50		
	HGS3S	●			6.0					
MDW0350	HGS3	●	3.50	0.138	4.0	72.0	20	50		
	HGS3S	●			6.0					
MDW0360	HGS3	●	3.60	0.142	4.0	72.0	22.5	48		
	HGS3S	●			6.0					
MDW0370	HGS3	●	3.70	0.146	4.0	72.0	22.5	48	M4.5x.7	
	HGS3S	●			6.0					
MDW0380	HGS3	●	3.80	0.150	4.0	72.0	22.5	48		
	HGS3S	●			6.0					
MDW0390	HGS3	●	3.90	0.154	4.0	72.0	22.5	48		
	HGS3S	●			6.0					
MDW01562	HGS3	●	3.97	0.156	.156	2.835	0.886	1.890		5/32
	HGS3S	●			6.0					
MDW0400	HGS3	●	4.00	0.158	4.0	72.0	22.5	48		
	HGS3S	●			6.0					
MDW01590	HGS3	●	4.04	0.159	.188	3.150	0.984	2.087	10-32	#21
	HGS3S	●			6.0					
MDW0410	HGS3	●	4.10	0.161	5.0	80.0	25	53		
	HGS3S	●			6.0					
MDW0420	HGS3	●	4.20	0.165	5.0	80.0	25	53	M5x.8	
	HGS3S	●			6.0					
MDW0430	HGS3	●	4.30	0.169	5.0	80.0	25	53		
	HGS3S	●			6.0					
MDW01719	HGS3	●	4.37	0.172	.188	3.1	0.984	2.087		11/64
	HGS3S	●			6.0					

SERIES
MDW-HGS3

Carbon Steel Up to 0.28%	Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 3D

135°



Items labeled in purple represent drills that fit in Shrink Fit Holders

Catalog Number (inch/metric) Ex: *MDW0900HGS3 or MDW0900HGS3S*	Type	Stock	Dc mm	Dc Inch	Shank Diameter Ds (in/mm)	Overall Length L (in/mm)	Flute Length ℓ1 (in/mm)	Shank Length ℓ2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW0440	HGS3	●	4.40	0.173	5.0	80.0	25	53		
	HGS3S	●			6.0					
MDW0450	HGS3	●	4.50	0.177	5.0	80.0	25	53		
	HGS3S	●			6.0					
MDW0460	HGS3	●	4.60	0.181	5.0	80.0	27.5	51		
	HGS3S	●			6.0					
MDW0470	HGS3	●	4.70	0.185	5.0	80.0	27.5	51		
	HGS3S	●			6.0					
MDW01875	HGS3	●	4.76	0.188	0.188	3.10	1.083	2.008		3/16
	HGS3S				6.0					
MDW0480	HGS3	●	4.80	0.189	5.0	80.0	27.5	51		
	HGS3S	●			6.0					
MDW0490	HGS3	●	4.90	0.193	5.0	80.0	27.5	51		
	HGS3S	●			6.0					
MDW0500	HGS3	●	5.00	0.197	5.0	80.0	27.5	51	M6x1	
	HGS3S	●			6.0					
MDW0510	HGS3	●	5.10	0.201	6.0	82.0	27.5	53		
	HGS3S									
MDW02010	HGS3	●	5.11	0.201	0.234	3.228	1.083	2.087	1/4-2020	#7
	HGS3S	●			6.0					
MDW02031	HGS3	●	5.16	0.203	0.234	3.228	1.083	2.087		13/64
	HGS3S	●			6.0					
MDW0520	HGS3	●	5.20	0.205	6.0	82.0	27.5	53		
	HGS3S									
MDW0530	HGS3	●	5.30	0.209	6.0	82.0	27.5	53		
	HGS3S									
MDW0540	HGS3	●	5.40	0.213	6.0	82.0	27.5	53		
	HGS3S									
MDW02130	HGS3	●	5.41	0.213	0.234	3.228	1.083	2.087		#3
	HGS3S	●			6.0					
MDW0550	HGS3	●	5.50	0.217	6.0	82.0	27.5	53		
	HGS3S									
MDW02188	HGS3	●	5.56	0.219	0.234	3.228	1.181	2.047	1/4-2028	7/32
	HGS3S	●			6.0					
MDW0560	HGS3	●	5.60	0.221	6.0	82.0	30	52		
	HGS3S									
MDW02210	HGS3	●	5.61	0.221	0.234	3.228	1.181	2.047		#2
	HGS3S	●			6.0					
MDW0570	HGS3	●	5.70	0.224	6.0	82.0	30	52		
	HGS3S									
MDW0580	HGS3	●	5.80	0.228	6.0	82.0	30	52		
	HGS3S									
MDW0590	HGS3	●	5.90	0.232	6.0	82.0	30	52		
	HGS3S									
MDW02344	HGS3	●	5.995	0.234	0.234	3.228	1.181	2.047		15/64
	HGS3S	●			6.0					
MDW0600	HGS3	●	6.00	0.236	6.0	82.0	30	52	M7x1	
	HGS3S									
MDW0610	HGS3	●	6.10	0.240	7.0	88.0	32.5	53		
	HGS3S	●			8.0					
MDW02420	HGS3	●	6.15	0.242	0.281	3.465	1.280	2.087		#C
	HGS3S	●			8.0					
MDW0620	HGS3	●	6.20	0.244	7.0	88.0	32.5	53		
	HGS3S	●			8.0					
MDW0630	HGS3	●	6.30	0.248	7.0	88.0	32.5	53		
	HGS3S	●			8.0					
MDW02500	HGS3	●	6.35	0.250	0.281	3.465	1.280	2.087		1/4
	HGS3S	●			8.0					
MDW0640	HGS3	●	6.40	0.252	7.0	88.0	32.5	53		
	HGS3S	●			8.0					
MDW0650	HGS3	●	6.50	0.256	7.0	88.0	32.5	53		
	HGS3S	●			8.0					
MDW02570	HGS3	●	6.53	0.257	0.281	3.465	1.378	2.087	5/16-18	#F
	HGS3S	●			8.0					
MDW0660	HGS3	●	6.60	0.260	7.0	88.0	35	53		
	HGS3S	●			8.0					
MDW0670	HGS3	●	6.70	0.264	7.0	88.0	35	53		
	HGS3S	●			8.0					
MDW02656	HGS3	●	6.75	0.266	0.281	3.465	1.378	2.087		17/64
	HGS3S	●			8.0					

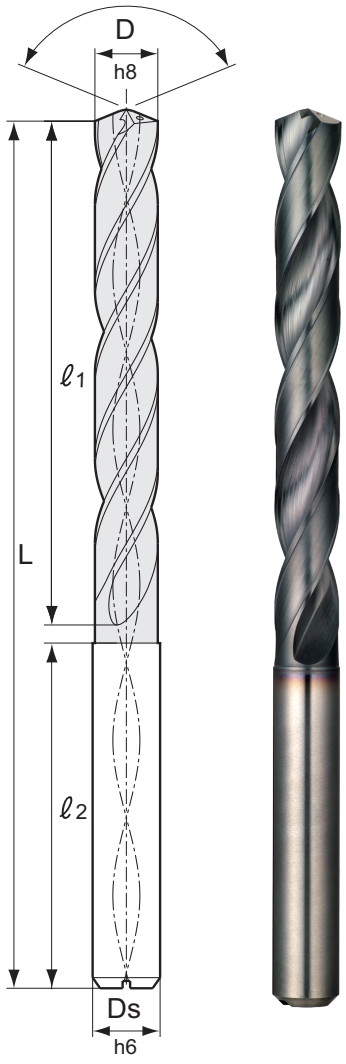
MDW-HGS3 Series Solid Carbide Drills

Coolant Through Drills

Carbon Steel, Alloy Steel		Tempered Steel	Hardened Steel		Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
Up to 0.28%	From 0.29%		Up to 45HRC	From 46HRC								
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 3D

135°



Items labeled in purple represent drills that fit in Shrink Fit Holders

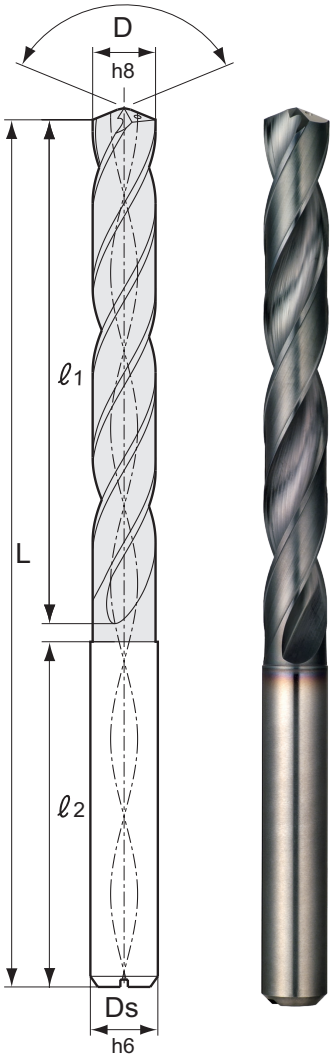
Catalog Number (inch/metric) Ex: *MDW0900HGS3 or MDW0900HGS3S*	Type	Stock	D_C mm	D_C Inch	Shank Diameter D_S (in/mm)	Overall Length L (in/mm)	Flute Length ℓ_1 (in/mm)	Shank Length ℓ_2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW02660	HGS3	●	6.76	0.266	0.281	3.465	1.378	2.087		
	HGS3S	●			8.0					
MDW0680	HGS3	●	6.80	0.268	7.0	88.0	35	53		
	HGS3S	●			8.0					
MDW0690	HGS3	●	6.90	0.272	7.0	88.0	35	53		
	HGS3S	●			8.0					
MDW02720	HGS3	●	6.91	0.272	0.281	3.465	1.378	2.087	5/16-24	#I
	HGS3S	●			8.0					
MDW0700	HGS3	●	7.00	0.276	7.0	88.0	35	53		
	HGS3S	●			8.0					
MDW02770	HGS3	●	7.04	0.277	0.281	3.465	1.378	2.087		#J
	HGS3S	●			8.0					
MDW0710	HGS3	●	7.10	0.280	8.0	94.0	37.5	54		
	HGS3S									
MDW02812	HGS3	●	7.14	0.281	0.281	3.465	1.378	2.087		9/32
	HGS3S	●			8.0					
MDW0720	HGS3	●	7.20	0.284	8.0	94.0	37.5	54		
	HGS3S									
MDW0730	HGS3	●	7.30	0.287	8.0	94.0	37.5	54		
	HGS3S									
MDW0740	HGS3	●	7.40	0.291	8.0	94.0	37.5	54		
	HGS3S									
MDW0750	HGS3	●	7.50	0.295	8.0	94.0	37.5	54		
	HGS3S									
MDW02969	HGS3	●	7.54	0.297	0.313	3.701	1.575	2.126		19/64
	HGS3S	●			8.0					
MDW0760	HGS3	●	7.60	0.299	8.0	94.0	40	54		
	HGS3S									
MDW0770	HGS3	●	7.70	0.303	8.0	94.0	40	54		
	HGS3S									
MDW0780	HGS3	●	7.80	0.307	8.0	94.0	40	54	M9x1.25	
	HGS3S									
MDW0790	HGS3	●	7.90	0.311	8.0	94.0	40	54		
	HGS3S									
MDW03125	HGS3	●	7.94	0.313	0.313	3.701	1.575	2.126	3/8-16	5/16
	HGS3S	●			8.0					
MDW0800	HGS3	●	8.00	0.315	8.0	94.0	40	54		
	HGS3S									
MDW0810	HGS3	●	8.10	0.319	9.0	100.0	42.5	55		
	HGS3S	●			10.0					
MDW0820	HGS3	●	8.20	0.323	9.0	100.0	42.5	55		
	HGS3S	●			10.0					
MDW03230	HGS3	●	8.204	0.323	0.359	3.937	1.673	2.165		#P
	HGS3S	●			10.0					
MDW0830	HGS3	●	8.30	0.327	9.0	100.0	42.5	55		
	HGS3S	●			10.0					
MDW03281	HGS3	●	8.33	0.328	0.359	3.937	1.673	2.165	M7x1	21/64
	HGS3S	●			10.0					
MDW0840	HGS3	●	8.40	0.331	9.0	100.0	42.5	55		
	HGS3S	●			10.0					
MDW03320	HGS3	●	8.43	0.332	0.359	3.937	1.673	2.165		#Q
	HGS3S	●			10.0					
MDW0850	HGS3	●	8.50	0.335	9.0	100.0	42.5	55	M10x1.5	
	HGS3S	●			10.0					
MDW0860	HGS3	●	8.60	0.339	9.0	100.0	45	55		
	HGS3S	●			10.0					
MDW0870	HGS3	●	8.70	0.343	9.0	100.0	45	55		
	HGS3S	●			10.0					
MDW03438	HGS3	●	8.73	0.344	0.359	3.937	1.772	2.165		11/32
	HGS3S	●			10.0					
MDW0880	HGS3	●	8.80	0.347	9.0	100.0	45	55		
	HGS3S	●			10.0					
MDW0890	HGS3	●	8.90	0.350	9.0	100.0	45	55		
	HGS3S	●			10.0					
MDW0900	HGS3	●	9.00	0.354	9.0	100.0	45	55		
	HGS3S	●			10.0					
MDW0910	HGS3	●	9.10	0.358	10.0	106.0	47.5	56		
	HGS3S									
MDW03594	HGS3	●	9.13	0.359	0.359	3.937	1.772	2.165		23/64
	HGS3S	●			10.0					

SERIES MDW-HGS3

Carbon Steel Up to 0.28%	Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 3D

135°



Items labeled in purple represent drills that fit in Shrink Fit Holders

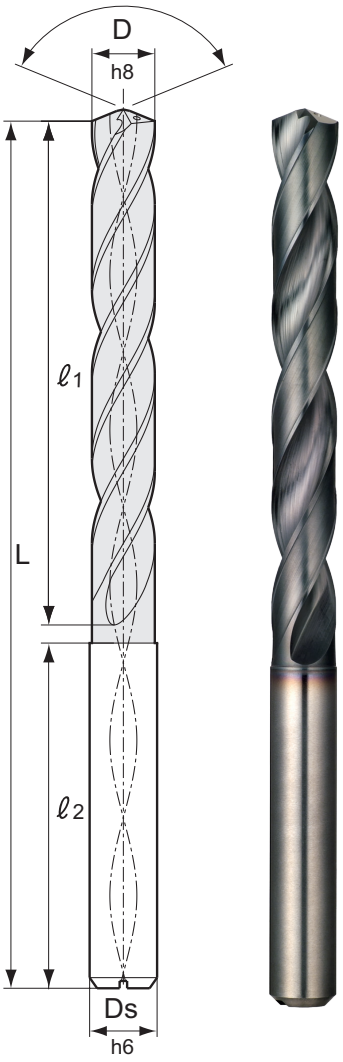
Catalog Number (inch/metric) Ex: *MDW0900HGS3 or MDW0900HGS3S*	Type	Stock	D_C mm	D_C Inch	Shank Diameter D_S (in/mm)	Overall Length L (in/mm)	Flute Length ℓ_1 (in/mm)	Shank Length ℓ_2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW0920	HGS3	●	9.2	0.362	10.0	106	47.5	56		
	HGS3S									
MDW0930	HGS3	●	9.3	0.366	10.0	106	47.5	56		
	HGS3S									
MDW03680	HGS3	●	9.35	0.368	0.391	4.173	1.870	2.205	7/16-14	#U
	HGS3S	●			10.0					
MDW0940	HGS3	●	9.4	0.370	10.0	106	47.5	56		
	HGS3S									
MDW0950	HGS3	●	9.5	0.374	10.0	106	47.5	56		
	HGS3S									
MDW03750	HGS3	●	9.53	0.375	0.391	4.173	1.969	2.205		3/8
	HGS3S	●			10.0					
MDW0960	HGS3	●	9.6	0.378	10.0	106	50	56		
	HGS3S									
MDW0970	HGS3	●	9.7	0.382	10.0	106	50	56		
	HGS3S									
MDW0980	HGS3	●	9.8	0.386	10.0	106	50	56		
	HGS3S									
MDW0990	HGS3	●	9.9	0.390	10.0	106	50	56		
	HGS3S									
MDW03906	HGS3	●	9.92	0.391	0.391	4.173	1.969	2.205	7/16-20	25/64
	HGS3S	●			10.0					
MDW1000	HGS3	●	10.0	0.394	10.0	106	50	56		
	HGS3S									
MDW1010	HGS3	●	10.1	0.398	11.0	116	52.5	61		
	HGS3S	●			12.0					
MDW1020	HGS3	●	10.2	0.402	11.0	116	52.5	61	M12x1.75	
	HGS3S	●			12.0					
MDW1030	HGS3	●	10.3	0.406	11.0	116	52.5	61		
	HGS3S	●			12.0					
MDW4062	HGS3	●	10.32	0.406	0.438	4.567	2.067	2.402		13/32
	HGS3S	●			12.0					
MDW1040	HGS3	●	10.4	0.409	11.0	116	52.5	61		
	HGS3S	●			12.0					
MDW1050	HGS3	●	10.5	0.413	11.0	116	52.5	61		
	HGS3S	●			12.0					
MDW1060	HGS3	●	10.6	0.417	11.0	116	55	61		
	HGS3S	●			12.0					
MDW1070	HGS3	●	10.7	0.421	11.0	116	55	61		
	HGS3S	●			12.0					
MDW04219	HGS3	●	10.72	0.422	0.438	4.567	2.165	2.402	1/2-13	27/64
	HGS3S	●			12.0					
MDW1080	HGS3	●	10.8	0.425	11.0	116	55	61		
	HGS3S	●			12.0					
MDW1090	HGS3	●	10.9	0.429	11.0	116	55	61		
	HGS3S	●			12.0					
MDW1100	HGS3	●	11.0	0.433	11.0	116	55	61		
	HGS3S	●			12.0					
MDW1110	HGS3	●	11.1	0.437	12.0	122	57.5	62		
	HGS3S									
MDW04375	HGS3	●	11.11	0.438	0.438	4.567	2.165	2.402		7/16
	HGS3S	●			12.0					
MDW1120	HGS3	●	11.2	0.441	12.0	122	57.5	62		
	HGS3S									
MDW1130	HGS3	●	11.3	0.445	12.0	122	57.5	62		
	HGS3S									
MDW1140	HGS3	●	11.4	0.449	12.0	122	57.5	62		
	HGS3S									
MDW1150	HGS3	●	11.5	0.453	12.0	122	57.5	62		
	HGS3S									
MDW04531	HGS3	●	11.51	0.453	0.469	4.803	2.362	2.441	1/2-20	29/64
	HGS3S	●			12.0					
MDW1160	HGS3	●	11.6	0.457	12.0	122	60	62		
	HGS3S									
MDW1170	HGS3	●	11.7	0.461	12.0	122	60	62		
	HGS3S									
MDW1180	HGS3	●	11.8	0.465	12.0	122	60	62		
	HGS3S									
MDW1190	HGS3	●	11.9	0.469	12.0	122	60	62		
	HGS3S									
MDW04688	HGS3	●	11.91	0.469	0.469	4.803	2.362	2.441		15/32
	HGS3S	●			12.0					

MDW-HGS3 Series Solid Carbide Drills

Coolant Through Drills

Carbon Steel, Alloy Steel		Tempered Steel	Hardened Steel		Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
Up to 0.28%	From 0.29%		Up to 45HRC	From 46HRC								
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 3D



Items labeled in purple represent drills that fit in Shrink Fit Holders

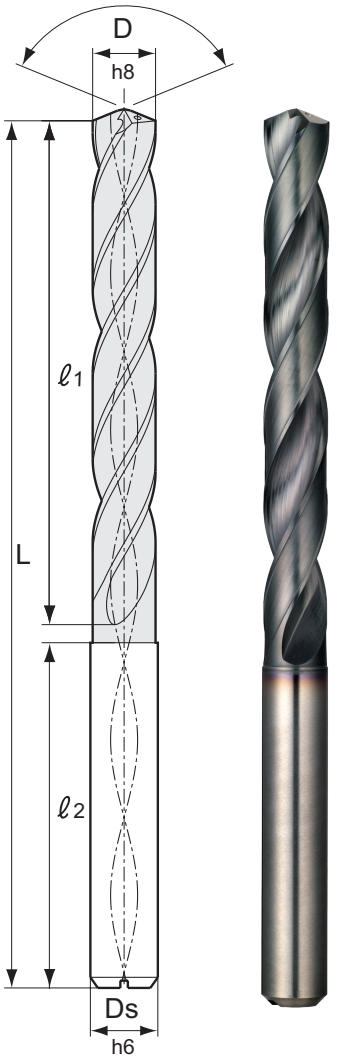
Catalog Number (inch/metric) Ex: *MDW0900HGS3 or MDW0900HGS3S*	Type	Stock	D_C mm	D_C Inch	Shank Diameter D_S (in/mm)	Overall Length L (in/mm)	Flute Length ℓ_1 (in/mm)	Shank Length ℓ_2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW1200	HGS3	●	12.0	0.472	12.0	122	60	62		
	HGS3S									
MDW1210	HGS3	●	12.1	0.476	13.0	128	62.5	63		
	HGS3S	●			14.0					
MDW1220	HGS3	●	12.2	0.480	13.0	128	62.5	63		
	HGS3S	●			14.0					
MDW1230	HGS3	●	12.3	0.484	13.0	128	65	63	9/16-12	
	HGS3S	●			14.0					
MDW04844	HGS3	●	12.31	0.484	0.516	5.039	2.461	2.480		31/64
	HGS3S	●			14.0					
MDW1240	HGS3	●	12.4	0.488	13.0	128	62.5	63		
	HGS3S	●			14.0					
MDW1250	HGS3	●	12.5	0.492	13.0	128	62.5	63		
	HGS3S	●			14.0					
MDW1260	HGS3	●	12.6	0.496	13.0	128	65	63		
	HGS3S	●			14.0					
MDW1270	HGS3	●	12.7	0.500	13.0	128	65	63		1/2
	HGS3S	●			14.0					
MDW05000	HGS3	●	12.7	0.500	0.516	5.039	2.559	2.480		1/2
	HGS3S	●			14.0					
MDW1280	HGS3	●	12.8	0.504	13.0	128	65	63		
	HGS3S	●			14.0					
MDW1290	HGS3	●	12.9	0.508	13.0	128	65	63		
	HGS3S	●			14.0					
MDW1300	HGS3	●	13.0	0.512	13.0	128	65	63		
	HGS3S	●			14.0					
MDW05156	HGS3	●	13.09	0.516	0.516	5.039	2.559	2.480	9/16-18	33/64
	HGS3S	●			14.0					
MDW1310	HGS3	●	13.1	0.516	14.0	134	67.5	64		
	HGS3S									
MDW1320	HGS3	●	13.2	0.520	14.0	134	67.5	64		
	HGS3S									
MDW1330	HGS3	●	13.3	0.524	14.0	134	67.5	64		
	HGS3S									
MDW1340	HGS3	●	13.4	0.528	14.0	134	67.5	64		
	HGS3S									
MDW05312	HGS3	●	13.49	0.531	0.547	5.276	2.658	2.520	5/8-11	17/32
	HGS3S	●			14.0					
MDW1350	HGS3	●	13.5	0.532	14.0	134	67.5	64		
	HGS3S									
MDW1360	HGS3	●	13.6	0.535	14.0	134	70	64		
	HGS3S									
MDW1370	HGS3	●	13.7	0.539	14.0	134	70	64		
	HGS3S									
MDW1380	HGS3	●	13.8	0.543	14.0	134	70	64		
	HGS3S									
MDW05469	HGS3	●	13.89	0.547	0.547	5.276	2.756	2.520	M16x2	35/64
	HGS3S	●			14.0					
MDW1390	HGS3	●	13.9	0.547	14.0	134	70	64		
	HGS3S									
MDW1400	HGS3	●	14.0	0.551	14.0	134	70	64		
	HGS3S									
MDW1410	HGS3	●	14.1	0.555	15.0	140	72.5	65		
	HGS3S	●			16.0					
MDW1420	HGS3	●	14.2	0.559	15.0	140	72.5	65		
	HGS3S	●			16.0					
MDW05625	HGS3	●	14.29	0.563	0.594	5.512	2.854	2.559		9/16
	HGS3S	●			16.0					
MDW1430	HGS3	●	14.3	0.563	15.0	140	72.5	65		
	HGS3S	●			16.0					
MDW1440	HGS3	●	14.4	0.567	15.0	140	72.5	65		
	HGS3S	●			16.0					
MDW1450	HGS3	●	14.5	0.571	15.0	140	72.5	65		
	HGS3S	●			16.0					
MDW1460	HGS3	●	14.6	0.575	15.0	140	75	65		
	HGS3S	●			16.0					
MDW05781	HGS3	●	14.68	0.578	0.594	5.512	2.953	2.559	5/8-18	37/64
	HGS3S	●			16.0					
MDW1470	HGS3	●	14.7	0.579	15.0	140	75	65		
	HGS3S	●			16.0					

SERIES
MDW-HGS3

Carbon Steel Up to 0.28%	Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 3D

135°



Items labeled in purple represent drills that fit in Shrink Fit Holders

Catalog Number (inch/metric) Ex: *MDW0900HGS3 or MDW0900HGS3S*	Type	Stock	D_C mm	D_C Inch	Shank Diameter D_S (in/mm)	Overall Length L (in/mm)	Flute Length ℓ_1 (in/mm)	Shank Length ℓ_2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW1480	HGS3	●	14.8	0.583	15.0	140	75	65		
	HGS3S	●			16.0					
MDW1490	HGS3	●	14.9	0.587	15.0	140	75	65		
	HGS3S	●			16.0					
MDW1500	HGS3	●	15.0	0.591	15.0	140	75	65		
	HGS3S	●			16.0					
MDW05937	HGS3	●	15.08	0.594	0.594	5.515	2.953	2.559		19/32
	HGS3S	●			16.0					
MDW1510	HGS3	●	15.1	0.595	16.0	146	77.5	66		
	HGS3S									
MDW1520	HGS3	●	15.2	0.598	16.0	146	77.5	66		
	HGS3S									
MDW1530	HGS3	●	15.3	0.602	16.0	146	77.5	66		
	HGS3S									
MDW1540	HGS3	●	15.4	0.606	16.0	146	77.5	66		
	HGS3S									
MDW06094	HGS3	●	15.48	0.609	0.625	5.748	3.051	2.598	11/16-12	39/64
	HGS3S	●			16.0					
MDW1550	HGS3	●	15.5	0.610	16.0	146	77.5	66	M18x2.5	
	HGS3S									
MDW1560	HGS3	●	15.6	0.614	16.0	146	80	66		
	HGS3S									
MDW1570	HGS3	●	15.7	0.618	16.0	146	80	66		
	HGS3S									
MDW1580	HGS3	●	15.8	0.622	16.0	146	80	66		
	HGS3S									
MDW06250	HGS3	●	15.88	0.625	0.625	5.748	3.150	2.598	11/16-16	5/8
	HGS3S	●			16.0					
MDW1590	HGS3	●	15.9	0.626	16.0	146	80	66		
	HGS3S									
MDW1600	HGS3	●	16.0	0.630	16.0	146	80	66		
	HGS3S									
MDW06406	HGS3	●	16.27	0.641	0.669	5.984	3.248	2.638		41/64
	HGS3S									
MDW1650	HGS3	●	16.5	0.650	17.0	152	82.5	67		
	HGS3S									
MDW06562	HGS3	●	16.67	0.656	0.669	5.984	3.346	2.638	3/4-10	21/32
	HGS3S									
MDW1700	HGS3	●	17.0	0.669	17.0	152	85	67		
	HGS3S									
MDW06875	HGS3	●	17.46	0.687	0.709	6.220	3.445	2.677	3/4-16	11/16
	HGS3S									
MDW1750	HGS3	●	17.5	0.689	17.0	158	87.5	68		
	HGS3S									
MDW07031	HGS3	●	17.86	0.703	0.709	6.220	3.543	2.677		45/64
	HGS3S									
MDW1800	HGS3	★	18.0	0.709	18.0	158	90	68		
	HGS3S									
MDW07187	HGS3	●	18.25	0.719	0.748	6.457	3.642	2.717		23/32
	HGS3S									
MDW1850	HGS3	★	18.5	0.728	18.0	164	92.5	69		
	HGS3S									
MDW07344	HGS3	●	18.65	0.734	0.748	6.457	3.740	2.717	7/8-9	47/64
	HGS3S									
MDW1900	HGS3	●	19.0	0.748	19.0	164	95	69		
	HGS3S									
MDW07500	HGS3	●	19.05	0.750	0.787	6.693	3.839	2.756		3/4
	HGS3S									
MDW1925	HGS3	●	19.25	0.748	20.0	170	97.5	70		72/95
	HGS3S									
MDW1950	HGS3	★	19.5	0.768	20.0	170	97.5	70		
	HGS3S									
MDW07812	HGS3	●	19.84	0.781	0.787	6.693	3.937	2.756		25/32
	HGS3S									
MDW2000	HGS3	★	20.0	0.787	20.0	170	100	70		
	HGS3S									

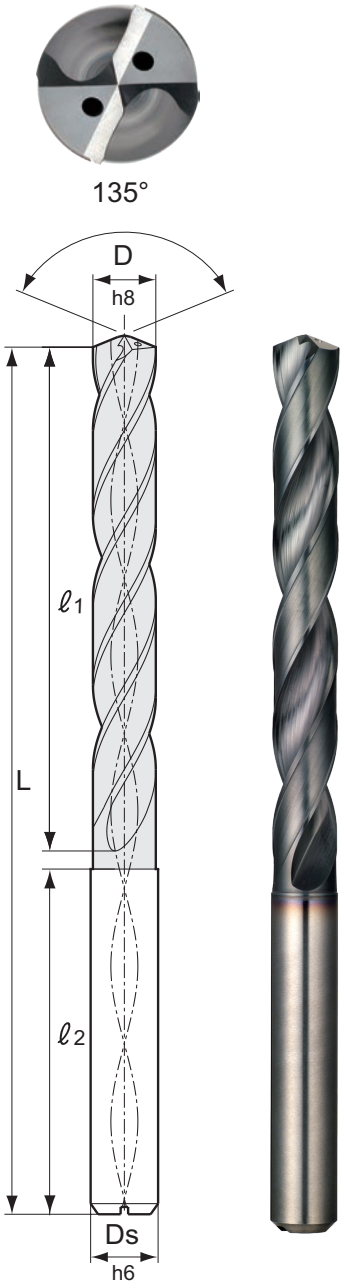
MDW-HGS5 Series Solid Carbide Drills

Coolant Through Drills

Carbon Steel, Alloy Steel		Tempered Steel	Hardened Steel		Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite
Up to 0.28%	From 0.29%		Up to 45HRC	From 46HRC								CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 5D

Items labeled in purple represent drills that fit in Shrink Fit Holders



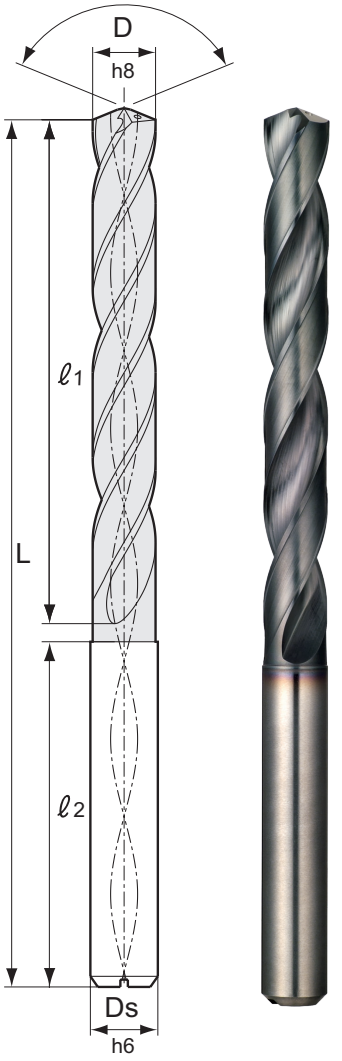
Catalog Number (inch/metric) Ex: *MDW0900HGS5 or MDW0900HGS5S*	Type	Stock	Dc mm	Dc Inch	Shank Diameter Ds (in/mm)	Overall Length L (in/mm)	Flute Length ℓ1 (in/mm)	Shank Length ℓ2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW0150	HGS5	●	1.50	0.059	3.0	70	14	56		
	HGS5S									
MDW0160	HGS5	●	1.60	0.063	3.0	70	19	51		
	HGS5S									
MDW0170	HGS5	●	1.70	0.067	3.0	70	19	51		
	HGS5S									
MDW0180	HGS5	●	1.80	0.071	3.0	70	19	51		
	HGS5S									
MDW0190	HGS5	●	1.90	0.075	3.0	70	19	51		
	HGS5S									
MDW0200	HGS5	●	2.00	0.079	3.0	70	19	49		
	HGS5S									
MDW0210	HGS5	●	2.10	0.083	3.0	78	24	52		
	HGS5S									
MDW0220	HGS5	●	2.20	0.087	3.0	78	24	52		
	HGS5S									
MDW0230	HGS5	●	2.30	0.091	3.0	78	24	52		
	HGS5S									
MDW00937	HGS5	●	2.38	0.094	.125	3.07	0.945	1.889		3/32
	HGS5S	●			3.0					
MDW0240	HGS5	●	2.40	0.095	3.0	78	24	52		
	HGS5S									
MDW0250	HGS5	●	2.50	0.098	3.0	78	24	52		
	HGS5S									
MDW0260	HGS5	●	2.60	0.102	3.0	78	28	48		
	HGS5S									
MDW0270	HGS5	●	2.70	0.106	3.0	78	28	48		
	HGS5S									
MDW01094	HGS5	●	2.78	0.109	.125	3.07	1.10	1.889		7/64
	HGS5S	●			3.0					
MDW0280	HGS5	●	2.80	0.110	3.0	78	28	48		
	HGS5S									
MDW0290	HGS5	●	2.90	0.114	3.0	78	28	48		
	HGS5S									
MDW0300	HGS5	●	3.00	0.118	3.0	78	28	48		
	HGS5S	●			6.0					
MDW0310	HGS5	●	3.10	0.122	4.0	86	32	52		
	HGS5S	●			6.0					
MDW01250	HGS5	●	3.18	0.125	.125	3.07	1.10	1.889		1/8
	HGS5S	●			6.0					
MDW0320	HGS5	●	3.20	0.126	4.0	86	32	52		
	HGS5S	●			6.0					
MDW0330	HGS5	●	3.30	0.130	4.0	86	32	52		
	HGS5S	●			6.0					
MDW0340	HGS5	●	3.40	0.134	4.0	86	32	52		
	HGS5S	●			6.0					
MDW0350	HGS5	●	3.50	0.138	4.0	86	32	52		
	HGS5S	●			6.0					
MDW01406	HGS5	●	3.57	0.140	.156	3.39	1.42	1.890		
	HGS5S	●			6.0					
MDW0360	HGS5	●	3.60	0.142	4.0	86	36	48		
	HGS5S	●			6.0					
MDW0370	HGS5	●	3.70	0.146	4.0	86	36	48		
	HGS5S	●			6.0					
MDW0380	HGS5	●	3.80	0.150	4.0	86	36	48		
	HGS5S	●			6.0					
MDW0390	HGS5	●	3.90	0.154	4.0	86	36	48		
	HGS5S	●			6.0					
MDW01562	HGS5	●	3.97	0.156	.156	3.39	1.42	1.890		5/32
	HGS5S	●			6.0					
MDW0400	HGS5	●	4.00	0.158	4.0	86	36	48		
	HGS5S	●			6.0					
MDW01590	HGS5	●	4.04	0.159	.188	3.86	1.57	2.20		#21
	HGS5S	●			6.0					
MDW0410	HGS5	●	4.10	0.161	5.0	98	40	56		
	HGS5S	●			6.0					
MDW0420	HGS5	●	4.20	0.165	5.0	98	40	56		
	HGS5S	●			6.0					
MDW0430	HGS5	●	4.30	0.169	5.0	98	40	56		
	HGS5S	●			6.0					
MDW01719	HGS5	●	4.37	0.172	.188	3.86	1.57	2.20		11/64
	HGS5S	●			6.0					

SERIES MDW-HGS5

Carbon Steel Up to 0.28%	Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 5D

135°



Items labeled in purple represent drills that fit in Shrink Fit Holders

Catalog Number (inch/metric) Ex: *MDW0900HGS5 or MDW0900HGS5S*	Type	Stock	D_C mm	D_C Inch	Shank Diameter D_S (in/mm)	Overall Length L (in/mm)	Flute Length ℓ_1 (in/mm)	Shank Length ℓ_2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW0440	HGS5	●	4.40	0.173	5.0	98.0	40	56		
	HGS5S	●			6.0					
MDW0450	HGS5	●	4.50	0.177	5.0	98.0	40	56		
	HGS5S	●			6.0					
MDW0460	HGS5	●	4.60	0.181	5.0	98.0	44	52		
	HGS5S	●			6.0					
MDW0470	HGS5	●	4.70	0.185	5.0	98.0	44	52		
	HGS5S	●			6.0					
MDW01875	HGS5	●	4.76	0.188	0.188	3.86	1.73	2.05		3/16
	HGS5S	●			6.0					
MDW0480	HGS5	●	4.80	0.189	5.0	98.0	44	52		
	HGS5S	●			6.0					
MDW0490	HGS5	●	4.90	0.193	5.0	98.0	44	52		
	HGS5S	●			6.0					
MDW0500	HGS5	●	5.00	0.196	5.0	98.0	44	52		
	HGS5S	●			6.0					
MDW0510	HGS5	●	5.10	0.201	6.0	100.0	44	54		
	HGS5S									
MDW02031	HGS5	●	5.16	0.203	0.234	3.937	1.73	2.13		13/64
	HGS5S	●			6.0					
MDW0520	HGS5	●	5.20	0.205	6.0	100.0	44	54		
	HGS5S									
MDW0530	HGS5	●	5.30	0.209	6.0	100.0	44	54		
	HGS5S									
MDW0540	HGS5	●	5.40	0.213	6.0	100.0	44	54		
	HGS5S									
MDW02130	HGS5	●	5.41	0.213	0.234	3.94	1.73	2.13		#3
	HGS5S	●			6.0					
MDW0550	HGS5	●	5.50	0.216	6.0	100.0	44	54		
	HGS5S									
MDW02188	HGS5	●	5.56	0.219	0.234	3.94	1.89	2.047		7/32
	HGS5S	●			6.0					
MDW0560	HGS5	●	5.60	0.221	6.0	100.0	48	52		
	HGS5S									
MDW02210	HGS5	●	5.61	0.221	0.234	3.94	1.89	2.047		#2
	HGS5S	●			6.0					
MDW0570	HGS5	●	5.70	0.224	6.0	100.0	48	52		
	HGS5S									
MDW0580	HGS5	●	5.80	0.228	6.0	100.0	48	52		
	HGS5S									
MDW0590	HGS5	●	5.90	0.232	6.0	100.0	48	52		
	HGS5S									
MDW02344	HGS5	●	5.995	0.234	0.234	3.94	1.89	2.047		15/64
	HGS5S	●			6.0					
MDW0600	HGS5	●	6.00	0.236	6.0	100.0	48	52		
	HGS5S									
MDW0610	HGS5	●	6.10	0.240	7.0	109.0	52	53		
	HGS5S	●			8.0					
MDW0620	HGS5	●	6.20	0.244	7.0	109.0	52	53		
	HGS5S	●			8.0					
MDW0630	HGS5	●	6.30	0.248	7.0	109.0	52	53		
	HGS5S	●			8.0					
MDW02500	HGS5	●	6.35	0.250	0.281	4.29	2.05	2.08		1/4
	HGS5S	●			8.0					
MDW0640	HGS5	●	6.40	0.252	7.0	109.0	52	53		
	HGS5S	●			8.0					
MDW0650	HGS5	●	6.50	0.256	7.0	109.0	52	53		
	HGS5S	●			8.0					
MDW02570	HGS5	●	6.53	0.257	0.281	3.465	2.20	2.087		#F
	HGS5S	●			8.0					
MDW0653	HGS5	●	6.53	0.257	7.0	109.0	56	53		
	HGS5S	●			8.0					
MDW0660	HGS5	●	6.60	0.260	7.0	109.0	56	53		
	HGS5S	●			8.0					
MDW0670	HGS5	●	6.70	0.264	7.0	109.0	56	53		
	HGS5S	●			8.0					
MDW02656	HGS5	●	6.75	0.266	0.281	4.29	2.20	2.087		17/64
	HGS5S	●			8.0					
MDW02660	HGS5	●	6.76	0.266	0.281	4.29	2.20	2.087		#H
	HGS5S	●			8.0					

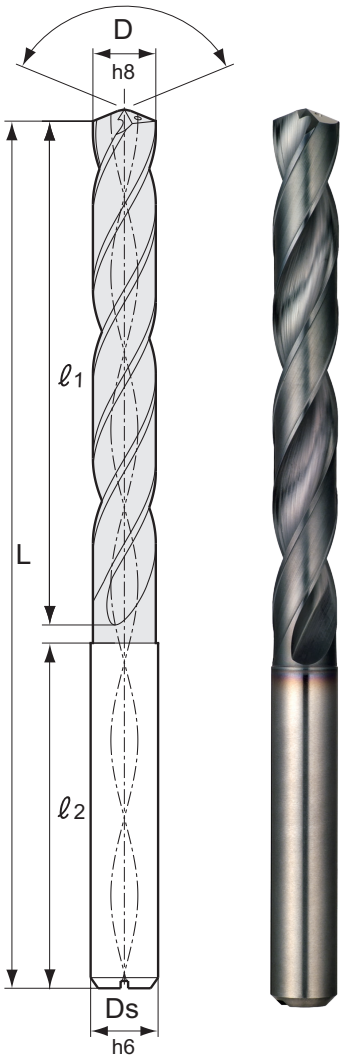
MDW-HGS5 Series Solid Carbide Drills

Coolant Through Drills

Carbon Steel, Alloy Steel		Tempered Steel	Hardened Steel		Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
Up to 0.28%	From 0.29%		Up to 45HRC	From 46HRC								
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 5D

135°



Items labeled in purple represent drills that fit in Shrink Fit Holders

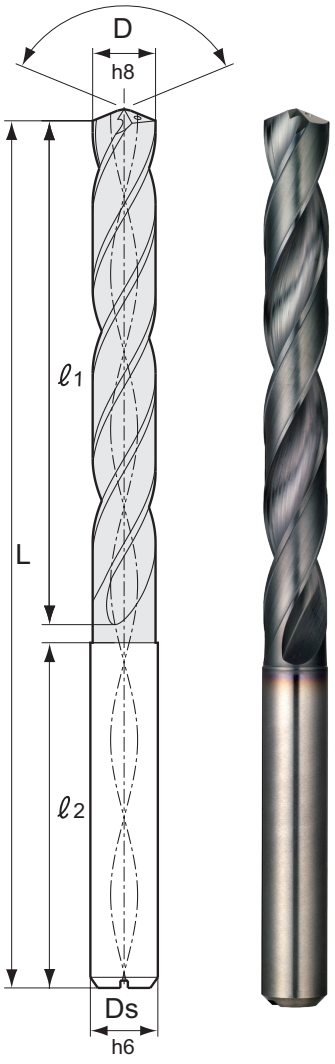
Catalog Number (inch/metric) Ex: *MDW0900HGS5 or MDW0900HGS5S*	Type	Stock	Dc mm	Dc Inch	Shank Diameter Ds (in/mm)	Overall Length L (in/mm)	Flute Length ℓ1 (in/mm)	Shank Length ℓ2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW0680	HGS5	●	6.80	0.268	7.0	109.0	56	53		
	HGS5S	●			8.0					
MDW0690	HGS5	●	6.90	0.272	7.0	109.0	56	53		
	HGS5S	●			8.0					
MDW02720	HGS5	●	6.91	0.272	0.281	4.29	2.20	2.087		#I
	HGS5S	●			8.0					
MDW0700	HGS5	●	7.00	0.276	7.0	109.0	56	53		
	HGS5S	●			8.0					
MDW02770	HGS5	●	7.04	0.277	0.281	4.29	2.20	2.087		#J
	HGS5S	●			8.0					
MDW0710	HGS5	●	7.10	0.280	8.0	118.0	60	53		
	HGS5S									
MDW02812	HGS5	●	7.14	0.281	0.281	4.29	2.20	2.087		9/32
	HGS5S	●			8.0					
MDW0720	HGS5	●	7.20	0.284	8.0	118.0	60	54		
	HGS5S									
MDW0730	HGS5	●	7.30	0.287	8.0	118.0	60	54		
	HGS5S									
MDW0740	HGS5	●	7.40	0.291	8.0	118.0	60	54		
	HGS5S									
MDW0750	HGS5	●	7.50	0.295	8.0	118.0	60	54		
	HGS5S									
MDW02969	HGS5	●	7.54	0.297	0.313	4.64	2.52	2.126		19/64
	HGS5S	●			8.0					
MDW0760	HGS5	●	7.60	0.299	8.0	118.0	64	54		
	HGS5S									
MDW0770	HGS5	●	7.70	0.303	8.0	118.0	64	54		
	HGS5S									
MDW0780	HGS5	●	7.80	0.307	8.0	118.0	64	54		
	HGS5S									
MDW0790	HGS5	●	7.90	0.311	8.0	118.0	64	54		
	HGS5S									
MDW03125	HGS5	●	7.94	0.313	0.313	4.64	2.52	2.126		5/16
	HGS5S	●			8.0					
MDW0800	HGS5	●	8.00	0.315	8.0	118.0	64	54		
	HGS5S									
MDW0810	HGS5	●	8.10	0.319	9.0	127.0	68	55		
	HGS5S	●			10.0					
MDW0820	HGS5	●	8.20	0.323	9.0	127.0	68	55		
	HGS5S	●			10.0					
MDW03230	HGS5	●	8.204	0.323	0.359	5.0	2.68	2.165		#P
	HGS5S	●			10.0					
MDW0830	HGS5	●	8.30	0.327	9.0	127.0	68	55		
	HGS5S	●			10.0					
MDW03281	HGS5	●	8.33	0.328	0.359	5.0	2.68	2.165		21/64
	HGS5S	●			10.0					
MDW0840	HGS5	●	8.40	0.331	9.0	127.0	68	55		
	HGS5S	●			10.0					
MDW03320	HGS5	●	8.43	0.332	0.359	5.0	2.68	2.165		#Q
	HGS5S	●			10.0					
MDW0850	HGS5	●	8.50	0.335	9.0	127.0	68	55		
	HGS5S	●			10.0					
MDW0860	HGS5	●	8.60	0.339	9.0	127.0	72	55		
	HGS5S	●			10.0					
MDW0870	HGS5	●	8.70	0.343	9.0	127.0	72	55		
	HGS5S	●			10.0					
MDW03438	HGS5	●	8.73	0.344	0.359	5.00	2.83	2.165		11/32
	HGS5S	●			10.0					
MDW0880	HGS5	●	8.80	0.347	9.0	127.0	72	55		
	HGS5S	●			10.0					
MDW0890	HGS5	●	8.90	0.350	9.0	127.0	72	55		
	HGS5S	●			10.0					
MDW0900	HGS5	●	9.00	0.354	9.0	127.0	72	55		
	HGS5S	●			10.0					
MDW0910	HGS5	●	9.10	0.358	10.0	136.0	76	56		
	HGS5S									
MDW03594	HGS5	●	9.13	0.359	0.359	5.0	2.83	2.16		23/64
	HGS5S	●			10.0					

SERIES MDW-HGS5

Carbon Steel Up to 0.28%	Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 5D

135°



Items labeled in purple represent drills that fit in Shrink Fit Holders

Catalog Number (inch/metric) Ex: *MDW0900HGS5 or MDW0900HGS5S*	Type	Stock	D_C mm	D_C Inch	Shank Diameter D_S (in/mm)	Overall Length L (in/mm)	Flute Length ℓ_1 (in/mm)	Shank Length ℓ_2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW0920	HGS5	●	9.2	0.362	10.0	136	76	56		
	HGS5S									
MDW0930	HGS5	●	9.3	0.366	10.0	136	76	56		
	HGS5S									
MDW03680	HGS5	●	9.35	0.368	0.391	5.35	2.99	2.205		#U
	HGS5S	●			10.0					
MDW0940	HGS5	●	9.4	0.370	10.0	136	76	56		
	HGS5S									
MDW0950	HGS5	●	9.5	0.374	10.0	136	76	56		
	HGS5S									
MDW03750	HGS5	●	9.53	0.375	0.391	5.35	3.15	2.205		3/8
	HGS5S	●			10.0					
MDW0960	HGS5	●	9.6	0.378	10.0	136	80	56		
	HGS5S									
MDW0970	HGS5	●	9.7	0.382	10.0	136	80	56		
	HGS5S									
MDW0980	HGS5	●	9.8	0.386	10.0	136	80	56		
	HGS5S									
MDW0990	HGS5	●	9.9	0.390	10.0	136	80	56		
	HGS5S									
MDW03906	HGS5	●	9.92	0.391	0.391	5.35	3.14	2.205		25/64
	HGS5S	●			10.0					
MDW1000	HGS5	●	10.0	0.394	10.0	136	80	56		
	HGS5S									
MDW1010	HGS5	●	10.1	0.398	11.0	149	84	61		
	HGS5S	●			12.0					
MDW1020	HGS5	●	10.2	0.402	11.0	149	84	61		
	HGS5S	●			12.0					
MDW1030	HGS5	●	10.3	0.406	11.0	149	84	61		
	HGS5S	●			12.0					
MDW4062	HGS5	●	10.32	0.406	0.438	5.87	3.31	2.402		13/32
	HGS5S	●			12.0					
MDW1040	HGS5	●	10.4	0.409	11.0	149	84	61		
	HGS5S	●			12.0					
MDW1050	HGS5	●	10.5	0.413	11.0	149	84	61		
	HGS5S	●			12.0					
MDW1060	HGS5	●	10.6	0.417	11.0	149	88	61		
	HGS5S	●			12.0					
MDW1070	HGS5	●	10.7	0.421	11.0	149	88	61		
	HGS5S	●			12.0					
MDW04219	HGS5	●	10.72	0.422	0.438	5.87	3.47	2.402		27/64
	HGS5S	●			12.0					
MDW1080	HGS5	●	10.8	0.425	11.0	149	88	61		
	HGS5S	●			12.0					
MDW1090	HGS5	●	10.9	0.429	11.0	149	88	61		
	HGS5S	●			12.0					
MDW1100	HGS5	●	11.0	0.433	11.0	149	88	61		
	HGS5S	●			12.0					
MDW1110	HGS5	●	11.1	0.437	12.0	158	92	62		
	HGS5S									
MDW04375	HGS5	●	11.11	0.438	0.438	5.87	3.47	2.402		7/16
	HGS5S	●			12.0					
MDW1120	HGS5	●	11.2	0.441	12.0	158	92	62		
	HGS5S									
MDW1130	HGS5	●	11.3	0.445	12.0	158	92	62		
	HGS5S									
MDW1140	HGS5	●	11.4	0.449	12.0	158	92	62		
	HGS5S									
MDW1150	HGS5	●	11.5	0.453	12.0	158	92	62		
	HGS5S									
MDW04531	HGS5	●	11.51	0.453	0.469	6.22	3.78	2.441		29/64
	HGS5S	●			12.0					
MDW1160	HGS5	●	11.6	0.457	12.0	158	96	62		
	HGS5S									
MDW1170	HGS5	●	11.7	0.461	12.0	158	96	62		
	HGS5S									
MDW1180	HGS5	●	11.8	0.465	12.0	158	96	62		
	HGS5S									
MDW1190	HGS5	●	11.9	0.469	12.0	158	96	62		
	HGS5S									
MDW04688	HGS5	●	11.91	0.469	0.469	6.22	3.78	2.441		15/32
	HGS5S	●			12.0					

MDW-HGS5 Series Solid Carbide Drills

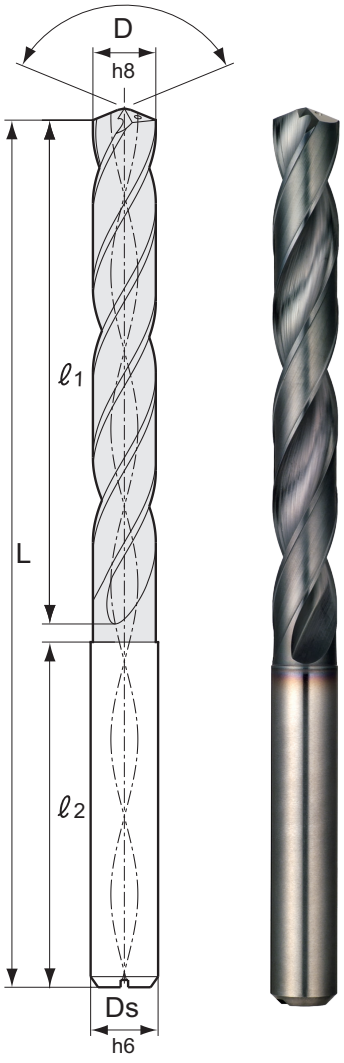
Coolant Through Drills

Items labeled in purple represent drills that fit in Shrink Fit Holders

Carbon Steel, Alloy Steel		Tempered Steel	Hardened Steel		Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
Up to 0.28%	From 0.29%		Up to 45HRC	From 46HRC								
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 5D

135°



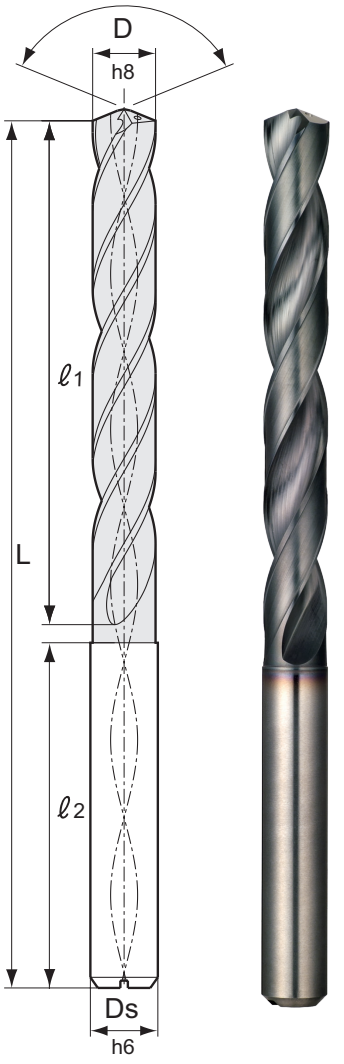
Catalog Number (inch/metric) Ex: *MDW0900HGS5 or MDW0900HGS5S*	Type	Stock	D_C mm	D_C Inch	Shank Diameter D_S (in/mm)	Overall Length L (in/mm)	Flute Length ℓ_1 (in/mm)	Shank Length ℓ_2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW1200	HGS5	●	12.0	0.472	12.0	158	96	63		
	HGS5S									
MDW1210	HGS5	●	12.1	0.476	13.0	167	*100*	63		
	HGS5S	●			14.0					
MDW1220	HGS5	●	12.2	0.480	13.0	167	*100*	63		
	HGS5S	●			14.0					
MDW1230	HGS5	●	12.3	0.484	13.0	167	*100*	63		
	HGS5S	●			14.0					
MDW04844	HGS5	●	12.31	0.484	0.516	6.57	3.78	2.480		31/64
	HGS5S	●			14.0					
MDW1240	HGS5	●	12.4	0.488	13.0	167	*100*	63		
	HGS5S	●			14.0					
MDW1250	HGS5	●	12.5	0.492	13.0	167	*100*	63		
	HGS5S	●			14.0					
MDW1260	HGS5	●	12.6	0.496	13.0	167	*104*	63		
	HGS5S	●			14.0					
MDW1270	HGS5	●	12.7	0.500	13.0	167	*104*	63		1/2
	HGS5S	●			14.0					
MDW05000	HGS5	●	12.7	0.500	0.516	6.57	4.09	2.480		1/2
	HGS5S	●			14.0					
MDW1280	HGS5	●	12.8	0.504	13.0	167	*104*	63		
	HGS5S	●			14.0					
MDW1283	HGS5	●	12.83	0.505	13.0	167	*104*	63		
	HGS5S	●			14.0					
MDW1290	HGS5	●	12.9	0.508	13.0	167	*104*	63		
	HGS5S	●			14.0					
MDW1300	HGS5	●	13.0	0.512	13.0	167	*104*	63		
	HGS5S	●			14.0					
MDW05156	HGS5	●	13.09	0.516	0.516	6.57	4.09	2.480		33/64
	HGS5S	●			14.0					
MDW1310	HGS5	●	13.1	0.516	14.0	176	108	64		
	HGS5S									
MDW1320	HGS5	●	13.2	0.520	14.0	176	108	64		
	HGS5S									
MDW1330	HGS5	●	13.3	0.524	14.0	176	108	64		
	HGS5S									
MDW1340	HGS5	●	13.4	0.528	14.0	176	108	64		
	HGS5S									
MDW05312	HGS5	●	13.49	0.531	0.547	6.93	4.25	2.520		17/32
	HGS5S	●			14.0					
MDW1350	HGS5	●	13.5	0.532	14.0	176	108	64		
	HGS5S									
MDW1360	HGS5	●	13.6	0.535	14.0	176	112	64		
	HGS5S									
MDW1370	HGS5	●	13.7	0.539	14.0	176	112	64		
	HGS5S									
MDW1380	HGS5	●	13.8	0.543	14.0	176	112	64		
	HGS5S									
MDW05469	HGS5	●	13.89	0.547	0.547	6.93	4.41	2.520		35/64
	HGS5S	●			14.0					
MDW1390	HGS5	●	13.9	0.547	14.0	176	112	64		
	HGS5S									
MDW1400	HGS5	●	14.0	0.551	14.0	176	112	64		
	HGS5S									
MDW1410	HGS5	●	14.1	0.555	15.0	185	116	65		
	HGS5S	●			16.0					
MDW1420	HGS5	●	14.2	0.559	15.0	185	116	65		
	HGS5S	●			16.0					
MDW05625	HGS5	●	14.29	0.563	0.594	7.28	4.57	2.559		9/16
	HGS5S	●			16.0					
MDW1430	HGS5	●	14.3	0.563	15.0	185	116	65		
	HGS5S	●			16.0					
MDW1440	HGS5	●	14.4	0.567	15.0	185	116	65		
	HGS5S	●			16.0					
MDW1450	HGS5	●	14.5	0.571	15.0	185	116	65		
	HGS5S	●			16.0					
MDW1460	HGS5	●	14.6	0.575	15.0	185	120	65		
	HGS5S	●			16.0					
MDW05781	HGS5	●	14.68	0.578	0.594	7.28	4.72	2.55	5/8-18	37/64
	HGS5S	●			16.0					
MDW1470	HGS5	●	14.7	0.579	15.0	185	120	65		
	HGS5S	●			16.0					

SERIES
MDW-HGS5

Carbon Steel Up to 0.28%	Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 5D

135°



Items labeled in purple represent drills that fit in Shrink Fit Holders

Catalog Number (inch/metric) Ex: *MDW0900HGS5 or MDW0900HGS5S*	Type	Stock	D_C mm	D_C Inch	Shank Diameter D_S (in/mm)	Overall Length L (in/mm)	Flute Length ℓ_1 (in/mm)	Shank Length ℓ_2 (in/mm)	Tap Size	Fractional Wire & Letters
MDW1480	HGS5	●	14.8	0.583	15.0	185	120	65		
	HGS5S	●			16.0					
MDW1490	HGS5	●	14.9	0.587	15.0	185	120	65		
	HGS5S	●			16.0					
MDW1500	HGS5	●	15.0	0.591	15.0	185	120	65		
	HGS5S	●			16.0					
MDW05937	HGS5	●	15.08	0.594	0.594	7.28	4.72	2.559		19/32
	HGS5S	●			16.0					
MDW1510	HGS5	●	15.1	0.595	16.0	194	124	66		
	HGS5S									
MDW1520	HGS5	●	15.2	0.598	16.0	194	124	66		
	HGS5S									
MDW1530	HGS5	●	15.3	0.602	16.0	194	124	66		
	HGS5S									
MDW1540	HGS5	●	15.4	0.606	16.0	194	124	66		
	HGS5S									
MDW06094	HGS5	●	15.48	0.609	0.625	7.64	4.88	2.598	11/16-12	39/64
	HGS5S	●			16.0					
MDW1550	HGS5	●	15.5	0.610	16.0	194	124	66	M18X2.5	
	HGS5S									
MDW1560	HGS5	●	15.6	0.614	16.0	194	128	66		
	HGS5S									
MDW1570	HGS5	●	15.7	0.618	16.0	194	128	66		
	HGS5S									
MDW1580	HGS5	●	15.8	0.622	16.0	194	128	66		
	HGS5S									
MDW06250	HGS5	●	15.88	0.625	0.625	7.64	5.04	2.598	11/16-16	5/8
	HGS5S	●			16.0					
MDW1590	HGS5	●	15.9	0.626	16.0	194	128	66		
	HGS5S									
MDW1600	HGS5	●	16.0	0.630	16.0	194	128	66		
	HGS5S									
MDW06406	HGS5	●	16.27	0.641	0.669	7.992	5.197	66		41/64
	HGS5S									
MDW1650	HGS5	★	16.5	0.650	17.0	203	132	67		
	HGS5S									
MDW06562	HGS5	●	16.67	0.656	0.669	7.992	5.354	67	3/4-10	21/32
	HGS5S									
MDW1700	HGS5	★	17.0	0.669	17.0	203	136	67		
	HGS5S									
MDW06875	HGS5	●	17.46	0.709	0.709	8.425	5.512	67	3/4-16	11/16
	HGS5S									
MDW1750	HGS5	★	17.5	0.689	17.0	214	140	74		
	HGS5S									
MDW1800	HGS5	★	18.0	0.709	18.0	214	144	70		
	HGS5S									
MDW1850	HGS5	★	18.5	0.728	18.0	221	148	73		
	HGS5S									
MDW1900	HGS5	★	19.0	0.748	19.0	221	152	69		
	HGS5S									
MDW1950	HGS5	★	19.5	0.768	19.0	230	156	74		
	HGS5S									
MDW2000	HGS5	★	20.0	0.787	20.0	230	160	70		
	HGS5S									

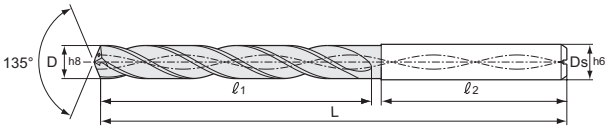
MDW-HGS8 Series Solid Carbide
Coolant Through Drills

Carbon Steel, Alloy Steel Up to 0.28%	Carbon Steel, Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 8D

h8 Manufacturing Tolerances

Tolerances of Diameters (in.)		Tolerances of Diameters (in.)		Tolerances of Diameters (in.)	
D ≦ .118	+0 -.00055	.236 < D ≦.394	+0 -.00087	.709 < D ≦.768	+0 -.00130
.118 < D ≦.236	+0 -.00071	.394 < D ≦.709	+0 -.00106		



MDW-HGS8 8XD drill for excellent chip management and long tool life (Internal coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW0150HGS8	●		0.0591	*1.50*	*70.0*	*18.5*		*3.00*	
MDW0200HGS8	●		0.0787	*2.00*	*76.00*	*24.00*	*50.00*	*3.00*	
MDW0210HGS8			0.0827	*2.10*	*81.00*	*27.50*	*52.00*	*3.00*	3-56
MDW0220HGS8			0.0866	*2.20*	*81.00*	*27.50*	*52.00*	*3.00*	
MDW0230HGS8			0.0906	*2.30*	*81.00*	*27.50*	*52.00*	*3.00*	
MDW00937HGS8	●	3/32	0.0937	2.38	3.1890	1.0827	2.0472	0.1250	
MDW0240HGS8			0.0945	*2.40*	*81.00*	*27.50*	*52.00*	*3.00*	
MDW0250HGS8	●		0.0984	*2.50*	*81.00*	*27.50*	*52.00*	*3.00*	
MDW0260HGS8			0.1024	*2.60*	*81.00*	*33.00*	*48.00*	*3.00*	
MDW0270HGS8			0.1063	*2.70*	*81.00*	*33.00*	*48.00*	*3.00*	6-32
MDW0280HGS8			0.1102	*2.80*	*81.00*	*33.00*	*48.00*	*3.00*	
MDW0290HGS8			0.1142	*2.90*	*81.00*	*33.00*	*48.00*	*3.00*	3.5x6
MDW0300HGS8	●		0.1181	*3.00*	*81.00*	*33.00*	*48.00*	*3.00*	
MDW0310HGS8			0.1220	*3.10*	*92.00*	*38.50*	*52.00*	*4.00*	
MDW01250HGS8	●	1/8	0.1250	*3.18*	3.1890	1.2992	1.8898	0.1250	
MDW0320HGS8			0.1260	*3.20*	*92.00*	*38.50*	*52.00*	*4.00*	
MDW0330HGS8	●		0.1299	*3.30*	*92.00*	*38.50*	*52.00*	*4.00*	M4x.7
MDW0340HGS8			0.1339	*3.40*	*92.00*	*38.50*	*52.00*	*4.00*	
MDW0350HGS8	●		0.1378	*3.50*	*92.00*	*38.50*	*52.00*	*4.00*	
MDW01406HGS8	●		0.1406	*3.57*	3.6220	1.7323	1.8898	0.1562	
MDW0360HGS8			0.1417	*3.60*	*92.00*	*44.00*	*48.00*	*4.00*	
MDW0370HGS8			0.1457	*3.70*	*92.00*	*44.00*	*48.00*	*4.00*	M4.5x.7
MDW0380HGS8	●		0.1496	*3.80*	*92.00*	*44.00*	*48.00*	*4.00*	
MDW0390HGS8			0.1535	*3.90*	*92.00*	*44.00*	*48.00*	*4.00*	
MDW01562HGS8	●	5/32	0.1562	*3.97*	3.6220	1.7323	1.8898	0.1562	
MDW0400HGS8	●		0.1575	*4.00*	*92.00*	*44.00*	*48.00*	*4.0*	
MDW01590HGS8	●	#21	0.1590	*4.04*	4.1339	1.9488	2.1260	0.1875	10-32
MDW0410HGS8			0.1614	*4.10*	*105.00*	*49.50*	*54.00*	*5.00*	
MDW0420HGS8	●		0.1654	*4.20*	*105.00*	*49.50*	*54.00*	*5.00*	M5x.8
MDW0430HGS8			0.1693	*4.30*	*105.00*	*49.50*	*54.00*	*5.00*	
MDW01719HGS8	●	11/64	0.1719	*4.37*	4.1339	1.9488	2.1260	0.1875	
MDW0440HGS8			0.1732	*4.40*	*105.00*	*49.50*	*54.00*	*5.00*	
MDW0450HGS8	●		0.1772	*4.50*	*105.00*	*49.50*	*54.00*	*5.00*	
MDW0460HGS8			0.1811	*4.60*	*105.00*	*55.00*	*50.00*	*5.00*	
MDW0470HGS8			0.1850	*4.70*	*105.00*	*55.00*	*50.00*	*5.00*	
MDW01875HGS8	●	3/16	0.1875	*4.76*	4.1339	2.1654	1.9685	0.1875	
MDW0480HGS8			0.1890	*4.80*	*105.00*	*55.00*	*50.00*	*5.00*	
MDW0490HGS8			0.1929	*4.90*	*105.00*	*55.00*	*50.00*	*5.00*	
MDW0500HGS8	●		0.1969	*5.00*	*105.00*	*55.00*	*50.00*	*5.00*	M6x1
MDW0510HGS8	★		0.2008	*5.10*	*118.00*	*60.50*	*56.00*	*6.00*	
MDW02010HGS8	●	#7	0.2010	*5.11*	4.6457	2.3819	2.2047	0.2344	1/4-20
MDW02031HGS8	●	13/64	0.2031	*5.16*	4.6457	2.3819	2.2047	0.2344	
MDW0520HGS8			0.2047	*5.20*	*118.00*	*60.50*	*56.00*	*6.00*	
MDW0530HGS8			0.2087	*5.30*	*118.00*	*60.50*	*56.00*	*6.00*	
MDW0540HGS8			0.2126	*5.40*	*118.00*	*60.50*	*56.00*	*6.00*	
MDW02130HGS8	●	#3	0.2130	*5.41*	4.6457	2.3819	2.2047	0.2344	
MDW0550HGS8	●		0.2165	*5.50*	*118.00*	*60.50*	*56.00*	*6.00*	
MDW02188HGS8	●	7/32	0.2188	*5.56*	4.6457	2.5984	2.0472	0.2344	1/4-28
MDW0560HGS8	●		0.2205	*5.60*	*118.00*	*66.00*	*52.00*	*6.00*	

●=USA stocked item ★ = Worldwide Warehouse item available in 10 business days

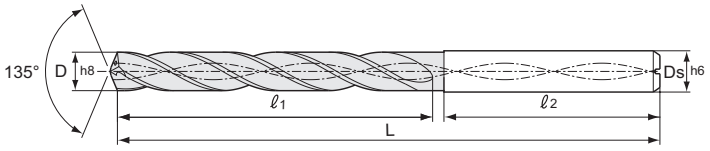
Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

(continued on next page)

SERIES
MDW-HGS8

Carbon Steel, Alloy Steel		Tempered Steel	Hardened Steel		Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
Up to 0.28%	From 0.29%		Up to 45HRC	From 46HRC								
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 8D



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MDW-HGS8 8XD drill for excellent chip management and long tool life (Internal coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW02210HGS8	●	#2	0.2210	*5.61*	4.6457	2.5984	2.0472	0.2344	
MDW0570HGS8			0.2244	*5.70*	*118.00*	*66.00*	*52.00*	*6.0*	
MDW0580HGS8			0.2283	*5.80*	*118.00*	*66.00*	*52.00*	*6.0*	
MDW0590HGS8			0.2323	*5.90*	*118.00*	*66.00*	*52.00*	*6.0*	
MDW02344HGS8	●	15/64	0.2344	*5.95*	4.6457	2.5984	2.0472	0.2344	
MDW0600HGS8	●		0.2362	*6.00*	*118.00*	*66.00*	*52.00*	*6.00*	M7x1
MDW0610HGS8			0.2402	*6.10*	*130.00*	*71.50*	*53.00*	*7.00*	
MDW0620HGS8			0.2441	*6.20*	*130.00*	*71.50*	*53.00*	*7.00*	
MDW0630HGS8			0.2480	*6.30*	*130.00*	*71.50*	*53.00*	*7.00*	
MDW02500HGS8	●	1/4	0.2500	*6.35*	5.1181	2.8150	2.0866	0.2812	
MDW0640HGS8			0.2520	*6.40*	*130.00*	*71.50*	*53.00*	*7.00*	
MDW0650HGS8	●		0.2559	*6.50*	*130.00*	*71.50*	*53.00*	*7.00*	
MDW02570HGS8	●	#F	0.2570	*6.53*	5.1181	3.0315	2.0866	0.2812	5/16-18
MDW0653HGS8			0.2571	*6.53*	*130.00*	*77.00*	*53.00*	*7.00*	
MDW0660HGS8			0.2598	*6.60*	*130.00*	*77.00*	*53.00*	*7.00*	
MDW0670HGS8			0.2638	*6.70*	*130.00*	*77.00*	*53.00*	*7.00*	
MDW02656HGS8	●	17/64	0.2656	*6.75*	5.1181	3.0315	2.0866	0.2812	
MDW02660HGS8	●	#H	0.2660	*6.76*	5.1181	3.0315	2.0866	0.2812	
MDW0680HGS8	●		0.2677	*6.80*	*130.00*	*77.00*	*53.00*	*7.00*	
MDW0690HGS8			0.2717	*6.90*	*130.00*	*77.00*	*53.00*	*7.00*	
MDW02720HGS8	●	#I	0.2720	*6.91*	5.1181	3.0315	2.0866	0.2812	5/16-24
MDW0700HGS8	●		0.2756	*7.00*	*130.00*	*77.00*	*53.00*	*7.00*	
MDW02770HGS8	●	#J	0.2770	*7.04*	5.1181	3.0315	2.0866	0.2812	
MDW0710HGS8			0.2795	*7.10*	*142.00*	*82.50*	*54.00*	*8.00*	
MDW02812HGS8	●	9/32	0.2812	*7.14*	5.1181	3.0315	2.0866	0.2812	
MDW0720HGS8			0.2835	*7.20*	*142.00*	*82.50*	*54.00*	*8.00*	
MDW0730HGS8			0.2874	*7.30*	*142.00*	*82.50*	*54.00*	*8.00*	
MDW0740HGS8			0.2913	*7.40*	*142.00*	*82.50*	*54.00*	*8.00*	
MDW0750HGS8	●		0.2953	*7.50*	*142.00*	*82.50*	*54.00*	*8.00*	
MDW02969HGS8	●	19/64	0.2969	*7.54*	5.5906	3.4646	2.1260	0.3125	
MDW0760HGS8			0.2992	*7.60*	*142.00*	*88.00*	*54.00*	*8.00*	
MDW0770HGS8			0.3031	*7.70*	*142.00*	*88.00*	*54.00*	*8.00*	
MDW0780HGS8			0.3071	*7.80*	*142.00*	*88.00*	*54.00*	*8.00*	M9x1.25
MDW0790HGS8			0.3110	*7.90*	*142.00*	*88.00*	*54.00*	*8.00*	
MDW03125HGS8	●	5/16	0.3125	*7.94*	5.5906	3.4646	2.1260	0.3125	3/8-16
MDW0800HGS8	●		0.3150	*8.00*	*142.00*	*88.00*	*54.00*	*8.00*	
MDW0810HGS8			0.3189	*8.10*	*154.00*	*93.50*	*55.00*	*9.00*	
MDW0820HGS8	★		0.3228	*8.20*	*154.00*	*93.50*	*55.00*	*9.00*	
MDW03230HGS8	●	#P	0.3230	*8.20*	6.0630	3.6811	2.1654	0.3594	
MDW0830HGS8			0.3268	*8.30*	*154.00*	*93.50*	*55.00*	*9.00*	
MDW03281HGS8	●	21/64	0.3281	*8.33*	6.0630	3.6811	2.1654	0.3594	
MDW0840HGS8			0.3307	*8.40*	*154.00*	*93.50*	*55.00*	*9.00*	
MDW03320HGS8	●	#Q	0.3320	*8.43*	6.0630	3.6811	2.1654	0.3594	
MDW0850HGS8	●		0.3346	*8.50*	*154.00*	*93.50*	*55.00*	*9.00*	M10x1.5
MDW0860HGS8			0.3386	*8.60*	*154.00*	*99.00*	*55.00*	*9.00*	
MDW0870HGS8			0.3425	*8.70*	*154.00*	*99.00*	*55.00*	*9.00*	
MDW03438HGS8	●	11/32	0.3438	*8.73*	6.0630	3.8976	2.1654	0.3594	

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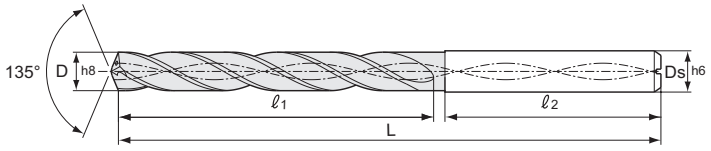
MDW-HGS8 Series Solid Carbide
Coolant Through Drills

Carbon Steel, Alloy Steel Up to 0.28%	Carbon Steel, Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 8D



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MDW-HGS8 8XD drill for excellent chip management and long tool life (Internal coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW0880HGS8			0.3465	*8.80*	*154.00*	*99.00*	*55.00*	*9.00*	
MDW0890HGS8			0.3504	*8.90*	*154.00*	*99.00*	*55.00*	*9.00*	
MDW0900HGS8	●		0.3543	*9.00*	*154.00*	*99.00*	*55.00*	*9.00*	
MDW0910HGS8			0.3583	*9.10*	*166.00*	*104.50*	*56.00*	*10.00*	
MDW03594HGS8	●	23/64	0.3594	*9.13*	6.0630	3.8976	2.1654	0.3594	
MDW0920HGS8			0.3622	*9.20*	*166.00*	*104.50*	*56.00*	*10.00*	
MDW0930HGS8			0.3661	*9.30*	*166.00*	*104.50*	*56.00*	*10.00*	
MDW03680HGS8	●	#U	0.3680	*9.35*	6.5354	4.1142	2.2047	0.3906	7/16-14
MDW0940HGS8			0.3701	*9.40*	*166.00*	*104.50*	*56.00*	*10.00*	
MDW0950HGS8	●		0.3740	*9.50*	*166.00*	*104.50*	*56.00*	*10.00*	
MDW03750HGS8	●	3/8	0.3750	*9.53*	6.5354	4.3307	2.2047	0.3906	
MDW0960HGS8	●		0.3780	*9.60*	*166.00*	*110.00*	*56.00*	*10.00*	
MDW0970HGS8			0.3819	*9.70*	*166.00*	*110.00*	*56.00*	*10.00*	
MDW0980HGS8			0.3858	*9.80*	*166.00*	*110.00*	*56.00*	*10.00*	
MDW0990HGS8			0.3898	*9.90*	*166.00*	*110.00*	*56.00*	*10.00*	
MDW03906HGS8	●	25/64	0.3906	*9.92*	6.5354	4.3307	2.2047	0.3906	
MDW1000HGS8	●		0.3937	*10.00*	*166.00*	*110.00*	*56.00*	*10.00*	
MDW1010HGS8			0.3976	*10.10*	*182.00*	*115.50*	*61.00*	*11.00*	
MDW1020HGS8			0.4016	*10.20*	*182.00*	*115.50*	*61.00*	*11.00*	M12x1.75
MDW1030HGS8	●		0.4055	*10.30*	*182.00*	*115.50*	*61.00*	*11.00*	
MDW04062HGS8	●	13/32	0.4062	*10.32*	7.1654	4.5472	2.4016	0.4375	
MDW1040HGS8			0.4094	*10.40*	*182.00*	*115.50*	*61.00*	*11.00*	
MDW1050HGS8	●		0.4134	*10.50*	*182.00*	*115.50*	*61.00*	*11.00*	
MDW1060HGS8			0.4173	*10.60*	*182.00*	*121.00*	*61.00*	*11.00*	
MDW1070HGS8			0.4213	*10.70*	*182.00*	*121.00*	*61.00*	*11.00*	
MDW04219HGS8	●	27/64	0.4219	*10.72*	7.1654	4.7638	2.4016	0.4375	1/2-13
MDW1080HGS8			0.4252	*10.80*	*182.00*	*121.00*	*61.00*	*11.00*	
MDW1090HGS8			0.4291	*10.90*	*182.00*	*121.00*	*61.00*	*11.00*	
MDW1100HGS8	●		0.4331	*11.00*	*182.00*	*121.00*	*61.00*	*11.00*	
MDW1110HGS8			0.4370	*11.10*	*194.00*	*126.50*	*62.0*	*12.00*	
MDW04375HGS8	●	7/16	0.4375	*11.11*	7.1654	4.7638	2.4016	0.4375	
MDW1120HGS8			0.4409	*11.20*	*194.00*	*126.50*	*62.00*	*12.00*	
MDW1130HGS8			0.4449	*11.30*	*194.00*	*126.50*	*62.00*	*12.00*	
MDW1140HGS8			0.4488	*11.40*	*194.00*	*126.50*	*62.00*	*12.00*	
MDW1150HGS8	●		0.4528	*11.50*	*194.00*	*126.50*	*62.00*	*12.00*	
MDW04531HGS8	●	29/64	0.4531	*11.51*	7.6378	5.1969	2.4409	0.4688	1/2-20
MDW1160HGS8			0.4567	*11.60*	*194.00*	*132.00*	*62.00*	*12.00*	
MDW1170HGS8			0.4606	*11.70*	*194.00*	*132.00*	*62.00*	*12.00*	
MDW1180HGS8			0.4646	*11.80*	*194.00*	*132.00*	*62.00*	*12.00*	
MDW1190HGS8			0.4685	*11.90*	*194.00*	*132.00*	*62.00*	*12.00*	
MDW04688HGS8	●	15/32	0.4688	*11.91*	7.6378	5.1969	2.4409	0.4688	
MDW1200HGS8	●		0.4724	*12.00*	*194.00*	*132.00*	*62.00*	*12.00*	M14x2
MDW1210HGS8			0.4764	*12.10*	*206.00*	*137.50*	*63.00*	*13.00*	
MDW1220HGS8			0.4803	*12.20*	*206.00*	*137.50*	*63.00*	*13.00*	
MDW1230HGS8			0.4843	*12.30*	*206.00*	*137.50*	*63.00*	*13.00*	9/16-12
MDW04844HGS8	●	31/64	0.4844	*12.30*	8.1102	5.4134	2.4803	0.5156	
MDW1240HGS8			0.4882	*12.40*	*206.00*	*137.50*	*63.00*	*13.00*	

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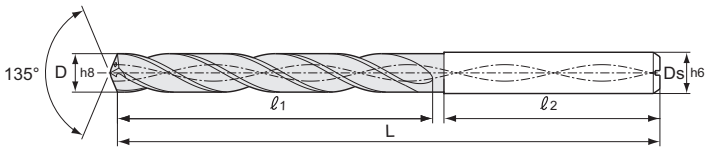
Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

SERIES
MDW-HGS8

Carbon Steel, Alloy Steel		Tempered Steel	Hardened Steel		Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
Up to 0.28%	From 0.29%		Up to 45HRC	From 46HRC								
●	●	●	○	○	●	●	●	○	○			

DEX Coat | W/ Oil Hole | 8D



(continued from previous page)

MDW-HGS8 8XD drill for excellent chip management and long tool life (Internal coolant)

Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in/*mm*)	Flute Length ℓ1 (in/*mm*)	Shank Length ℓ2 (in/*mm*)	Shank Diameter Ds (in/*mm*)	Tap Size
MDW1250HGS8	●		0.4921	*12.50*	*206.00*	*137.50*	*63.00*	*13.00*	
MDW1260HGS8			0.4961	*12.60*	*206.00*	*143.00*	*63.00*	*13.00*	
MDW1270HGS8		1/2	0.5000	*12.70*	*206.00*	*143.00*	*63.00*	*13.00*	
MDW05000HGS8	●	1/2	0.5000	*12.70*	8.1102	5.6299	2.4803	0.5156	
MDW1280HGS8			0.5039	*12.80*	*206.00*	*143.00*	*63.00*	*13.00*	
MDW1283HGS8			0.5051	*12.83*	*206.00*	*143.00*	*63.00*	*13.00*	
MDW1290HGS8			0.5079	*12.90*	*206.00*	*143.00*	*63.00*	*13.00*	
MDW1300HGS8	●		0.5118	*13.00*	*206.00*	*143.00*	*63.00*	*13.00*	
MDW05156HGS8	●	33/64	0.5156	*13.10*	8.1102	5.6299	2.4803	0.5156	9/19-18
MDW1310HGS8			0.5157	*13.10*	*218.00*	*148.50*	*64.00*	*14.00*	
MDW1320HGS8			0.5197	*13.20*	*218.00*	*148.50*	*64.00*	*14.00*	
MDW1330HGS8			0.5236	*13.30*	*218.00*	*148.50*	*64.00*	*14.00*	
MDW1340HGS8			0.5276	*13.40*	*218.00*	*148.50*	*64.00*	*14.00*	
MDW05312HGS8	●	17/32	0.5312	*13.49*	8.5827	5.8465	2.5197	0.5469	5/8-11
MDW1350HGS8	●		0.5315	*13.50*	*218.00*	*148.50*	*64.00*	*14.00*	
MDW1360HGS8			0.5354	*13.60*	*218.00*	*154.00*	*64.00*	*14.00*	
MDW1370HGS8			0.5394	*13.70*	*218.00*	*154.00*	*64.00*	*14.00*	
MDW1380HGS8			0.5433	*13.80*	*218.00*	*154.00*	*64.00*	*14.00*	
MDW05469HGS8	●	35/64	0.5469	*13.89*	8.5827	6.0630	2.5197	0.5469	M16x2
MDW1390HGS8			0.5472	*13.90*	*218.00*	*154.00*	*64.00*	*14.00*	
MDW1400HGS8	●		0.5512	*14.00*	*218.00*	*154.00*	*64.00*	*14.00*	
MDW1410HGS8			0.5551	*14.10*	*230.00*	*159.50*	*65.00*	*15.00*	
MDW1420HGS8			0.5591	*14.20*	*230.00*	*159.50*	*65.00*	*15.00*	
MDW05625HGS8	●	9/16	0.5625	*14.29*	9.0551	6.2795	2.5591	0.5937	
MDW1430HGS8			0.5630	*14.30*	*230.00*	*159.50*	*65.00*	*15.00*	
MDW1440HGS8			0.5669	*14.40*	*230.00*	*159.50*	*65.00*	*15.00*	
MDW1450HGS8	●		0.5709	*14.50*	*230.00*	*159.50*	*65.00*	*15.00*	
MDW1460HGS8			0.5748	*14.60*	*230.00*	*165.00*	*65.00*	*15.00*	
MDW05781HGS8	●	37/64	0.5781	*14.68*	9.0551	6.4961	2.5591	0.5937	5/8-18
MDW1470HGS8			0.5787	*14.70*	*230.00*	*165.00*	*65.00*	*15.00*	
MDW1480HGS8			0.5827	*14.80*	*230.00*	*165.00*	*65.00*	*15.00*	
MDW1490HGS8			0.5866	*14.90*	*230.00*	*165.00*	*65.00*	*15.00*	
MDW1500HGS8	●		0.5906	*15.00*	*230.00*	*165.00*	*65.00*	*15.00*	
MDW05937HGS8	●	19/32	0.5937	*15.08*	9.0551	6.4961	2.5591	0.5937	
MDW1510HGS8			0.5945	*15.10*	*242.00*	*170.50*	*66.00*	*16.00*	
MDW1520HGS8			0.5984	*15.20*	*242.00*	*170.50*	*66.00*	*16.00*	
MDW1530HGS8			0.6024	*15.30*	*242.00*	*170.50*	*66.00*	*16.00*	
MDW1540HGS8			0.6063	*15.40*	*242.00*	*170.50*	*66.00*	*16.00*	
MDW06094HGS8	●	39/64	0.6094	*15.48*	9.5276	6.7126	2.5984	0.6250	11/16-12
MDW1550HGS8	●		0.6102	*15.50*	*242.00*	*170.50*	*66.00*	*16.00*	M18x2.5
MDW1560HGS8			0.6142	*15.60*	*242.00*	*176.00*	*66.00*	*16.00*	
MDW1570HGS8			0.6181	*15.70*	*242.00*	*176.00*	*66.00*	*16.00*	
MDW1580HGS8			0.6220	*15.80*	*242.00*	*176.00*	*66.00*	*16.00*	
MDW06250HGS8	●	5/8	0.6250	*15.88*	9.5276	6.9291	2.5984	0.6250	11/16-16
MDW1590HGS8			0.6260	*15.90*	*242.00*	*176.00*	*66.00*	*16.00*	
MDW1600HGS8	●		0.6299	*16.00*	*242.00*	*176.00*	*66.00*	*16.00*	

●=USA stocked item ★ = Worldwide Warehouse item available in 10 business days
Some drills can achieve greater depths. Always check for sufficient flute length. Note: Special diameters available upon request.

Recommended Parameters for
MDW GS Series

Recommended Speeds & Feeds

MDW		Work Material	Hardness HB	Speed = SFM Feed = IPR	Drill Diameter (inch)		
					ø < - ø0.196	ø0.197 - ø0.394	ø0.395 - ø0.630
GS 2D 4D	P	Low Carbon Steel	<190	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
			190 ~ 250	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
			250 ~ 300	SFM	100 - 225	140 - 250	190 - 325
				IPR	.003 - .006	.004 - .008	.006 - .010
		Medium Carbon Steel	180 ~ 275	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
			275 ~ 350	SFM	100 - 225	140 - 250	190 - 325
				IPR	.003 - .006	.004 - .008	.006 - .010
		Alloy Steel	200	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
			350	SFM	80 - 210	115 - 220	115 - 250
				IPR	.003 - .006	.004 - .008	.006 - .010
	M	300 Austenitic Stainless Steel	160 ~ 280	SFM	50 -115	60 - 160	80 - 210
				IPR	.002 - .006	.003 - .008	.004 - .010
		400 Martensitic Stainless Steel	160 ~ 240	SFM	60 - 120	75 - 180	90 - 225
				IPR	.002 - .006	.003 - .008	.006 - .010
	K	Cast Iron		SFM	115 - 300	195 - 390	250 -415
				IPR	.006 - .010	.006 - .014	.006 - .014
		Ductile Iron		SFM	115 - 185	160 - 300	210 - 375
				IPR	.006 - .010	.006 - .014	.006 - .014
	H	Hardened Steel	45-60 Rc	SFM	40 - 60	40 - 80	50 - 100
				IPR	.002 - .004	.003 - .006	.004 - .008
	S	Titanium Alloy Ti-6Al-4V		SFM	40 - 80	40 - 100	50 - 110
				IPR	.003 - .004	.003 - .005	.003 - .006
		Exotics - Inconel, Monel		SFM	30 - 60	30 - 60	40 - 80
				IPR	.002 - .003	.003 - .005	.003 - .006
	N	Aluminum alloy		SFM	300 - 700	400 - 800	400 - 800
				IPR	.003 - .006	.004 - .008	.006 - .012
		Copper Alloy		SFM	300 - 700	400 - 800	400 - 800
				IPR	.003 - .006	.004 - .008	.006 - .010

Recommended Parameters for MDW HGS Series

MDW		Work Material	Hardness HB	Speed = SFM Feed = IPR	Drill Diameter (inch)		
					ø < - ø0.196	ø0.197 - ø0.394	ø0.395 - ø0.630
HGS 3D 5D 8D	P	Low Carbon Steel	<190	SFM	300 - 475	400 - 550	450 - 650
				IPR	.004 - .008	.006 - .010	.008 - .014
			190 ~ 250	SFM	225 - 425	265 - 530	425 - 625
				IPR	.004 - .008	.006 - .010	.008 - .014
			250 ~ 300	SFM	175 - 375	225 - 495	250 - 525
				IPR	.003 - .006	.004 - .008	.006 - .012
		Medium Carbon Steel	180 ~ 275	SFM	225 - 425	265 - 530	350 - 575
				IPR	.004 - .008	.006 - .010	.008 - .014
			275 ~ 350	SFM	175 - 375	225 - 495	305 - 525
				IPR	.003 - .006	.004 - .008	.006 - .012
		Alloy Steel	200	SFM	190 - 380	225 - 475	275 - 525
				IPR	.003 - .008	.006 - .010	.008 - .014
			350	SFM	125 - 300	155 - 325	155 - 350
				IPR	.003 - .006	.004 - .008	.006 - .010
	M	300 Austenitic Stainless Steel	160 ~ 280	SFM	120 - 225	150 - 325	150 - 325
				IPR	.002 - .006	.004 - .010	.006 - .012
		400 Martensitic Stainless Steel	160 ~ 240	SFM	120 - 250	175 - 350	175 - 350
				IPR	.002 - .006	.004 - .010	.006 - .012
	K	Cast Iron		SFM	150 - 380	250 - 475	275 - 530
				IPR	.006 - .010	.006 - .014	.006 - .014
		Ductile Iron		SFM	150 - 350	225 - 450	250 - 500
				IPR	.006 - .010	.006 - .014	.006 - .014
	H	Hardened Steel	45-60 Rc	SFM	60 - 190	80 - 225	80 - 225
				IPR	.002 - .004	.003 - .006	.004 - .008
	S	Titanium Alloy Ti-6Al-4V		SFM	65 - 130	80 - 130	80 - 160
				IPR	.003 - .004	.003 - .005	.003 - .006
		Exotics - Inconel, Monel		SFM	40 - 85	40 - 100	50 - 120
				IPR	.002 - .003	.003 - .005	.003 - .006
	N	Aluminum alloy		SFM	500 - 800	600 - 1000	600 - 1000
				IPR	.003 - .006	.004 - .008	.006 - .012
		Copper Alloy		SFM	400 - 800	500 - 800	500 - 800
				IPR	.003 - .006	.004 - .008	.006 - .010

MDF Type

New

Flat Bottom Solid Carbide Drills

■ General Features

The flat multidrill MDF type is a solid carbide drill that can be used for various purposes including high-efficiency spot facing and drilling on inclined surfaces and curved surfaces.

■ Characteristics and Applications

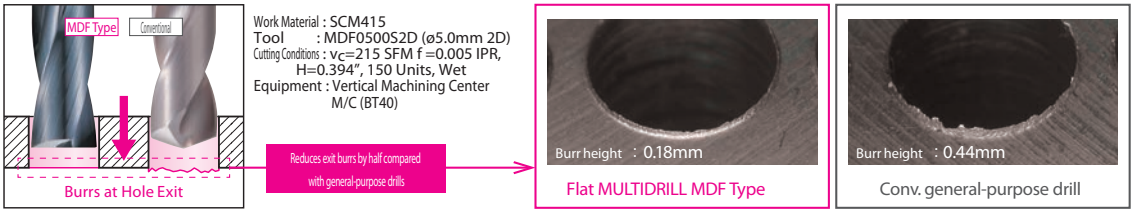
• Applicable to various types of drilling thanks to a point angle of 180°.
Applicable to high-efficiency spot facing, drilling in non-horizontal surfaces such as inclined and cylindrical surfaces, and interrupted drilling. Also reduces burrs at the hole exit.

• Improves machining stability
Achieves high rigidity by employing RS THINNING, which ensures thick web at the bottom.

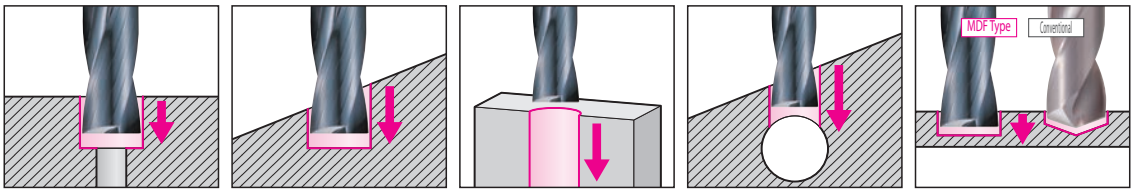
• Excellent chip evacuation
Achieves excellent chip evacuation thanks to the wide chip pocket and a high-quality rake face shape.

• Excellent cutting edge strength
Achieves excellent cutting edge strength through optimized cutting edge design.

■ Reduction of Burrs at Hole Exit



■ Application



High-efficiency spot facing | Drilling in non-horizontal surface (inclined surface, cylindrical surface, etc.) | Interrupted drilling | Cross drilling | Pre-tap hole drilling in thin sheets

■ Recommended Cutting Conditions

1. The recommended hole depth is 2 x Dc. The depth is measured from the highest point of the hole on drilling in inclined surfaces.
2. The recommended cutting conditions are those for drilling on flat horizontal surfaces.
3. Adjust the feed rate according to the inclination angle when drilling on an inclined surface.
4. Set the feed rate at 70% or lower when the inclination angle is 30° or less.
5. Set the feed rate at 50% or lower when the inclination angle is larger than 30°.
6. This product is a drilling tool. Do not use it for traversing or helical milling.

vc: Cutting Speed (SFM) *f*: Feed Rate (IPR)

Drill Diameter øDc(mm)	Cutting Conditions	Soft Steel/General Steel (Up to 250HB)	Alloy Steel (Up to 300HB)	Hardened steel (Up to HRC50)	Stainless Steel (Up to 200HB)	Grey Cast Iron FC250	Ductile Cast Iron	Aluminum Alloy
~ ø.5	*vc* (SFM)	100 - 130 - 160	100 - 115 - 130	50 - 65 - 85	50 - 65 - 85	100 -130 -160	65 - 100 - 130	200 -260 - 330
	f (IPR)	.00016 - .0002 - .00024	.00016 - .0002 - .00024	.00004-.00008-.00012	.00012-.00016-.0002	.00016 - .0002 - .00024	.00004-.00012-.0002	.00012-.0002-.00028
~ ø1	*vc* (SFM)	145 - 180 - 215	115 - 145 - 215	65 - 100 - 130	65 - 85 - 100	145 - 180 - 215	100 - 130 - 160	260 - 330 - 400
	f (IPR)	.0004 - .0012 - 0.0020	.0004 - .0012 - 0.0020	.00008-.00024-.0004	.0002-.00028-.0004	.0004 - .0012 - .0020	.0002 -.0004 -.0006	.0004 -.0006- .0008
~ ø2	*vc* (SFM)	160 - 200 - 230	130 - 160 - 200	65 - 100 - 130	65 - 100 - 130	160 - 200 - 230	145 - 180 - 215	295 - 360 - 430
	f (IPR)	.0008- .0012- .0016	.0008- .0012- .0016	.0004- .0007- .001	.0004- .0006- .0008	.0008- .0016- .0024	.0006- .0012- .0018	.0012- .002- .0028
~ ø4	*vc* (SFM)	200 - 250 - 295	160 - 215 - 265	65 - 100 - 130	65 - 100 - 130	200 - 250 - 295	160 - 215 - 250	295 - 360 - 430
	f (IPR)	.0024 - .0032 - 0.004	0.002 - 0.0032 - 0.004	.0004 - .0008 - .0012	.0004 - .0008 - .0012	.0024 - .0032 - 0.004	.0016 - .0024 - .0032	.0024 - .0032 - 0.004
~ ø6	*vc* (SFM)	200 - 250 - 295	160 - 215 - 265	65 - 100 - 130	65 - 100 - 160	200 - 250 - 295	200 - 230 - 265	295 - 360 - 430
	f (IPR)	0.002 - 0.004 - 0.006	0.002 - 0.004 - 0.006	.0016 - .0024 - .0032	.0012 - .002 - .0024	.002 - .004 - .006	.0024 - .0035 - .005	.002 - 0.004 - .006
~ ø8	*vc* (SFM)	200 - 250 - 295	160 - 215 - 265	65 - 100 - 130	65 - 100 - 160	200 - 250 - 295	200 - 230 - 265	295 - 360 - 430
	f (IPR)	.004 - .006 - .008	.004 - .006 - .008	.0024 - .0032 - .004	.0016 - .0024 - .0032	.004 - .006 - .008	.004 - .0047 - .006	.004 - .006 - .008
~ ø10	*vc* (SFM)	200 - 250 - 295	160 - 215 - 265	65 - 100 - 130	65 - 100 - 160	200 - 250 - 295	200 - 230 - 265	295 - 360 - 430
	f (IPR)	.0047 - .0067 - .0087	.0047 - .0067 - .0087	.0032 - .004 - .0047	.0024 - .0032 - .004	.0047 - .0067 - .0087	.0047 - .006 - .007	.0047 - .0067 - .0087
~ ø12	*vc* (SFM)	200 - 250 - 295	160 - 215 - 265	65 - 100 - 130	65 - 100 - 160	200 - 250 - 295	200 - 230 - 265	295 - 360 - 430
	f (IPR)	.006 - .008 - .001	.006 - .008 - .01	.0047 - .006 - .007	.003 - .004 - .0047	.006 - .008 - .01	.006 - .007 - .008	.006 - .008 - .01
~ ø16	*vc* (SFM)	200 - 250 - 295	160 - 215 - 265	65 - 100 - 130	65 - 100 - 160	200 - 250 - 295	200 - 230 - 265	295 - 360 - 430
	f (IPR)	.008 - .01 - .012	.008 - .01 - .012	.005 - .0067 - .008	.004 - .006 - .008	.0067 - .0087 - .011	.006 - .008 - .01	.008 - .01 - .012
~ ø20	*vc* (SFM)	200 - 250 - 295	160 - 215 - 265	65 - 100 - 130	65 - 100 - 160	200 - 250 - 295	200 - 230 - 265	295 - 360 - 430
	f (IPR)	.01 - .012 - .014	.01 - .012 - .014	.006 - .0075 - .0087	.006 - .008 - .01	.008 - .01 - .012	.008 - .01 - .012	.01 - .012 - .014

Min. - Optimum - Max.

Flat MULTIDRILL

MDF Type

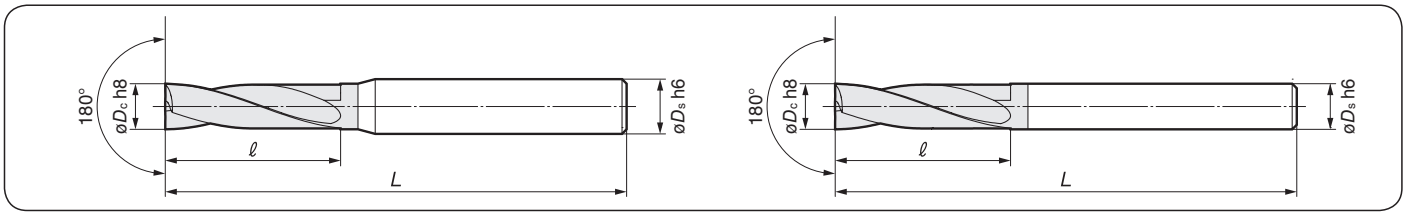
New

External Coolant Supply (MDF Type)

Carbon Steel Up to 0.28%	Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
◎	◎	◎	○		○			○	○	○		

PVD Coat

2D



● Diameter ø0.3 to ø7.0mm

Diameter øDc (mm)	Shank øDs (mm)	Cat. No.	Stock	Dimensions (mm) L	ℓ
0.3	3.0	MDF0030S2D	★	40	1.0
0.4		MDF0040S2D	★		1.4
0.5	3.0	MDF0050S2D	★	40	2.0
0.6		MDF0060S2D	★		2.4
0.7		MDF0070S2D	★		2.8
0.8		MDF0080S2D	★		3.2
0.9		MDF0090S2D	★		3.6
1.0	3.0	MDF0100S2D	★	45	4.0
1.1		MDF0110S2D	★		4.4
1.2		MDF0120S2D	★		4.8
1.3		MDF0130S2D	★		5.2
1.4		MDF0140S2D	★		5.6
1.5	3.0	MDF0150S2D	★	45	6.0
1.6		MDF0160S2D	★		6.4
1.7		MDF0170S2D	★		6.8
1.8		MDF0180S2D	★		7.2
1.9		MDF0190S2D	★		7.6
2.0	4.0	MDF0200S2D	★	50	8.0
2.1		MDF0210S2D	★		8.4
2.2		MDF0220S2D	★		8.8
2.3		MDF0230S2D	★		9.2
2.4		MDF0240S2D	★		9.6
2.5	4.0	MDF 0250S2D	★	50	10.0
2.6		MDF0260S2D	★		10.4
2.7		MDF0270S2D	★		10.8
2.8		MDF0280S2D	★		11.2
2.9		MDF0290S2D	★		11.6
3.0	6.0	MDF0300S2D	★	50	12.0
3.1		MDF0310S2D	★		12.4
3.2		MDF0320S2D	★		12.8
3.3		MDF0330S2D	★		13.2
3.4		MDF0340S2D	★		13.6
3.5		MDF0350S2D	★		14.0
3.6	6.0	MDF0360S2D	★	50	14.4
3.7		MDF0370S2D	★		14.8
3.8		MDF0380S2D	★		15.2
3.9		MDF0390S2D	★		15.6
4.0		MDF0400S2D	★		16.0
4.1	6.0	MDF0410S2D	★	60	16.4
4.2		MDF0420S2D	★		16.8
4.3		MDF0430S2D	★		17.2
4.4		MDF0440S2D	★		17.6
4.5		MDF0450S2D	★		18.0
4.6	6.0	MDF0460S2D	★	60	18.4
4.7		MDF0470S2D	★		18.8
4.8		MDF0480S2D	★		19.2
4.9		MDF0490S2D	★		19.6
5.0		MDF0500S2D	★		20.0
5.1	6.0	MDF0510S2D	★	60	20.4
5.2		MDF0520S2D	★		20.8
5.3		MDF0530S2D	★		21.2
5.4		MDF0540S2D	★		21.6
5.5		MDF0550S2D	★		22.0
5.6	6.0	MDF0560S2D	★	60	22.4
5.7		MDF0570S2D	★		22.8
5.8		MDF0580S2D	★		23.2
5.9		MDF0590S2D	★		23.6
6.0		MDF0600S2D	★		24.0
6.1	8.0	MDF0610S2D	★	70	24.4
6.2		MDF0620S2D	★		24.8
6.3		MDF0630S2D	★		25.2
6.4		MDF0640S2D	★		25.6
6.5		MDF0650S2D	★		26.0
6.6	8.0	MDF0660S2D	★	70	26.4
6.7		MDF0670S2D	★		26.8
6.8		MDF0680S2D	★		27.2
6.9		MDF0690S2D	★		27.6
7.0		MDF0700S2D	★		28.0

● Diameter ø7.1 to ø20.0mm

Diameter øDc (mm)	Shank øDs (mm)	Cat. No.	Stock	Dimensions (mm) L	ℓ
7.1	8.0	MDF0710S2D	★	70	28.4
7.2		MDF0720S2D	★		28.8
7.3		MDF0730S2D	★		29.2
7.4		MDF0740S2D	★		29.6
7.5		MDF0750S2D	★		30.0
7.6	8.0	MDF0760S2D	★	70	30.4
7.7		MDF0770S2D	★		30.8
7.8		MDF0780S2D	★		31.2
7.9		MDF0790S2D	★		31.6
8.0		MDF0800S2D	★		32.0
8.1	10.0	MDF0810S2D	★	80	32.4
8.2		MDF0820S2D	★		32.8
8.3		MDF0830S2D	★		33.2
8.4		MDF0840S2D	★		33.6
8.5		MDF0850S2D	★		34.0
8.6	10.0	MDF0860S2D	★	80	34.4
8.7		MDF0870S2D	★		34.8
8.8		MDF0880S2D	★		35.2
8.9		MDF0890S2D	★		35.6
9.0		MDF0900S2D	★		36.0
9.1	10.0	MDF0910S2D	★	80	36.4
9.2		MDF0920S2D	★		36.8
9.3		MDF0930S2D	★		37.2
9.4		MDF0940S2D	★		37.6
9.5		MDF0950S2D	★		38.0
9.6	10.0	MDF0960S2D	★	80	38.4
9.7		MDF0970S2D	★		38.8
9.8		MDF0980S2D	★		39.2
9.9		MDF0990S2D	★		39.6
10.0		MDF1000S2D	★		40.0
10.1	12.0	MDF1010S2D	★	90	40.4
10.2		MDF1020S2D	★		40.8
10.3		MDF1030S2D	★		41.2
10.4		MDF1040S2D	★		41.6
10.5		MDF1050S2D	★		42.0
10.6	12.0	MDF1060S2D	★	90	42.4
10.7		MDF1070S2D	★		42.8
10.8		MDF1080S2D	★		43.2
10.9		MDF1090S2D	★		43.6
11.0		MDF1100S2D	★		44.0
11.1	12.0	MDF1110S2D	★	90	44.4
11.2		MDF1120S2D	★		44.8
11.3		MDF1130S2D	★		45.2
11.4		MDF1140S2D	★		45.6
11.5		MDF1150S2D	★		46.0
11.6	12.0	MDF1160S2D	★	90	46.4
11.7		MDF1170S2D	★		46.8
11.8		MDF1180S2D	★		47.2
11.9		MDF1190S2D	★		47.6
12.0		MDF1200S2D	★		48.0
12.5	14.0	MDF1250S2D	★	100	50.0
13.0		MDF1300S2D	★		52.0
13.5		MDF1350S2D	★	110	54.0
14.0		MDF1400S2D	★		56.0
14.5	16.0	MDF1450S2D	★	110	58.0
15.0		MDF1400S2D	★		60.0
15.5		MDF1450S2D	★	115	62.0
16.0		MDF1500S2D	★		64.0
16.5	18.0	MDF1650S2D	★	125	66.0
17.0		MDF1700S2D	★		68.0
17.5		MDF1750S2D	★	130	70.0
18.0		MDF1800S2D	★		72.0
18.5	20.0	MDF1850S2D	★	140	74.0
19.0		MDF1900S2D	★		76.0
19.5		MDF1950S2D	★		78.0
20.0		MDF2000S2D	★		80.0

Grade: ACF75

★ - World Wide Warehouse Item

SUMITOMO

CARBIDE - CBN - DIAMOND

1-800-950-5202
www.sumicarbide.com

Deep Hole Carbide Drills

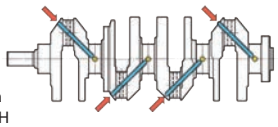
Pages 475-480

■ Features & Benefits

- **Deep hole drilling**
  New flute shape with improved chip evacuation during deep drilling. High-efficiency drilling to depths of over 30 times drill diameter (V_f= 28 IPM). Stable deep hole drilling with double margin design.
- **Longer tool life**
  Special DEX coating provides long tool life in a variety of work material.
- **Eco-friendly**
  Compatible with the MQL (Minimum Quantity Lubrication) system.

■ Application Examples

• ***Automotive Component***
1045 steel (250HB)



Machine: Horizontal single axis NC machine
Coolant: MQL Air pressure 0.9MPa MQL Volume Approx. 1cc/H

Pilot hole:
- ø0.23 x 0.47in *(ø5.73 x 12mm)*
- Drill point angle: 150°
- V_c = 262.5 SFM *(80m/min)*
- f = 0.008 IPR *(0.20mm/min)*

Deep hole:
- ø0.22 x 3.27in *(ø5.7 x 83mm)*
- V_c = 262.5 SFM *(80m/min)*
- f = 0.010 IPR *(0.25mm/min)*
- V_f = 44 IPM *(1117mm/min)*

⇒ **Tool Life: 250 parts**

• ***Automotive Component***
Gray cast iron

Machine: Horizontal single axis NC machine
Coolant: MQL (volume 3cc/H) Air discharge 0.45 MPa

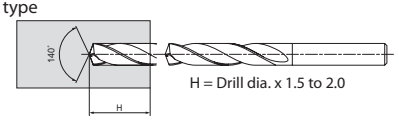
Pilot hole:
- ø0.30 x 0.51in *(ø7.63 x 13mm)*
- Drill point angle: 150°
- V_c = 262.5 SFM *(80m/min)*
- f = 0.010 IPR *(0.25mm/min)*

Deep hole:
- ø0.30 x 9.10in *(ø7.60 x 230mm)*
- V_c = 197 SFM *(60m/min)*
- f = 0.011 IPR *(0.30mm/min)*
- V_f = 29.70 IPM *(754mm/min)*

⇒ **Tool Life: 500 parts**

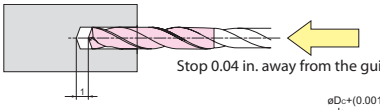
■ Recommended Drilling Method

1. **Make a guide hole using the MDW-PHV type drill**
   • Use a guide hole MDW-PHV style drill with diameter the same as the MDW-XHV type



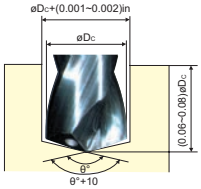
H = Drill dia. x 1.5 to 2.0

2. Feed the MDW-XHV type throught the guide hole at low rotation speed
   • Rotation: 500 rpm Feed Rate: 40 - 80 ipm



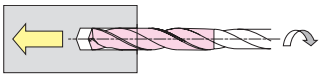
Stop 0.04 in. away from the guide hole depth

OTHER NOTES
- A flat base should be prepared when the surface for the guide tool is slanted
- When drilling through a slanted surface, reduce the drill feed to 0.002 ipm before the drill exits



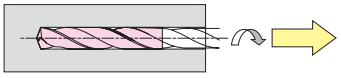
Recommended Guide Hole Values

3. Increase rotation speed until the set rotation speed is reached and start normal drilling



Increase rotation speed

4. After drilling, rotation speed is reduced and the drill is retracted from the work material
   • Rotation: 500 rpm Feed Rate: 40 - 80 ipm



Change rotation speed to 500 rpm

COOLANT
- Internal Coolant (Water Soluble): Pump Pressure Steel: 200-300 PSI
  Cast Iron or Aluminum: 500-1000 PSI
- Internal MQL: Air Pressure: 50-100 PSI or above
  Volume (Edge)

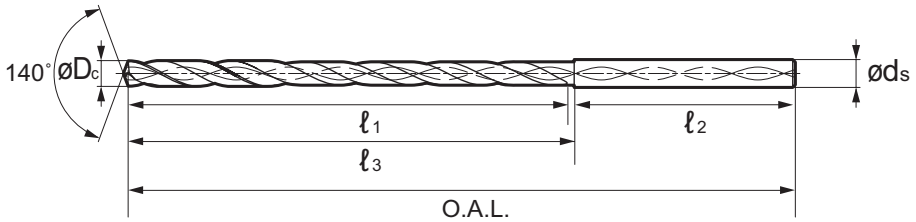
■ Recommended Cutting Conditions

Vc=sfm / *m/min*
f=ipr / *mm/rev*

		General Steel (>300HB)	Hardened Steel (>45HrC)	Stainless Steel (>200HB)	Gray Cast Iron	Ductile Iron
~ø.125 in *~ø3.0 mm*	Vc	165~330 / *50~100*	65~130 / *20~40*	100~165 / *30~50*	165~295 / *50~90*	130~260 / *40~80*
	f	0.003~0.006 / *0.08~0.15*	0.002~0.003 / *0.06~0.05*	0.002~0.005 / *0.06~0.12*	0.006~0.010 / *0.15~0.25*	0.005~0.008 / *0.12~0.20*
ø.125~ø.203 in *ø3.1~ø5.0 mm*	Vc	260~395 / *80~120*	65~130 / *20~40*	100~195 / *30~60*	165~295 / *50~90*	130~260 / *40~80*
	f	0.006~0.010 / *0.15~0.25*	0.003~0.004 / *0.08~0.10*	0.003~0.006 / *0.08~0.15*	0.006~0.012 / *0.15~0.30*	0.006~0.010 / *0.15~0.25*
ø.203~ø.406 in *ø5.1~ø10.0 mm*	Vc	260~395 / *80~120*	65~130 / *20~40*	130~260/ *40~80*	195~330 / *60~100*	165~295 / *50~90*
	f	0.008~0.014 / *0.20~0.35*	0.004~0.006 / *0.10~0.15*	0.004~0.008 / *0.10~0.20*	0.008~0.014 / *0.20~0.35*	0.008~0.014 / *0.20~0.35*
ø.406~ø0.625 in *ø10.1~ø16.0 mm*	Vc	260~425/ *80~130*	65~130 / *20~40*	165~260/ *50~80*	230~395/ *70~120*	195~330 / *60~100*
	f	0.010~0.014 / *0.25~0.35*	0.004~0.006 / *0.10~0.15*	0.004~0.008 / *0.10~0.20*	0.010~0.014 / *0.25~0.35*	0.010~0.014 / *0.25~0.35*

12XD MDW-XHV

Tolerance of Diameters	
øD	Tolerance
.1181 < øD ≤ .2362	-.00080 -.00145
.2362 < øD ≤ .3937	-.00080 -.00165
.3937 < øD ≤ .7087	-.00080 -.00185



12XD-INCH

Catalog Number	Stock	Cutting Dia. øDc		O.A.L.	ℓ3	ℓ2	ℓ1	øds
		Fraction	Decimal					
MDW1250XHV12	●	1/8″	0.125	3.780	1.890	1.890	1.772	0.157
MDW1406XHV12	●	9/64″	0.141	4.134	2.244	1.890	2.126	0.157
MDW1563XHV12	●	5/32″	0.156	4.370	2.480	1.890	2.362	0.157
MDW1719XHV12	●	11/64″	0.172	4.607	2.638	1.969	2.520	0.236
MDW1875XHV12	●	3/16″	0.188	5.158	3.189	1.969	3.071	0.236
MDW2031XHV12	●	13/64″	0.203	5.158	3.189	1.969	3.071	0.236
MDW2131XHV12	●	#3	0.213	5.158	3.189	1.969	3.071	0.236
MDW2187XHV12	●	7/32″	0.219	5.433	3.465	1.969	3.346	0.236
MDW2500XHV12	●	1/4″	0.250	6.102	4.055	2.047	3.937	0.315
MDW2570XHV12	●	#F	0.257	6.102	4.055	2.047	3.937	0.315
MDW2656XHV12	●	17/64″	0.266	6.102	4.055	2.047	3.937	0.315
MDW2813XHV12	●	9/32″	0.281	6.496	4.449	2.047	4.331	0.315
MDW2969XHV12	●	19/64″	0.297	6.496	4.449	2.047	4.331	0.315
MDW3125XHV12	●	5/16″	0.313	6.496	4.449	2.047	4.331	0.315
MDW3320XHV12	●	#Q	0.332	7.677	5.551	2.126	5.433	0.394
MDW3438XHV12	●	11/32″	0.344	7.677	5.551	2.126	5.433	0.394
MDW3594XHV12	●	23/64″	0.359	7.677	5.551	2.126	5.433	0.394
MDW3750XHV12	●	3/8″	0.375	7.677	5.551	2.126	5.433	0.394
MDW3906XHV12	●	25/64″	0.391	7.677	5.551	2.126	5.433	0.394
MDW4063XHV12	●	13/32″	0.406	8.543	6.339	2.205	6.220	0.472
MDW4219XHV12	●	27/64″	0.422	8.543	6.339	2.205	6.220	0.472
MDW4375XHV12	●	7/16″	0.438	8.543	6.339	2.205	6.220	0.472
MDW4531XHV12	●	29/64″	0.453	8.543	6.339	2.205	6.220	0.472
MDW4688XHV12	●	15/32″	0.469	8.543	6.339	2.205	6.220	0.472
MDW4844XHV12	●	31/64″	0.484	9.566	7.283	2.283	7.165	0.551
MDW5000XHV12	●	1/2″	0.500	9.566	7.283	2.283	7.165	0.551
MDW5312XHV12	●	17/32″	0.531	9.566	7.283	2.283	7.165	0.551
MDW5625XHV12	●	9/16″	0.563	10.669	8.307	2.362	8.189	0.630
MDW6250XHV12	●	5/8″	0.625	10.669	8.307	2.362	8.189	0.630
MDW7500XHV12	●	3/4″	0.750	12.709	10.268	2.441	10.157	0.787

12XD-*METRIC*

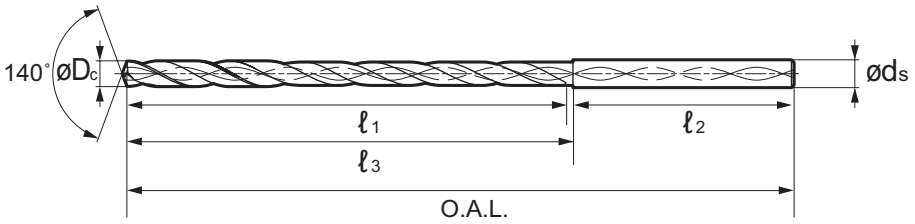
Catalog Number	Stock	øDc	O.A.L.	ℓ3	ℓ2	ℓ1	øds
MDW030XHV12	●	*3.0*	*96*	*48*	*48*	*45*	*4*
MDW035XHV12	●	*3.5*	*105*	*57*	*48*	*54*	*4*
MDW040XHV12	●	*4.0*	*111*	*63*	*48*	*60*	*4*
MDW045XHV12	●	*4.5*	*117*	*67*	*50*	*64*	*6*
MDW050XHV12	●	*5.0*	*131*	*81*	*50*	*78*	*6*
MDW051XHV12	●	*5.1*	*131*	*81*	*50*	*78*	*6*
MDW055XHV12	●	*5.5*	*138*	*88*	*50*	*85*	*6*
MDW060XHV12	●	*6.0*	*138*	*88*	*50*	*85*	*6*
MDW065XHV12	●	*6.5*	*155*	*103*	*52*	*100*	*8*
MDW069XHV12	●	*6.9*	*165*	*113*	*52*	*110*	*8*
MDW070XHV12	●	*7.0*	*165*	*113*	*52*	*110*	*8*
MDW075XHV12	●	*7.5*	*165*	*113*	*52*	*110*	*8*
MDW080XHV12	●	*8.0*	*165*	*113*	*52*	*110*	*8*
MDW085XHV12	●	*8.5*	*195*	*141*	*54*	*138*	*10*
MDW090XHV12	●	*9.0*	*195*	*141*	*54*	*138*	*10*
MDW093XHV12	●	*9.3*	*195*	*141*	*54*	*138*	*10*
MDW095XHV12	●	*9.5*	*195*	*141*	*54*	*138*	*10*
MDW100XHV12	●	*10.0*	*195*	*141*	*54*	*138*	*10*
MDW105XHV12	●	*10.5*	*217*	*161*	*56*	*158*	*12*
MDW110XHV12	●	*11.0*	*217*	*161*	*56*	*158*	*12*
MDW115XHV12	●	*11.5*	*217*	*161*	*56*	*158*	*12*
MDW120XHV12	●	*12.0*	*217*	*161*	*56*	*158*	*12*
MDW125XHV12	●	*12.5*	*243*	*185*	*58*	*182*	*14*
MDW130XHV12	●	*13.0*	*243*	*185*	*58*	*182*	*14*
MDW140XHV12	●	*14.0*	*243*	*185*	*58*	*182*	*14*

● = USA Stocked item

MDW-XHV

MDW-XHV Deep Hole
Carbide Coolant Through Drills

Tolerance of Diameters	
øD	Tolerance
.1181 < øD ≤ .2362	-.00080 -.00145
.2362 < øD ≤ .3937	-.00080 -.00165
.3937 < øD ≤ .7087	-.00080 -.00185



20XD-INCH

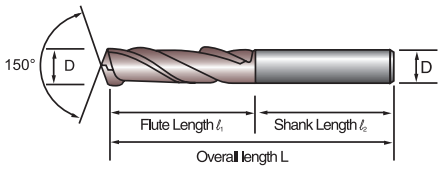
Catalog Number	Stock	Cutting Dia. øDc		O.A.L.	ℓ3	ℓ2	ℓ1	øds
		Fraction	Decimal					
MDW1250XHV20	●	1/8″	0.125	4.842	2.952	1.890	2.834	0.157
MDW1406XHV20	●	9/64″	0.141	5.472	3.582	1.890	3.464	0.157
MDW1563XHV20	●	5/32″	0.156	5.472	3.582	1.890	3.464	0.157
MDW1719XHV20	●	11/64″	0.172	6.418	4.449	1.969	4.331	0.236
MDW1875XHV20	●	3/16″	0.188	6.614	4.645	1.969	4.527	0.236
MDW2031XHV20	●	13/64″	0.203	6.614	4.645	1.969	4.527	0.236
MDW2130XHV20	●	#3	0.213	7.520	5.551	1.969	5.433	0.236
MDW2187XHV20	●	7/32″	0.219	7.520	5.551	1.969	5.433	0.236
MDW2500XHV20	●	1/4″	0.250	7.913	5.866	2.047	5.748	0.315
MDW2570XHV20	●	#F	0.257	7.913	5.866	2.047	5.748	0.315
MDW2656XHV20	●	17/64″	0.266	7.913	5.866	2.047	5.748	0.315
MDW2813XHV20	●	9/32″	0.281	9.094	7.047	2.047	6.929	0.315
MDW2969XHV20	●	19/64″	0.297	9.094	7.047	2.047	6.929	0.315
MDW3125XHV20	●	5/16″	0.313	9.094	7.047	2.047	6.929	0.315
MDW3320XHV20	●	#Q	0.332	10.905	8.779	2.126	8.661	0.394
MDW3438XHV20	●	11/32″	0.344	10.905	8.779	2.126	8.661	0.394
MDW3594XHV20	●	23/64″	0.359	10.905	8.779	2.126	8.661	0.394
MDW3750XHV20	●	3/8″	0.375	10.905	8.779	2.126	8.661	0.394
MDW3906XHV20	●	25/64″	0.391	10.905	8.779	2.126	8.661	0.394
MDW4063XHV20	●	13/32″	0.406	12.713	10.508	2.205	10.394	0.472
MDW4219XHV20	●	27/64″	0.422	12.713	10.508	2.205	10.394	0.472
MDW4375XHV20	●	7/16″	0.438	12.713	10.508	2.205	10.394	0.472
MDW4531XHV20	●	29/64″	0.453	12.713	10.508	2.205	10.394	0.472
MDW4688XHV20	●	15/32″	0.469	12.713	10.508	2.205	10.394	0.472
MDW4844XHV20	●	31/64″	0.484	14.521	12.238	2.283	12.126	0.551
MDW5000XHV20	●	1/2″	0.500	14.521	12.238	2.283	12.126	0.551
MDW5312XHV20	●	17/32″	0.531	14.521	12.238	2.283	12.126	0.551

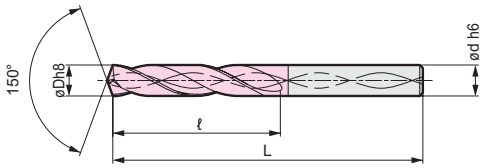
● = USA Stocked item

20XD-*METRIC*

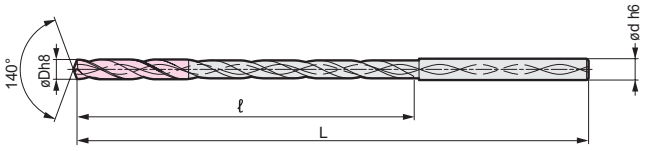
Catalog Number	Stock	øDc	O.A.L.	ℓ3	ℓ2	ℓ1	øds
MDW030XHV20	●	*3.0*	*123.0*	*75*	*48*	*72.0*	*4*
MDW035XHV20	●	*3.5*	*139.0*	*91*	*48*	*88.0*	*4*
MDW040XHV20	●	*4.0*	*139.0*	*91*	*48*	*88.0*	*4*
MDW045XHV20	●	*4.5*	*163.0*	*113*	*50*	*110.0*	*6*
MDW050XHV20	●	*5.0*	*168.0*	*118*	*50*	*115.0*	*6*
MDW051XHV20	●	*5.1*	*168.0*	*118*	*50*	*115.0*	*6*
MDW055XHV20	●	*5.5*	*191.0*	*141*	*50*	*138.0*	*6*
MDW060XHV20	●	*6.0*	*191.0*	*141*	*50*	*138.0*	*6*
MDW065XHV20	●	*6.5*	*201.0*	*149*	*52*	*146.0*	*8*
MDW069XHV20	●	*6.9*	*231.0*	*179*	*52*	*176.0*	*8*
MDW070XHV20	●	*7.0*	*231.0*	*179*	*52*	*176.0*	*8*
MDW075XHV20	●	*7.5*	*231.0*	*179*	*52*	*176.0*	*8*
MDW080XHV20	●	*8.0*	*231.0*	*179*	*52*	*176.0*	*8*
MDW085XHV20	●	*8.5*	*277.0*	*223*	*54*	*220.0*	*10*
MDW090XHV20	●	*9.0*	*277.0*	*223*	*54*	*220.0*	*10*
MDW093XHV20	●	*9.3*	*277.0*	*223*	*54*	*220.0*	*10*
MDW095XHV20	●	*9.5*	*277.0*	*223*	*54*	*220.0*	*10*
MDW100XHV20	●	*10.0*	*277.0*	*223*	*54*	*220.0*	*10*
MDW105XHV20	●	*10.5*	*322.9*	*267*	*56*	*264.0*	*12*
MDW110XHV20	●	*11.0*	*322.9*	*267*	*56*	*264.0*	*12*
MDW115XHV20	●	*11.5*	*322.9*	*267*	*56*	*264.0*	*12*
MDW120XHV20	●	*12.0*	*322.9*	*267*	*56*	*264.0*	*12*
MDW125XHV20	●	*12.5*	*368.8*	*311*	*58*	*308.0*	*14*
MDW130XHV20	●	*13.0*	*368.8*	*311*	*58*	*308.0*	*14*
MDW140XHV20	●	*14.0*	*368.8*	*311*	*58*	*308.0*	*14*

SERIES
MDW-PHV





Catalog Number (inch/*metric*)	Stock	Fractional Wire & Letters	Diameter D (in)	Diameter D (*mm*)	Overall Length L (in)	Flute Length ℓ_1 (in)	Shank Length ℓ_2 (in)	Shank Diameter D_S (*mm*)
MDW0300PHV	•		0.1181	*3.00*	2.672	0.703	1.891	*6.00*
MDW01250PHV	•	1/8	0.1250	*3.18*	2.672	0.703	1.891	*6.00*
MDW0350PHV	•		0.1378	*3.50*	2.828	0.703	1.891	*6.00*
MDW01406PHV	•	9/64	0.1406	*3.57*	2.828	0.891	1.891	*6.00*
MDW01563PHV	•	5/32	0.1563	*3.97*	2.828	0.891	1.891	*6.00*
MDW0400PHV	•		0.1575	*4.00*	2.828	0.891	1.891	*6.00*
MDW01719PHV	•	11/64	0.1719	*4.37*	3.156	0.984	1.969	*6.00*
MDW0450PHV	•		0.1772	*4.50*	3.156	0.984	1.969	*6.00*
MDW01875PHV	•	3/16	0.1875	*4.76*	3.156	1.078	1.969	*6.00*
MDW0500PHV	•		0.1968	*5.00*	3.156	1.078	1.969	*6.00*
MDW0510PHV	•		0.2010	*5.10*	3.234	1.078	2.047	*6.00*
MDW02031PHV	•	13/64	0.2031	*5.20*	3.234	1.078	2.047	*6.00*
MDW02131PHV	•	#3	0.2131	*5.41*	3.234	1.078	2.047	*6.00*
MDW0550PHV	•		0.2165	*5.50*	3.234	1.078	2.047	*6.00*
MDW02187PHV	•	7/32	0.2187	*5.56*	3.234	1.078	2.047	*6.00*
MDW0600PHV	•		0.2362	*6.00*	3.234	1.188	2.047	*6.00*
MDW02500PHV	•	1/4	0.2500	*6.35*	3.469	1.281	2.094	*8.00*
MDW0650PHV	•		0.2559	*6.50*	3.469	1.281	2.094	*8.00*
MDW02570PHV	•	#F	0.2570	*6.53*	3.469	1.375	2.094	*8.00*
MDW02656PHV	•	17/64	0.2656	*6.75*	3.469	1.375	2.094	*8.00*
MDW0690PHV	•		0.2716	*6.90*	3.469	1.375	2.094	*8.00*
MDW0700PHV	•		0.2726	*7.00*	3.469	1.375	2.094	*8.00*
MDW02813PHV	•	9/32	0.2813	*7.14*	3.703	1.484	2.125	*8.00*
MDW0750PHV	•		0.2953	*7.50*	3.703	1.484	2.125	*8.00*
MDW02969PHV	•	19/64	0.2969	*7.54*	3.703	1.474	2.125	*8.00*
MDW03125PHV	•	5/16	0.3125	*7.94*	3.703	1.578	2.125	*8.00*
MDW0800PHV	•		0.3149	*8.00*	3.703	1.578	2.125	*8.00*
MDW03281PHV	•	21/64	0.3281	*8.33*	3.938	1.672	2.156	*10.00*
MDW03320PHV	•	#Q	0.3320	*8.43*	3.938	1.672	2.156	*10.00*
MDW0850PHV	•		0.3346	*8.50*	3.938	1.672	2.156	*10.00*
MDW03438PHV	•	11/32	0.3438	*8.73*	3.938	1.766	2.156	*10.00*
MDW0900PHV	•		0.3543	*9.00*	3.938	1.766	2.156	*10.00*
MDW03594PHV	•	23/64	0.3594	*9.13*	3.938	1.766	2.156	*10.00*
MDW0930PHV	•		0.3661	*9.30*	4.172	1.875	2.203	*10.00*
MDW0950PHV	•		0.3740	*9.50*	4.172	1.875	2.203	*10.00*
MDW03750PHV	•	3/8	0.3750	*9.53*	4.172	1.875	2.203	*10.00*
MDW03906PHV	•	25/64	0.3906	*9.92*	4.172	1.969	2.203	*10.00*
MDW1000PHV	•		0.3937	*10.00*	4.172	1.969	2.203	*10.00*
MDW1020PHV	•		0.4016	*10.20*	4.563	2.047	2.406	*12.00*
MDW04063PHV	•	13/32	0.4063	*10.32*	4.563	2.047	2.406	*12.00*
MDW1050PHV	•		0.4134	*10.50*	4.563	2.047	2.406	*12.00*
MDW04219PHV	•	27/64	0.4219	*10.72*	4.563	2.172	2.406	*12.00*
MDW1100PHV	•		0.4331	*11.00*	4.563	2.172	2.406	*12.00*
MDW04375PHV	•	7/16	0.4375	*11.11*	4.563	2.172	2.406	*12.00*
MDW1150PHV	•		0.4527	*11.50*	4.813	2.281	2.438	*12.00*
MDW04531PHV	•	29/64	0.4531	*11.51*	4.813	2.281	2.438	*12.00*
MDW04688PHV	•	15/32	0.4688	*11.91*	4.813	2.359	2.438	*12.00*
MDW1200PHV	•		0.4724	*12.00*	4.813	2.359	2.438	*12.00*
MDW04844PHV	•	31/64	0.4844	*12.30*	5.032	2.469	2.484	*14.00*
MDW1250PHV	•		0.4921	*12.50*	5.032	2.469	2.484	*14.00*
MDW05000PHV	•	1/2	0.5000	*12.70*	5.032	2.562	2.484	*14.00*
MDW1300PHV	•		0.5118	*13.00*	5.032	2.562	2.484	*14.00*
MDW05312PHV	•	17/32	0.5312	*13.49*	5.281	2.656	2.516	*14.00*
MDW1400PHV	•		0.5512	*14.00*	5.281	2.750	2.516	*14.00*
MDW05625PHV	•	9/16	0.5625	*14.29*	5.516	2.859	2.562	*16.00*
MDW06250PHV	•	5/8	0.6250	*15.88*	5.750	3.156	2.594	*16.00*
MDW07500PHV	•	3/4	0.7500	*19.05*	6.453	3.750	2.719	*20.00*

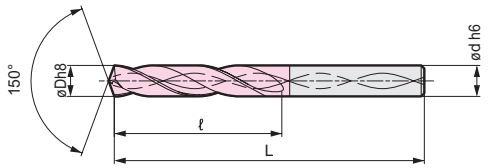


MDW-XHT-*METRIC*

Tool Dia. øD$_c$ *(mm)*	Shank Dia. øD$_s$ *(mm)*	Catalog Number	15XD			25XD			30XD		
			Stock	Dimensions *(mm)*		Stock	Dimensions *(mm)*		Stock	Dimensions *(mm)*	
			15	L	ℓ	25	L	ℓ	30	L	ℓ
2.97	*3.0*	*MDW0297XHT□□*	★	*108*	*60*	★	*138*	*90*	★	*153*	*105*
3.47	*4.0*	*MDW0347XHT□□*	★	*118*	*70*	★	*153*	*105*	★	*171*	*123*
3.97	*4.0*	*MDW0397XHT□□*	★	*128*	*80*	★	*168*	*120*	★	*188*	*140*
4.47	*5.0*	*MDW0447XHT□□*	★	*140*	*90*	★	*185*	*135*	★	*208*	*158*
4.97	*5.0*	*MDW0497XHT□□*	★	*150*	*100*	★	*200*	*150*	★	*225*	*175*
5.47	*6.0*	*MDW0547XHT□□*	★	*162*	*110*	★	*217*	*165*	★	*245*	*193*
5.97	*6.0*	*MDW0597XHT□□*	★	*172*	*120*	★	*232*	*180*	★	*262*	*210*
6.47	*7.0*	*MDW0647XHT□□*	★	*183*	*130*	★	*248*	*195*	★	*281*	*228*
6.97	*7.0*	*MDW0697XHT□□*	★	*193*	*140*	★	*263*	*210*	★	*298*	*245*
7.47	*8.0*	*MDW0747XHT□□*	★	*204*	*150*	★	*279*	*225*	★	*317*	*263*
7.97	*8.0*	*MDW0797XHT□□*	★	*214*	*160*	★	*294*	*240*	★	*334*	*280*

★ = Worldwide Warehouse item available in 10 business days

NOTE: MDW-PHT is the recommended guide drill for the XHT series. Use a guide hole drill with a diameter +0.001 to +0.002 inch larger than that of the MDW-XHT type.



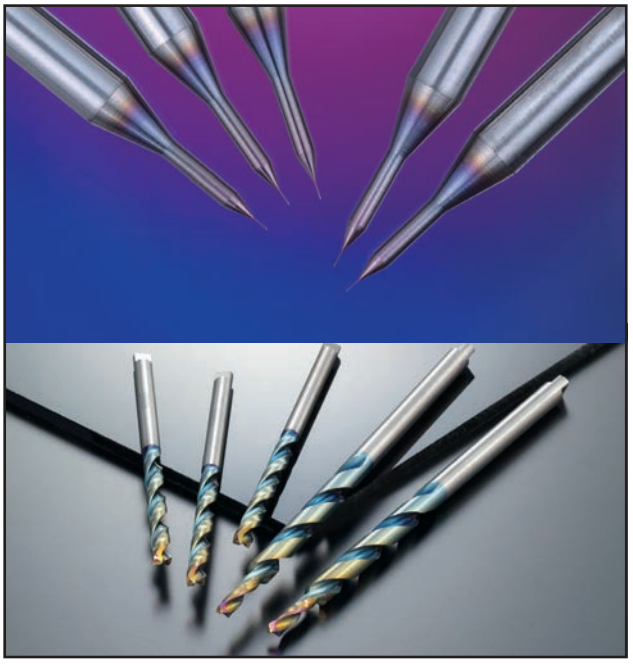
MDW-PHT-*METRIC*

Tool Dia. øD$_c$ *(mm)*	Shank Dia. øD$_s$ *(mm)*	Catalog Number	Guide Hole Drill		
			Stock	Dimensions *(mm)*	
				L	ℓ
3.0	*3.0*	*MDW0300PHT□□*	★	*68*	*17.5*
3.5	*4.0*	*MDW0350PHT□□*	★	*72*	*20.0*
4.0	*4.0*	*MDW0400PHT□□*	★	*72*	*22.5*
4.5	*5.0*	*MDW0450PHT□□*	★	*80*	*25.0*
5.0	*5.0*	*MDW0500PHT□□*	★	*80*	*27.5*
5.5	*6.0*	*MDW0550PHT□□*	★	*82*	*27.5*
6.0	*6.0*	*MDW0600PHT□□*	★	*82*	*30.0*
6.5	*7.0*	*MDW0650PHT□□*	★	*88*	*32.5*
7.0	*7.0*	*MDW0700PHT□□*	★	*88*	*35.0*
7.5	*8.0*	*MDW0750PHT□□*	★	*94*	*37.5*
8.0	*8.0*	*MDW0800PHT□□*	★	*94*	*40.0*

★ = Worldwide Warehouse item available in 10 business days

Small Diameter & DLC Coated Drills

Pages 481-487



MLDH-L / MLDH-P Type

■ General Features

Micro Long Drills are oil-hole drills for high efficiency drilling that were developed for drilling deep, small-diameter holes. These next-generation, small-diameter hole drills feature improved strength - often a problem area with small-diameter drills.

■ Characteristics and Applications

- **Deep-hole drilling**

New groove shape ensures good drill rigidity and chip evacuation.
High efficiency drilling to depths of over 20x drill diameter at over v_f=500mm/min (drill diameter 1.3mm, SUS416 equivalent).
Optimal thinning and edge balance for stable chip control.

- **Long tool life**

Special coating provides long tool life with a wide variety of work materials.
Improved chip evacuation makes it possible to reduce spindle load fluctuation, ensuring stable tool life.

■ Series

Application	Series	Diameter Range (mm)	Hole Depth ($^L/_D$)
Deep Hole Drilling	MLDH□□□□L5 Type	ø0.8 to 2.0	Up to 5
	MLDH□□□□L12 Type	ø0.8 to 2.0	Up to 12
	MLDH□□□□L20 Type	ø0.8 to 2.0	Up to 20
	MLDH□□□□L30 Type	ø0.8 to 2.0	Up to 30
Guide Hole Drilling	MLDH□□□□P Type	ø0.8 to 2.0	Up to 2

■ Recommended Cutting Conditions

MLDH-P Type/MLDH-L5 Type

(v_c: Cutting Speed SFM f: Feed Rate IPR)

Drill Diameter øD$_c$ (mm)	Cutting Conditions	Soft Steel Up to 200HB	General Steel Up to 250HB	Alloy Steel Up to 300HB	Stainless Steel Up to 200HB	Cast Iron FC/FCD	Aluminium Alloy	Heat-resistant steels
Up to 1.0	v_c	130 - 160 - 200	130 - 160 - 200	130 - 160 - 200	65 - 100 - 130	130 - 160 - 200	160 - 200 - 230	15 - 32 - 50
	f	.0004 - .0008 - .0012	.0004 - .0008 - .0012	.0004 - .0008 - .0012	.0004 - .0008 - .0012	.0008 - .0012 - .0016	.0012 - .0016 - .0024	.0002 - .0004 - .0008
Up to 1.5	v_c	130 - 160 - 200	130 - 160 - 200	130 - 160 - 200	65 - 100 - 130	130 - 160 - 200	160 - 200 - 230	15 - 32 - 50
	f	.0016 - .0032 - .0048	.0016 - .0032 - .0048	.0016 - .0032 - .0048	.0008 - .002 - .004	.0016 - .0032 - .0048	.002 - .004 - .006	.0004 - .0012 - .002
Up to 2.0	v_c	130 - 160 - 200	130 - 160 - 200	130 - 160 - 200	65 - 100 - 130	130 - 160 - 200	160 - 200 - 230	15 - 32 - 50
	f	.0024 - .0032 - .0048	.0024 - .0032 - .0048	.0024 - .0032 - .0048	.0016 - .0024 - .004	.0024 - .0032 - .0048	.0032 - .0048 - .006	.0004 - .0012 - .002

Min. - Optimum - Max.

MLDH-L12 Type/MLDH-L20 Type/MLDH-L30 Type

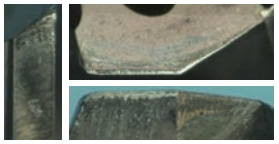
Drill Diameter øD$_c$ (mm)	Cutting Conditions	Soft Steel Up to 200HB	General Steel Up to 250HB	Alloy Steel Up to 300HB	Stainless Steel Up to 200HB	Cast Iron FC/FCD	Aluminium Alloy	Heat-resistant steels
Up to 1.0	v_c	130 - 160 - 200	130 - 160 - 200	130 - 160 - 200	65 - 100 - 130	130 - 160 - 200	160 - 200 - 230	15 - 32 - 50
	f	.0004 - .0008 - .0012	.0004 - .0008 - .0012	.0004 - .0008 - .0012	.0004 - .0008 - .0012	.0008 - .0012 - .0016	.0012 - .0016 - .0024	.0002 - .0004 - .0008
Up to 1.5	v_c	130 - 160 - 200	130 - 160 - 200	130 - 160 - 200	65 - 100 - 130	130 - 160 - 200	160 - 200 - 230	15 - 32 - 50
	f	.0012 - .002 - .0028	.0012 - .002 - .0028	.0012 - .002 - .0028	.0008 - .0016 - .0028	.0016 - .0028 - .004	.002 - .0032 - .0048	.0004 - .0008 - .0012
Up to 2.0	v_c	130 - 160 - 200	130 - 160 - 200	130 - 160 - 200	65 - 100 - 130	130 - 160 - 200	160 - 200 - 230	15 - 32 - 50
	f	.0016 - .0024 - .0032	.0016 - .0024 - .0032	.0016 - .0024 - .0032	.0016 - .0024 - .0032	.0016 - .0028 - .004	.002 - .0032 - .0048	.0004 - .0008 - .0012

Min. - Optimum - Max.

■ Application Examples

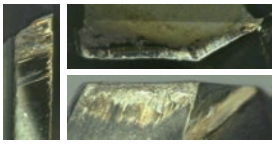
■ Automotive Component Mould (Equivalent to SUS416)

Tool : MLDH1400L20 (Guide : MLDH1400P)
Equipment : Vertical Machining Centre (HSKA63)
Coolant Supply : Internal Coolant (Emulsion Type, Pump Pressure : 4MPa)
Cutting Conditions : v_c= 200 SFM f=0.00112 IPR H= 0.83"
Tool Life : 600 Units

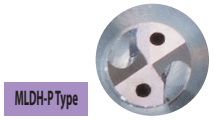


■ Tooling Component (Equivalent to SKD11)

Tool : MLDH1900L20 (Guide : MLDH1900P)
Equipment : Vertical Machining Centre (HSKA63)
Coolant Supply : Internal Coolant (Emulsion Type, Pump Pressure : 4MPa)
Cutting Conditions : v_c=200 SFM f=0.004 IPR H= 1.063"
Tool Life : 600 Units



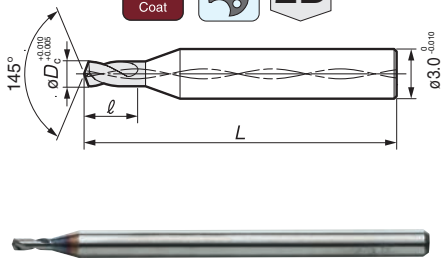
MLDH-L / MLDH-P Type



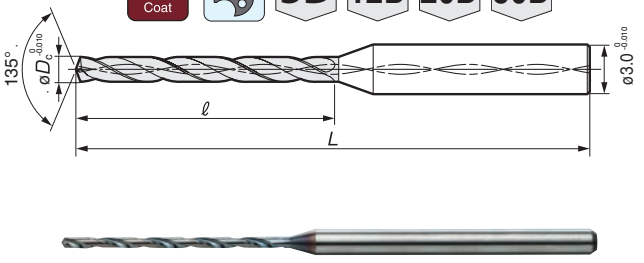
Internal Coolant Supply (MLDH-P Type / MLDH-L Type)

Carbon Steel, Up to 0.28%	Alloy Steel, From 0.29%	Tempered Steel	Hardened Steel, Up to 45HRC	Hardened Steel, From 46HRC	Stainless steel	Ti Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
◎	◎	○	○		◎			◎	◎	○		

- **MLDH-P Type** PVD Coat, W/ Oil Hole, 2D



- **MLDH-L Type** PVD Coat, W/ Oil Hole, 5D, 12D, 20D, 30D



• MLDH-P Type/MLDH-L Type Dimensions and Stock Availability

Diameter øDc (mm)	Dedicated Guide Hole MLDH-P Type				Micro Long Drill MLDH-L Type											
						Hole Depth: 5D			Hole Depth: 12D			Hole Depth: 20D			Hole Depth: 30D		
	Cat. No.	Stock	Dimensions (mm)		Cat. No.	Stock	Dimensions (mm)		Stock	Dimensions (mm)		Stock	Dimensions (mm)		Stock	Dimensions (mm)	
			L	ℓ	5, 12, 20, 30 ↘	5	L	ℓ	12	L	ℓ	20	L	ℓ	30	L	ℓ
0.80	MLDH0800P	★	45	3.2	MLDH0800L□□	★	50	8	★	55	14	★	60	19	★	70	28
0.81	MLDH0810P	★			MLDH0810L□□	★		9	★			★			★		
0.82	MLDH0820P	★		3.3	MLDH0820L□□	★			★			★		20	★		
0.83	MLDH0830P	★			MLDH0830L□□	★			★			★			★		
0.84	MLDH0840P	★		3.4	MLDH0840L□□	★			★			★			★		29
0.85	MLDH0850P	★			MLDH0850L□□	★			★			★			★		
0.86	MLDH0860P	★			MLDH0860L□□	★			★		15	★		21	★		30
0.87	MLDH0870P	★		3.5	MLDH0870L□□	★			★			★			★		
0.88	MLDH0880P	★			MLDH0880L□□	★			★			★			★		
0.89	MLDH0890P	★		3.6	MLDH0890L□□	★			★			★		22	★		31
0.90	MLDH0900P	★			MLDH0900L□□	★			★			★			★		
0.91	MLDH0910P	★			MLDH0910L□□	★		10	★	60	16	★	65		★	75	32
0.92	MLDH0920P	★		3.7	MLDH0920L□□	★			★			★		23	★		
0.93	MLDH0930P	★			MLDH0930L□□	★			★			★			★		
0.94	MLDH0940P	★		3.8	MLDH0940L□□	★			★			★			★		33
0.95	MLDH0950P	★			MLDH0950L□□	★			★			★			★		
0.96	MLDH0960P	★			MLDH0960L□□	★			★		17	★		24	★		34
0.97	MLDH0970P	★		3.9	MLDH0970L□□	★			★			★			★		
0.98	MLDH0980P	★			MLDH0980L□□	★			★			★			★		
0.99	MLDH0990P	★		4.0	MLDH0990L□□	★			★			★			★		
1.00	MLDH1000P	★			MLDH1000L□□	★			★			★			★		
1.05	MLDH1050P	★		4.2	MLDH1050L□□	★	55	12	★	65	18	★	70	25	★	80	36
1.10	MLDH1100P	★		4.4	MLDH1100L□□	★			★		19	★		26	★		37
1.15	MLDH1150P	★		4.6	MLDH1150L□□	★			★		20	★		28	★		39
1.20	MLDH1200P	★		4.8	MLDH1200L□□	★			★			★		29	★	85	41
1.25	MLDH1250P	★		5.0	MLDH1250L□□	★		14	★		21	★		30	★		43
1.30	MLDH1300P	★		5.2	MLDH1300L□□	★			★		22	★	75	31	★		44
1.35	MLDH1350P	★		5.4	MLDH1350L□□	★			★		23	★		32	★	90	46
1.40	MLDH1400P	★		5.6	MLDH1400L□□	★			★	65	24	★		34	★		48
1.45	MLDH1450P	★		5.8	MLDH1450L□□	★		16	★		25	★		35	★		49
1.50	MLDH1500P	★		6.0	MLDH1500L□□	★			★		26	★		36	★		51
1.55	MLDH1550P	★		6.2	MLDH1550L□□	★			★			★		37	★	95	53
1.60	MLDH1600P	★		6.4	MLDH1600L□□	★			★		27	★	80	38	★		54
1.65	MLDH1650P	★	50	6.6	MLDH1650L□□	★	60	18	★	70	28	★		40	★		56
1.70	MLDH1700P	★		6.8	MLDH1700L□□	★			★		29	★		41	★	100	58
1.75	MLDH1750P	★		7.0	MLDH1750L□□	★			★		30	★		42	★		60
1.80	MLDH1800P	★		7.2	MLDH1800L□□	★			★		31	★	85	43	★		61
1.85	MLDH1850P	★		7.4	MLDH1850L□□	★		20	★	75	32	★		44	★	103	63
1.90	MLDH1900P	★		7.6	MLDH1900L□□	★			★		33	★		46	★		65
1.95	MLDH1950P	★		7.8	MLDH1950L□□	★			★		34	★	90	47	★		66
2.00	MLDH2000P	★		8.0	MLDH2000L□□	★			★			★		48	★		68

Grade: ACV70

Please indicate 5, 12, 20 or 30 in the □□ when ordering.
(Example: MLDH 1000L20)

■ Made to Order Items: Inquire about production of drills in tool diameters and lengths not listed above or not in stock.

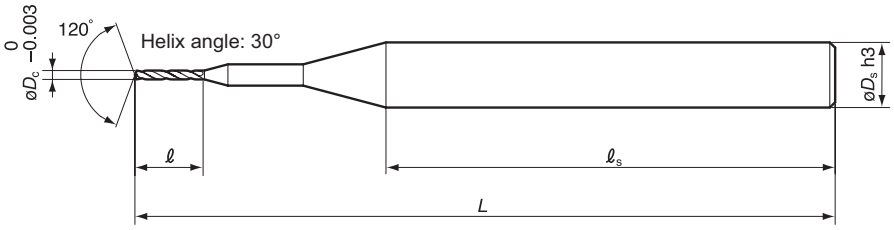
Micro MultiDrills
MDUS Type

■ MDUS-Features & Benefits

- **High precision shank**
  Shank tolerance: h3
  Concentricity: 0.3µm or less
  Roundness: 0.5µm or less

- **New ultra-thin TiAlN coating**
  Provides improved wear resistance

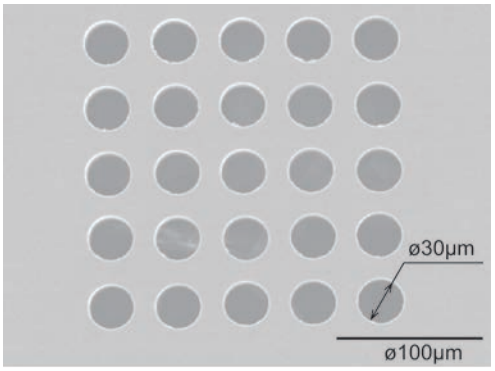
- **Wide material range**
  Ideal for machining steel, stainless steel, and copper



ø0.030 to ø0.180mm

Catalog Number	øDc *(mm)*	øDs *(mm)*	Stock	Dimensions *(mm)*		
				ℓ	ℓs	L
MDUS0030-30C	*0.030*	*3.0*	★	*0.3*	*28*	*38*
MDUS0040-30C	*0.040*		★	*0.4*		
MDUS0050-30C	*0.050*		★	*0.5*		
MDUS0080-30C	*0.080*		★	*0.8*		
MDUS0100-30C	*0.100*		★	*1.0*		
MDUS0120-30C	*0.120*		★	*1.2*		
MDUS0150-30C	*0.150*		★	*1.5*		
MDUS0180-30C	*0.180*		★	*1.8*		

★ = Worldwide Warehouse item available in 10 business days



Material: 304 Stainless Steel
Drill: MDUS0030-30C (ø0.03mm)

Mini MultiDrills MDSS Type

■ Features & Benefits

- High breakage resistance due to a combination of tough, stable carbide substrate and a highly rigid design
- Long tool life is achieved as a result of the PVD coating created especially for small diameter drills
- Wide variety of applications including carbon steel, alloy steel, die steel, and stainless steel

Fig 1

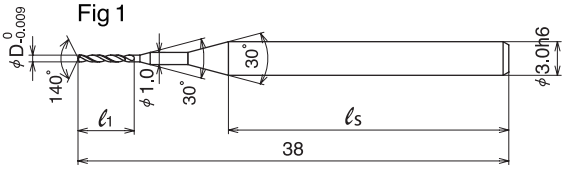
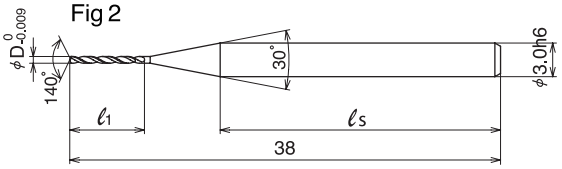


Fig 2



ø0.20 to ø0.49mm

Catalog Number	Stock	øDc (mm)	Dimensions (mm) ℓ	Dimensions (mm) ℓs	Style
MDSS0020	★	0.20	2.5	28	Fig1
MDSS0021	★	0.21			
MDSS0022	★	0.22			
MDSS0023	★	0.23			
MDSS0024	★	0.24			
MDSS0025	★	0.25			
MDSS0026	★	0.26			
MDSS0027	★	0.27			
MDSS0028	★	0.28			
MDSS0029	★	0.29			
MDSS0030	★	0.30	3		
MDSS0031	★	0.31			
MDSS0032	★	0.32			
MDSS0033	★	0.33			
MDSS0034	★	0.34			
MDSS0035	★	0.35	4		Fig2
MDSS0036	★	0.36			
MDSS0037	★	0.37			
MDSS0038	★	0.38			
MDSS0039	★	0.39			
MDSS0040	★	0.40	5		
MDSS0041	★	0.41			
MDSS0042	★	0.42			
MDSS0043	★	0.43			
MDSS0044	★	0.44			
MDSS0045	★	0.45			
MDSS0046	★	0.46			
MDSS0047	★	0.47			
MDSS0048	★	0.48			
MDSS0049	★	0.49			

ø0.50 to ø0.79mm

Catalog Number	Stock	øDc (mm)	Dimensions (mm) ℓ	Dimensions (mm) ℓs	Style
MDSS0050	★	0.50	6	27	Fig2
MDSS0051	★	0.51			
MDSS0052	★	0.52			
MDSS0053	★	0.53			
MDSS0054	★	0.54			
MDSS0055	★	0.55			
MDSS0056	★	0.56			
MDSS0057	★	0.57			
MDSS0058	★	0.58			
MDSS0059	★	0.59			
MDSS0060	★	0.60	7	26	
MDSS0061	★	0.61			
MDSS0062	★	0.62			
MDSS0063	★	0.63			
MDSS0064	★	0.64			
MDSS0065	★	0.65			
MDSS0066	★	0.66			
MDSS0067	★	0.67			
MDSS0068	★	0.68			
MDSS0069	★	0.69			
MDSS0070	★	0.70	9	24	
MDSS0071	★	0.71			
MDSS0072	★	0.72			
MDSS0073	★	0.73			
MDSS0074	★	0.74			
MDSS0075	★	0.75			
MDSS0076	★	0.76			
MDSS0077	★	0.77			
MDSS0078	★	0.78			
MDSS0079	★	0.79			

Catalog Number	Stock	øDc (mm)	Dimensions (mm) ℓ	Dimensions (mm) ℓs	Style
MDSS0080	★	0.80	10	23	Fig2
MDSS0081	★	0.81			
MDSS0082	★	0.82			
MDSS0083	★	0.83			
MDSS0084	★	0.84			
MDSS0085	★	0.85			
MDSS0086	★	0.86			
MDSS0087	★	0.87			
MDSS0088	★	0.88			
MDSS0089	★	0.89			
MDSS0090	★	0.90	11	22	
MDSS0091	★	0.91			
MDSS0092	★	0.92			
MDSS0093	★	0.93			
MDSS0094	★	0.94			
MDSS0095	★	0.95			
MDSS0096	★	0.96			
MDSS0097	★	0.97			
MDSS0098	★	0.98			
MDSS0099	★	0.99			
MDSS0100	★	1.00	12	21	

★ = Worldwide Warehouse item available in 10 business days

1) The conditions above are recommended under wet conditions, using water-soluble coolant.
2) If machine noises and vibrations are present, adjust the cutting conditions accordingly.
3) If the machine cannot achieve the recommended spindle speed, use the maximum spindle speed available.

■ Recommended Cutting Conditions (Wet)

Feed Rate=ipm / *mm/min*		Structural Steel Carbon Steel Gray Cast Iron	Alloy Steel Pre-hardened Steel	Die Steel Tempered Steel	Hardened Steel 40-50 HRc	Hardened Steel 50-55 HRc	Ductile Cast Iron	Stainless Steel
~ø.20 - ø.29 mm	RPM	31,800	26,500	21,200	12,700	10,600	31,800	10,600
	Feed Rate	2.362 / *60*	1.969 / *50*	1.575 / *40*	1.181 / *30*	0.787 / *20*	2.362 / *60*	0.787 / *20*
	Step Feed	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD
~ø.30 - .39 mm	RPM	31,800	26,500	21,200	12,700	10,600	31,800	10,600
	Feed Rate	3.937 / *100*	3.150 / *80*	2.362 / *60*	1.575 / *40*	1.181 / *30*	3.937 / *100*	1.181 / *30*
	Step Feed	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD
~ø.40 - .49 mm	RPM	31,800	25,900	19,900	12,700	9,900	31,800	9,500
	Feed Rate	5.118 / *130*	3.937 / *100*	3.150 / *80*	1.969 / *50*	1.575 / *40*	5.118 / *130*	1.575 / *40*
	Step Feed	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD
~ø.50 - .59 mm	RPM	31,800	25,500	19,100	12,700	9,500	31,800	9,500
	Feed Rate	7.480 / *190*	5.906 / *150*	4.330 / *110*	2.362 / *60*	1.969 / *50*	7.480 / *190*	1.969 / *50*
	Step Feed	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD	0.1XD
~ø.60 - 1.00 mm	RPM	23,900	15,900	12,700	8,000	5,600	19,100	5,600
	Feed Rate	14.173 / *360*	9.449 / *240*	3.543 / *90*	3.937 / *100*	2.362 / *60*	11.417 / *290*	3.150 / *80*
	Step Feed	0.2XD - .5XD*	0.2XD - .5XD*	0.2XD - .5XD*	0.1XD	0.1XD	0.2XD - .5XD*	0.1XD

* Step feed is recommended for drilling of holes deeper than 3XD

DLC Coated Drills NHGS Type

Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
○	○	◎	◎	

Aurora DLC Coat | W/ Oil Hole | 3D | 5D | 10D

Internal Coolant Supply (NHGS Type)

■ Characteristics

■High efficiency drilling

AURORA COAT (DLC Coat) and low cutting resistance WL (Wide L) thinning drastically reduces cutting resistance.

■Stable Drilling Performance

Special cutting edge design and WW (Wide W) margin improves hole quality.

■Longer tool life

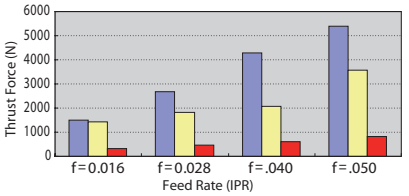
With AURORA COAT coupled with the cutting edge design, long and stable tool life can be achieved.

■Deep hole drilling possible

Drills for deep hole drilling can be custom-made.
(Production range: Drill diameters: ø3.0 to ø16.0mm
Total length: Available on inquiry)

■ Comparison of Cutting Resistance (Thrust Force)

Drastic reduction in cutting resistance

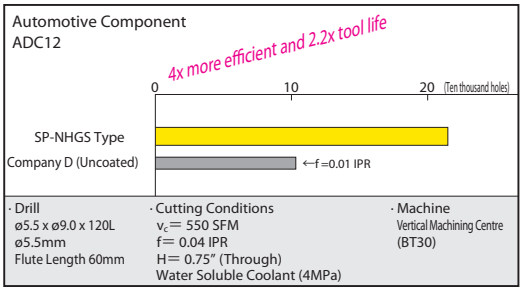


Work Material: ADC12
Drill Diameter: ø8.0mm
Internal Coolant
Cutting Speed: 650 SFM

■ Application Examples

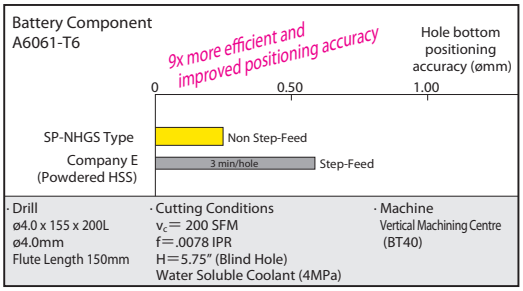
High Feed Drilling of Aluminium Alloy

Automotive Component using SP-NHGS Type



Deep Hole Drilling of Aluminium Alloy

Battery Component using SP-NHGS Type



■ Diameter ø3.0 to ø8.0mm

Diameter øDc (mm)	Shank øDs (mm)	Cat. No. 3,5,10	3D Type Stock [3]	3D Type Dimensions L	L	5D Type Stock [5]	5D Type Dimensions L	L	10D Type Stock [10]	10D Type Dimensions L	L
3.0	3.0	MDW0300NHGS□□	★	68	17.5	★	78	28	★	92	42
3.1		MDW0310NHGS□□				★					
3.2		MDW0320NHGS□□	★			★			★		
3.3	4.0	MDW0330NHGS□□	★	72	20	★	86	32		106	49
3.4		MDW0340NHGS□□				★			★		
3.5		MDW0350NHGS□□	★			★			★		
3.6		MDW0360NHGS□□				★			★		
3.65		MDW0365NHGS□□	★			★					
3.66		MDW0366NHGS□□				★					
3.7	4.0	MDW0370NHGS□□		72	22.5	★	86	36		106	56
3.8		MDW0380NHGS□□				★					
3.9		MDW0390NHGS□□				★			★		
4.0		MDW0400NHGS□□	★			★			★		
4.1		MDW0410NHGS□□	★			★					
4.2		MDW0420NHGS□□	★			★					
4.3	5.0	MDW0430NHGS□□		80	25	★	98	40		124	63
4.4		MDW0440NHGS□□				★					
4.5		MDW0450NHGS□□	★			★			★		
4.6		MDW0460NHGS□□	★			★					
4.7		MDW0470NHGS□□				★					
4.8	5.0	MDW0480NHGS□□		80	27.5	★	98	44		124	70
4.9		MDW0490NHGS□□				★			★		
5.0		MDW0500NHGS□□	★			★			★		
5.1		MDW0510NHGS□□				★			★		
5.2		MDW0520NHGS□□	★			★					
5.3	6.0	MDW0530NHGS□□	★	82	27.5	★	100	44		136	77
5.4		MDW0540NHGS□□				★					
5.5		MDW0550NHGS□□	★			★			★		
5.6		MDW0560NHGS□□				★					
5.7		MDW0570NHGS□□				★					
5.8	6.0	MDW0580NHGS□□		82	30	★	100	48		136	84
5.9		MDW0590NHGS□□	★			★					
6.0		MDW0600NHGS□□	★			★			★		
6.1		MDW0610NHGS□□				★			★		
6.2		MDW0620NHGS□□				★					
6.3	7.0	MDW0630NHGS□□		88	32.5	★	109	52		151	91
6.4		MDW0640NHGS□□				★					
6.5		MDW0650NHGS□□	★			★			★		
6.6		MDW0660NHGS□□				★					
6.7		MDW0670NHGS□□	★			★			★		
6.8	7.0	MDW0680NHGS□□	★	88	35	★	109	56	★	151	98
6.9		MDW0690NHGS□□				★					
7.0		MDW0700NHGS□□	★			★			★		
7.1		MDW0710NHGS□□				★					
7.2		MDW0720NHGS□□				★			★		
7.3	8.0	MDW0730NHGS□□		94	37.5	★	118	60		166	105
7.35		MDW0735NHGS□□	★			★					
7.4		MDW0740NHGS□□	★			★					
7.5		MDW0750NHGS□□	★			★			★		
7.6		MDW0760NHGS□□				★					
7.7		MDW0770NHGS□□				★					
7.8	8.0	MDW0780NHGS□□	★	94	40	★	118	64	★	166	112
7.9		MDW0790NHGS□□				★					
8.0		MDW0800NHGS□□	★			★			★		

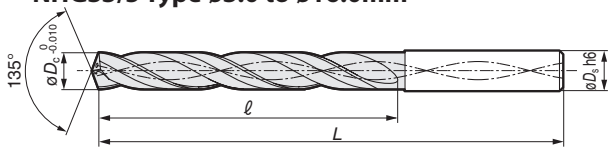
Grade: DL1300

Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
○	○	◎	◎	

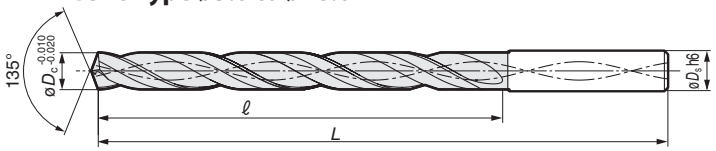
Aurora DLC Coat | W/ Oil Hole | 3D | 5D

DLC Coated Drills NHGS Type

■ NHGS3/5 Type ø3.0 to ø16.0mm



■ NHGS10 Type ø3.0 to ø16.0mm



■ Diameter ø8.1 to ø13.0mm

Diameter øDc (mm)	Shank øDs (mm)	Cat. No. 3,5,10	3D Type Stock [3]	3D Type Dimensions L	3D Type Dimensions L	5D Type Stock [5]	5D Type Dimensions L	5D Type Dimensions L	10D Type Stock [10]	10D Type Dimensions L	10D Type Dimensions L
8.1		MDW0810NHGS□□				★					
8.2		MDW0820NHGS□□				★					
8.3	9.0	MDW0830NHGS□□		100	42.5	★	127	68		181	119
8.4		MDW0840NHGS□□				★					
8.5		MDW0850NHGS□□	★			★			★		
8.6		MDW0860NHGS□□	★			★					
8.7		MDW0870NHGS□□				★					
8.8	9.0	MDW0880NHGS□□	★	100	45	★	127	72		181	126
8.9		MDW0890NHGS□□				★					
9.0		MDW0900NHGS□□	★			★			★		
9.1		MDW0910NHGS□□				★					
9.2		MDW0920NHGS□□				★					
9.21	10.0	MDW0921NHGS□□	★	106	47.5	★	136	76		196	133
9.3		MDW0930NHGS□□				★					
9.4		MDW0940NHGS□□	★			★					
9.5		MDW0950NHGS□□	★			★			★		
9.6		MDW0960NHGS□□				★					
9.7		MDW0970NHGS□□				★					
9.8	10.0	MDW0980NHGS□□		106	50	★	136	80	★	196	140
9.9		MDW0990NHGS□□				★					
10.0		MDW1000NHGS□□	★			★			★		
10.1		MDW1010NHGS□□	★								
10.2		MDW1020NHGS□□									
10.3	11.0	MDW1030NHGS□□	★	116	52.5	★	149	84		215	147
10.4		MDW1040NHGS□□				★					
10.5		MDW1050NHGS□□	★			★			★		
10.6		MDW1060NHGS□□	★			★					
10.7		MDW1070NHGS□□									
10.8	11.0	MDW1080NHGS□□		116	55		149	88		215	154
10.9		MDW1090NHGS□□									
11.0		MDW1100NHGS□□	★			★			★		
11.08		MDW1108NHGS□□	★			★					
11.1		MDW1110NHGS□□	★			★					
11.2	12.0	MDW1120NHGS□□	★	122	57.5	★	158	92		230	161
11.3		MDW1130NHGS□□									
11.4		MDW1140NHGS□□	★			★					
11.5		MDW1150NHGS□□	★			★			★		
11.6		MDW1160NHGS□□									
11.7		MDW1170NHGS□□									
11.8	12.0	MDW1180NHGS□□		122	60		158	96		230	168
11.9		MDW1190NHGS□□									
12.0		MDW1200NHGS□□	★			★			★		
12.1		MDW1210NHGS□□	★			★					
12.2		MDW1220NHGS□□									
12.3	13.0	MDW1230NHGS□□	★	128	62.5	★	167	100		245	175
12.4		MDW1240NHGS□□									
12.5		MDW1250NHGS□□	★			★			★		
12.6		MDW1260NHGS□□									
12.7		MDW1270NHGS□□									
12.8	13.0	MDW1280NHGS□□		128	65		167	104		245	182
12.9		MDW1290NHGS□□									
12.96		MDW1296NHGS□□	★			★					
13.0		MDW1300NHGS□□	★			★			★		

■ Diameter ø13.1 to ø16 .0mm

Diameter øDc (mm)	Shank øDs (mm)	Cat. No. 3,5,10	3D Type Stock [3]	3D Type Dimensions L	3D Type Dimensions L	5D Type Stock [5]	5D Type Dimensions L	5D Type Dimensions L	10D Type Stock [10]	10D Type Dimensions L	10D Type Dimensions L
13.1		MDW1310NHGS□□									
13.2		1320NHGS□□									
13.3	14.0	1330NHGS□□		134	68		176	108		260	189
13.4		1340NHGS□□									
13.5		1350NHGS□□	★			★					
13.6		MDW1360NHGS□□									
13.7		1370NHGS□□									
13.8	14.0	1380NHGS□□		134	70		176	112		260	196
13.9		1390NHGS□□									
14.0		1400NHGS□□	★			★					
14.1		MDW1410NHGS□□	★			★					
14.2		1420NHGS□□									
14.3	15.0	1430NHGS□□		140	72.5		185	116		275	203
14.4		1440NHGS□□									
14.5		1450NHGS□□	★			★					
14.6		MDW1460NHGS□□									
14.7		1470NHGS□□									
14.8	15.0	1480NHGS□□		140	75		185	120		275	210
14.9		1490NHGS□□	★			★					
14.96		1496NHGS□□	★			★					
15.0		1500NHGS□□	★			★					
15.1		MDW1510NHGS□□									
15.2		1520NHGS□□									
15.3	16.0	1530NHGS□□		146	77.5		194	124		290	217
15.4		1540NHGS□□									
15.5		1550NHGS□□	★			★					
15.6		MDW1560NHGS□□									
15.7		1570NHGS□□									
15.8	16.0	1580NHGS□□		146	80		194	128		290	224
15.9		1590NHGS□□									
16.0		1600NHGS□□	★			★					

Grade: DL1300

Please indicate 3, 5 or 10 in the □□ when ordering.
(Example: MDW0850NHGS10)

■ Recommended Cutting Conditions

Drill Diameter øDc (mm)	Cutting Conditions	Aluminium Casting/ Die Cast Aluminium	Wrought Aluminium Alloy
Up to ø6.0	v_c	260 - **460** - 650	260 - **400** - 650
	f	0.008 - **0.016** - 0.024	0.008 - **0.012** - 0.016
Up to ø10.0	v_c	330 - **600** - 820	330 - **500** - 820
	f	0.016 - **0.024**- 0032	0.008 - **0.015** - 0.02
Up to ø16.0	v_c	400 - **650** - 820	400 - **590** - 820
	f	0.016 - **0.028** - .04	0.012 - **0.018** - 0.024

(v_c: Cutting Speed (m/min) f: Feed Rate (mm/rev)) Min. - Optimum - Max.

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Replaceable Tip Drills

Pages 489-499

SMD

Features & Benefits

- Available in metric and inch diameters ranging from 0.4688" - 1.6535" (42.0mm)
- Available in 3X, 5X, 8X & now **1.5X** & **12X** diameter hardened steel bodies that can accept multiple diameters
- Three styles of drill tips to maximize performance
  - **SMDT-MTL** - standard edge preparation for steel applications
  - **SMDT-MEL** - light edge preparation for super alloys, stainless steels, and cast irons
  - **SMDT-MTL-C** - chamfered edges to eliminate break out in cast iron
  - **SMDT-MFS** - 180° point angle flat edge tip
- SMD carbide tips have Sumitomo's patented wear resistant DEX™ coatings
- Ground serrations on back of drill tip allow for precise assembly and superior repeatability
- Every drill tip is made with the famous Sumitomo Point
- Drill tips are capable of being reground
- Coolant through drill bodies

Easy Assembly

1.) Confirm drill tip is compatible with drill body by checking diameter range listed on shank.

2.) Place SMD replaceable carbide head on SMD drill body so that the screw mounting holes line up.

3.) Insert assembly screws and tighten securely after screw mounting holes are lined up.

Note: Mounting screws will only engage when the SMD replaceable carbide head is in the correct position.

Heads	Toolholder(L/D)	Applications	øD$_C$ range (in/ mm)
SMDT-MTL Type	MType(3D)	General Steel	.4688 - 1.3189 *12.00 - 33.50*
	LType(5D)		.4688 - 1.3189 *12.00 - 33.50*
	DType(8D)		.5315 - 1.2125 *13.50 - 30.80*
	12XD		.5315 - 1.0157 *13.50 - 25.80*
SMDT-MEL Type	MType(3D)	SUS SS FC	.4688 -1.3189 *12.00 - 33.50*
	LType(5D)		.4688 - 1.3189 *12.00 - 33.50*
	DType(8D)		.5315 - 1.2125 *13.50 - 30.80*
	12XD		.5315 - 1.0157 *13.50 - 25.80*
SMDT-C Type		Structural Steel	*24.5 to 26.7*
SMDT-MFS Type	1.5XD	180° flat edge	.4688 - 1.2125 *12.00 - 30.80*

1.5X Diameter

NEW Flat Head Replaceable Tip Drill

3X Diameter

5X Diameter

8X Diameter

NEW

12X Diameter

Recommended Speeds and Feeds

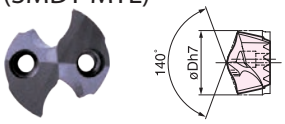
Speed: v (SFM) / Feed: f (IPR)

		MTL	MTL	MTL	MTL	MTL-C / MEL		MEL	MEL	MEL
Material		Steels	Steels	Prehard Steels	Die Steels	Ductile cast irons	Gray cast irons	Titanium	Inconel	Stainless Steels*
Drill Dia. (inch)		<HB250	HB250-300	HRC45	–	–	–	–	–	–
~ .4688	v	260 - 400	260 - 360	160 - 260	130 - 230	230 - 330	260 - 430	65 - 130	35 - 100	125 - 230
	f	.006 - .012	.006 - .012	.004 - .008	.005 - .009	.006 - .012	.008 - .012	.004 - .008	.003 - .004	.004 - .008
~ .844	v	260 - 400	260 - 360	195 - 295	130 - 230	230 - 330	260 - 430	85 - 150	50 - 115	145 - 240
	f	.006 - .014	.006 - .014	.006 - .010	.006 - .010	.006 - .014	.008 - .014	.004 - .008	.003 - .005	.004 - .009
~ 1.250	v	260 - 430	260 - 400	195 - 295	130 - 230	260 - 360	300 - 460	85 - 150	50 - 115	160 - 250
	f	.008 - .016	.008 - .014	.006 - .010	.006 - .010	.008 - .015	.008 - .018	.004 - .008	.003 - .006	.006 - .010

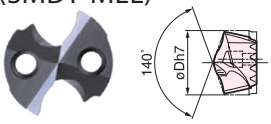
* For difficult to machine stainless steels (316, 302, 304, 17-4ph, etc.) adjust speeds & feeds accordingly.

Inch & *Metric*

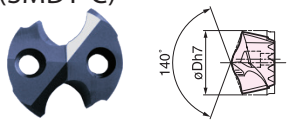
■ STANDARD TIP (SMDT-MTL)



■ SUPER ALLOY TIP (SMDT-MEL)



■ CORNER BREAK TIP (SMDT-C)

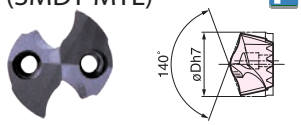


Drill Tip	Stock	Drill Tip	Stock	Drill Tip	Stock	øD		Body
SMDT04688MTL-ACX70	●	SMDT04688MEL-ACX80	●	SMDT04688MTL-C-ACX70	●	15/32	(0.4688)	
SMDT1200MTL-ACX70	●	*SMDT1200MEL-ACX80*	●	*SMDT1200MTL-C-ACX70*	●	*12.0mm*	*(0.4724)*	
SMDT1210MTL-ACX70	★	*SMDT1210MEL-ACX80*	★	*SMDT1210MTL-C-ACX70*		*12.1mm*	*(0.4764)*	SMDH047□
SMDT1220MTL-ACX70	★	*SMDT1220MEL-ACX80*	★	*SMDT1220MTL-C-ACX70*		*12.2mm*	*(0.4803)*	
SMDT1230MTL-ACX70	★	*SMDT1230MEL-ACX80*	★	*SMDT1230MTL-C-ACX70*		*12.3mm*	*(0.4843)*	
SMDT04844MTL-ACX70	●	SMDT04844MEL-ACX80	●	SMDT04844MTL-C-ACX70	●	31/64	(0.4844)	
SMDT1250MTL-ACX70	●	SMDT1250MEL-ACX80	●	SMDT1250MTL-C-ACX70	●	12.5mm	(0.4921)	
SMDT1260MTL-ACX70	★	*SMDT1260MEL-ACX80*	★	*SMDT1260MTL-C-ACX70*		*12.6mm*	*(0.4960)*	SMDH049□
SMDT05000MTL-ACX70	●	SMDT05000MEL-ACX80	●	SMDT05000MTL-C-ACX70		1/2	(0.5000)	
SMDT1270MTL-ACX70	★	*SMDT1270MEL-ACX80*	★	*SMDT1270MTL-C-ACX70*		*12.7mm*	*(0.5000)*	
SMDT1300MTL-ACX70	●	SMDT1300MEL-ACX80	●	SMDT1300MTL-C-ACX70	●	13.0mm	(0.5118)	
SMDT05156MTL-ACX70	●	*SMDT05156MEL-ACX80*	●	*SMDT05156MTL-C-ACX70*	●	*33/64*	*(0.5156)*	SMDH051□
SMDT1310MTL-ACX70	★	*SMDT1310MEL-ACX80*	★	*SMDT1310MTL-C-ACX70*		*13.1mm*	*(0.5157)*	
SMDT05312MTL-ACX70	●	SMDT05312MEL-ACX80	●	SMDT05312MTL-C-ACX70	●	17/32	(0.5312)	
SMDT1350MTL-ACX70	●	*SMDT1350MEL-ACX80*	●	*SMDT1350MTL-C-ACX70*	●	*13.5mm*	*(0.5315)*	
SMDT1365MTL-ACX70		*SMDT1365MEL-ACX80*		*SMDT1365MTL-C-ACX70*	●	*13.65mm*	*(0.5374)*	
SMDT05469MTL-ACX70	●	SMDT05469MEL-ACX80	●	SMDT05469MTL-C-ACX70	●	35/64	(0.5469)	
SMDT1400MTL-ACX70	●	*SMDT1400MEL-ACX80*	●	*SMDT1400MTL-C-ACX70*	●	*14.0mm*	*(0.5512)*	SMDH055□
SMDT1410MTL-ACX70	★	*SMDT1410MEL-ACX80*	★	*SMDT1410MTL-C-ACX70*		*14.1mm*	*(0.5551)*	
SMDT1420MTL-ACX70	★	*SMDT1420MEL-ACX80*	★	*SMDT1420MTL-C-ACX70*		*14.2mm*	*(0.5591)*	
SMDT05625MTL-ACX70	●	SMDT05625MEL-ACX80	●	SMDT05625MTL-C-ACX70	●	9/16	(0.5625)	
SMDT1450MTL-ACX70	●	*SMDT1450MEL-ACX80*	●	*SMDT1450MTL-C-ACX70*	●	*14.5mm*	*(0.5709)*	
SMDT05781MTL-ACX70	●	SMDT05781MEL-ACX80	●	SMDT05781MTL-C-ACX70	●	37/64	(0.5781)	
SMDT1500MTL-ACX70	●	*SMDT1500MEL-ACX80*	●	*SMDT1500MTL-C-ACX70*	●	*15.0mm*	*(0.5906)*	
SMDT05937MTL-ACX70	●	SMDT05937MEL-ACX80	●	SMDT05937MTL-C-ACX70	●	19/32	(0.5938)	SMDH059□
SMDT06094MTL-ACX70	●	SMDT06094MEL-ACX80	●	SMDT06094MTL-C-ACX70	●	39/64	(0.6094)	
SMDT1550MTL-ACX70	●	*SMDT1550MEL-ACX80*	●	*SMDT1550MTL-C-ACX70*	●	*15.5mm*	*(0.6102)*	
SMDT1560MTL-ACX70	★	*SMDT1560MEL-ACX80*		*SMDT1560MTL-C-ACX70*		*15.6mm*	*(0.6142)*	
SMDT1570MTL-ACX70	★	*SMDT1570MEL-ACX80*		*SMDT1570MTL-C-ACX70*		*15.7mm*	*(0.6181)*	
SMDT06250MTL-ACX70	●	SMDT06250MEL-ACX80	●	SMDT06250MTL-C-ACX70	●	5/8	(0.6250)	
SMDT1600MTL-ACX70	●	*SMDT1600MEL-ACX80*	●	*SMDT1600MTL-C-ACX70*	●	*16.0mm*	*(0.6300)*	SMDH063□
SMDT1608MTL-ACX70		*SMDT1608MEL-ACX80*	●	*SMDT1608MTL-C-ACX70*		*16.08mm*	*(0.6331)*	
SMDT06406MTL-ACX70	●	SMDT06406MEL-ACX80	●	SMDT06406MTL-C-ACX70		41/64	(0.6406)	
SMDT1630MTL-ACX70	●	*SMDT1630MEL-ACX80*		*SMDT1630MTL-C-ACX70*		*16.3mm*	*(0.6417)*	
SMDT1650MTL-ACX70	●	*SMDT1650MEL-ACX80*	●	*SMDT1650MTL-C-ACX70*	●	*16.5mm*	*(0.6496)*	
SMDT06562MTL-ACX70	●	SMDT06562MEL-ACX80	●	SMDT06562MTL-C-ACX70	●	21/32	(0.6563)	
SMDT1700MTL-ACX70	●	*SMDT1700MEL-ACX80*	●	*SMDT1700MTL-C-ACX70*	●	*17.0mm*	*(0.6693)*	
SMDT06719MTL-ACX70	●	SMDT06719MEL-ACX80	●	SMDT06719MTL-C-ACX70	●	43/64	(0.6719)	SMDH067□
SMDT06875MTL-ACX70	●	SMDT06875MEL-ACX80	●	SMDT06875MTL-C-ACX70	●	11/16	(0.6875)	
SMDT1750MTL-ACX70	●	*SMDT1750MEL-ACX80*	●	*SMDT1750MTL-C-ACX70*	●	*17.5mm*	*(0.6890)*	
SMDT1760MTL-ACX70	●	*SMDT1760MEL-ACX80*		*SMDT1760MTL-C-ACX70*		*17.6mm*	*(0.6929)*	
SMDT1770MTL-ACX70	★	*SMDT1770MEL-ACX80*	★	*SMDT1770MTL-C-ACX70*		*17.7mm*	*(0.6969)*	
SMDT07031MTL-ACX70	●	SMDT07031MEL-ACX80	●	SMDT07031MTL-C-ACX70	●	45/64	(0.7031)	
SMDT1800MTL-ACX70	●	*SMDT1800MEL-ACX80*	●	*SMDT1800MTL-C-ACX70*	●	*18.0mm*	*(0.7087)*	SMDH071□
SMDT07187MTL-ACX70	●	SMDT07187MEL-ACX80	●	SMDT07187MTL-C-ACX70	●	23/32	(0.7188)	
SMDT1850MTL-ACX70	●	*SMDT1850MEL-ACX80*	●	*SMDT1850MTL-C-ACX70*	●	*18.5mm*	*(0.7283)*	
SMDT07344MTL-ACX70	●	SMDT07344MEL-ACX80	●	SMDT07344MTL-C-ACX70	●	47/64	(0.7344)	
SMDT1900MTL-ACX70	●	*SMDT1900MEL-ACX80*	●	*SMDT1900MTL-C-ACX70*		*19.0mm*	*(0.7480)*	
SMDT07500MTL-ACX70	●	SMDT07500MEL-ACX80	●	SMDT07500MTL-C-ACX70		3/4	(0.7500)	SMDH075□
SMDT1925MTL-ACX70		*SMDT1925MEL-ACX80*	●	*SMDT1925MTL-C-ACX70*		*19.25mm*	*(0.7579)*	
SMDT07656MTL-ACX70	●	SMDT07656MEL-ACX80	●	SMDT07656MTL-C-ACX70	●	49/64	(0.7656)	
SMDT1950MTL-ACX70	●	*SMDT1950MEL-ACX80*	●	*SMDT1950MTL-C-ACX70*	●	*19.5mm*	*(0.7677)*	

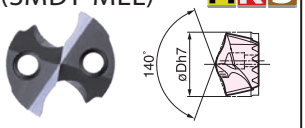
● = Stock item ★ = Worldwide Warehouse item available in 10 business days Note: Special diameters available upon request

SMD Replaceable Tip Drill

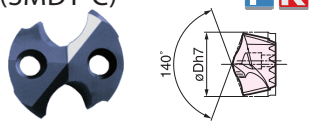
■ STANDARD TIP (SMDT-MTL) P



■ SUPER ALLOY TIP (SMDT-MEL) M K S



■ CORNER BREAK TIP (SMDT-C) P K



Inch & *Metric*

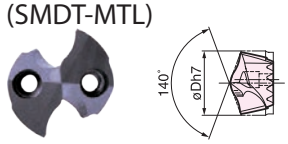
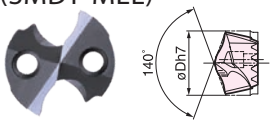
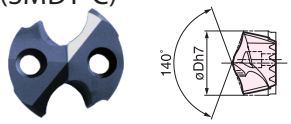
Drill Tip	Stock	Drill Tip	Stock	Drill Tip	Stock	øD		Body
SMDT07812MTL-ACX70	●	SMDT07812MEL-ACX80	●	SMDT07812MTL-C-ACX70	●	25/32	(0.7813)	
SMDT2000MTL-ACX70	●	*SMDT2000MEL-ACX80*	●	*SMDT2000MTL-C-ACX70*	●	*20.0mm*	*(0.7874)*	
SMDT07969MTL-ACX70	●	SMDT07969MEL-ACX80	●	SMDT07969MTL-C-ACX70		51/64	(0.7969)	SMDH079□
SMDT2050MTL-ACX70	●	*SMDT2050MEL-ACX80*	●	*SMDT2050MTL-C-ACX70*	●	*20.5mm*	*(0.8071)*	
SMDT08125MTL-ACX70	●	SMDT08125MEL-ACX80	●	SMDT08125MTL-C-ACX70		13/16	(0.8125)	
SMDT2100MTL-ACX70	●	*SMDT2100MEL-ACX80*	●	*SMDT2100MTL-C-ACX70*	●	*21.0mm*	*(0.8268)*	
SMDT2120MTL-ACX70	★	*SMDT2120MEL-ACX80*	★	*SMDT2120MTL-C-ACX70*	●	*21.2mm*	*(0.8346)*	
SMDT08281MTL-ACX70	●	SMDT08281MEL-ACX80	●	SMDT08281MTL-C-ACX70		53/64	(0.8281)	SMDH083□
SMDT08437MTL-ACX70	●	SMDT08437MEL-ACX80	●	SMDT08437MTL-C-ACX70	●	27/32	(0.8438)	
SMDT2150MTL-ACX70	●	*SMDT2150MEL-ACX80*	●	*SMDT2150MTL-C-ACX70*	●	*21.5mm*	*(0.8465)*	
SMDT08594MTL-ACX70	●	SMDT08594MEL-ACX80	●	SMDT08594MTL-C-ACX70		55/64	(0.8594)	
SMDT2200MTL-ACX70	●	*SMDT2200MEL-ACX80*	●	*SMDT2200MTL-C-ACX70*	●	*22.0mm*	*(0.8661)*	
SMDT08750MTL-ACX70	●	SMDT08750MEL-ACX80	●	SMDT08750MTL-C-ACX70	●	7/8	(0.8750)	SMDH087□
SMDT2245MTL-ACX70		*SMDT2245MEL-ACX80*	●	*SMDT2245MTL-C-ACX70*		*22.45mm*	*(0.8839)*	
SMDT2250MTL-ACX70	●	*SMDT2250MEL-ACX80*	●	*SMDT2250MTL-C-ACX70*		*22.5mm*	*(0.8858)*	
SMDT08906MTL-ACX70	●	SMDT08906MEL-ACX80	●	SMDT08906MTL-C-ACX70	●	57/64	(0.8906)	
SMDT2300MTL-ACX70	●	*SMDT2300MEL-ACX80*	●	*SMDT2300MTL-C-ACX70*	●	*23.0mm*	*(0.9055)*	
SMDT09062MTL-ACX70	●	SMDT09062MEL-ACX80	●	SMDT09062MTL-C-ACX70		29/32	(0.9062)	
SMDT09219MTL-ACX70	●	SMDT09219MEL-ACX80	●	SMDT09219MTL-C-ACX70	●	59/64	(0.9219)	SMDH091□
SMDT2350MTL-ACX70	●	*SMDT2350MEL-ACX80*	●	*SMDT2350MTL-C-ACX70*		*23.5mm*	*(0.9252)*	
SMDT09375MTL-ACX70	●	SMDT09375MEL-ACX80	●	SMDT09375MTL-C-ACX70	●	15/16	(0.9375)	
SMDT2400MTL-ACX70	●	*SMDT2400MEL-ACX80*	●	*SMDT2400MTL-C-ACX70*	●	*24.0mm*	*(0.9449)*	
SMDT2410MTL-ACX70	★	*SMDT2410MEL-ACX80*	★	*SMDT2410MTL-C-ACX70*		*24.1mm*	*(0.9488)*	SMDH096□
SMDT09531MTL-ACX70	●	SMDT09531MEL-ACX80	●	SMDT09531MTL-C-ACX70		61/64	(0.9531)	
SMDT2450MTL-ACX70	★	*SMDT2450MEL-ACX80*	●	*SMDT2450MTL-C-ACX70*		*24.5mm*	*(0.9646)*	
SMDT09687MTL-ACX70	●	SMDT09687MEL-ACX80	●	SMDT09687MTL-C-ACX70		31/32	(0.9687)	
SMDT2500MTL-ACX70	●	*SMDT2500MEL-ACX80*	●	*SMDT2500MTL-C-ACX70*	●	*25.0mm*	*(0.9843)*	
SMDT09844MTL-ACX70	●	SMDT09844MEL-ACX80	●	SMDT09844MTL-C-ACX70	●	63/64	(0.9844)	
SMDT10000MTL-ACX70	●	SMDT10000MEL-ACX80	●	SMDT10000MTL-C-ACX70		1	(1.0000)	SMDH100□
SMDT2550MTL-ACX70	★	*SMDT2550MEL-ACX80*	●	*SMDT2550MTL-C-ACX70*	●	*25.5mm*	*(1.0039)*	
SMDT2565MTL-ACX70		*SMDT2565MEL-ACX80*	●	*SMDT2565MTL-C-ACX70*		*25.65mm*	*(1.0098)*	
SMDT10156MTL-ACX70	●	SMDT10156MEL-ACX80	●	SMDT10156MTL-C-ACX70		1-1/64	(1.0156)	
SMDT2600MTL-ACX70	●	*SMDT2600MEL-ACX80*	●	*SMDT2600MTL-C-ACX70*	●	*26.0mm*	*(1.0236)*	
SMDT10312MTL-ACX70	●	SMDT10312MEL-ACX80	●	SMDT10312MTL-C-ACX70	●	1-1/32	(1.0312)	SMDH104□
SMDT2650MTL-ACX70	★	*SMDT2650MEL-ACX80*	●	*SMDT2650MTL-C-ACX70*	●	*26.5mm*	*(1.0433)*	
SMDT10469MTL-ACX70	●	SMDT10469MEL-ACX80	●	SMDT10469MTL-C-ACX70		1-3/64	(1.0469)	
SMDT10625MTL-ACX70	●	SMDT10625MEL-ACX80	●	SMDT10625MTL-C-ACX70	●	1-1/16	(1.0625)	
SMDT2700MTL-ACX70	●	*SMDT2700MEL-ACX80*	●	*SMDT2700MTL-C-ACX70*	●	*27.0mm*	*(1.0630)*	
SMDT10781MTL-ACX70	●	SMDT10781MEL-ACX80	●	SMDT10781MTL-C-ACX70		1-5/64	(1.0781)	SMDH107□
SMDT2750MTL-ACX70	★	*SMDT2750MEL-ACX80*	●	*SMDT2750MTL-C-ACX70*	●	*27.5mm*	*(1.0827)*	
SMDT10937MTL-ACX70	●	SMDT10937MEL-ACX80	●	SMDT10937MTL-C-ACX70		1-3/32	(1.0937)	
SMDT2800MTL-ACX70	●	*SMDT2800MEL-ACX80*	●	*SMDT2800MTL-C-ACX70*	●	*28.0mm*	*(1.1024)*	
SMDT11094MTL-ACX70	●	SMDT11094MEL-ACX80	●	SMDT11094MTL-C-ACX70		1-7/64	(1.1094)	SMDH112□
SMDT2850MTL-ACX70	●	*SMDT2850MEL-ACX80*	●	*SMDT2850MTL-C-ACX70*	●	*28.5mm*	*(1.1220)*	
SMDT11250MTL-ACX70	●	SMDT11250MEL-ACX80	●	SMDT11250MTL-C-ACX70	●	1-1/8	(1.1250)	
SMDT11406MTL-ACX70	●	SMDT11406MEL-ACX80	●	SMDT11406MTL-C-ACX70		1-9/64	(1.1406)	
SMDT2900MTL-ACX70	●	*SMDT2900MEL-ACX80*	●	*SMDT2900MTL-C-ACX70*		*29.0mm*	*(1.1417)*	
SMDT11562MTL-ACX70	●	SMDT11562MEL-ACX80	●	SMDT11562MTL-C-ACX70		1-5/32	(1.1562)	SMDH115□
SMDT2950MTL-ACX70	★	*SMDT2950MEL-ACX80*	●	*SMDT2950MTL-C-ACX70*	●	*29.5mm*	*(1.1614)*	
SMDT11719MTL-ACX70	●	SMDT11719MEL-ACX80	●	SMDT11719MTL-C-ACX70		1-11/64	(1.1719)	
SMDT3000MTL-ACX70	●	*SMDT3000MEL-ACX80*	●	*SMDT3000MTL-C-ACX70*		*30.0mm*	*(1.1811)*	
SMDT11875MTL-ACX70	●	SMDT11875MEL-ACX80	●	SMDT11875MTL-C-ACX70		1-3/16	(1.1875)	SMDH118□
SMDT3050MTL-ACX70	●	*SMDT3050MEL-ACX80*	●	*SMDT3050MTL-C-ACX70*		*30.5mm*	*(1.2008)*	

● = USA Stocked item ★ = Worldwide Warehouse item available in 10 business days Note: Special diameters available upon request

P MKS PK

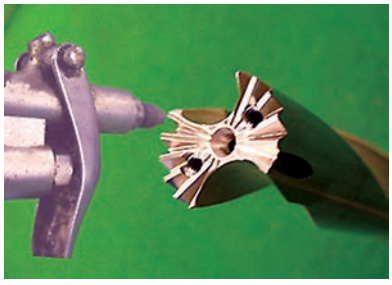
Inch & *Metric*

■ STANDARD TIP ■ SUPER ALLOY TIP ■ CORNER BREAK TIP

(SMDT-MTL)	(SMDT-MEL)	(SMDT-C)
		

Drill Tip	Stock	Drill Tip	Stock	Drill Tip	Stock	øD		Body
SMDT3100MTL-ACX80	●	*SMDT3100MEL-ACX80*		*SMDT3100MTL-C-ACX80*		*31.0mm*	*(1.2205)*	SMDH1250□
SMDT12500MTL-ACX80	●	SMDT12500MEL-ACX80		SMDT12500MTL-C-ACX80		1 1/4	(1.2500)	
SMDT3200MTL-ACX80	●	*SMDT3200MEL-ACX80*		*SMDT3200MTL-C-ACX80*		*32.0mm*	*(1.2598)*	
SMDT3300MTL-ACX80	●	*SMDT3300MEL-ACX80*		*SMDT3300MTL-C-ACX80*		*33.0mm*	*(1.2992)*	SMDH1319□
SMDT13125MTL-ACX80	●	SMDT13125MEL-ACX80		SMDT13125MTL-C-ACX80		1 5/16	(1.3125)	
SMDT3400MTL-ACX80	★	*SMDT3400MEL-ACX80*		*SMDT3400MTL-C-ACX80*		*34.0mm*	*(1.3386)*	SMDH350□
SMDT3500MTL-ACX80	★	*SMDT3500MEL-ACX80*		*SMDT3500MTL-C-ACX80*		*35.0mm*	*(1.3780)*	
SMDT3600MTL-ACX80	★	*SMDT3600MEL-ACX80*		*SMDT3600MTL-C-ACX80*		*36.0mm*	*(1.4173)*	SMDH365□
SMDT3700MTL-ACX80	★	*SMDT3700MEL-ACX80*		*SMDT3700MTL-C-ACX80*		*37.0mm*	*(1.4567)*	SMDH380□
SMDT3750MTL-ACX80	★	*SMDT3750MEL-ACX80*		*SMDT3750MTL-C-ACX80*		*37.5 mm*	*(1.4764)*	
SMDT3800MTL-ACX80	★	*SMDT3800MEL-ACX80*		*SMDT3800MTL-C-ACX80*		*38.0mm*	*(1.4961)*	
SMDT3900MTL-ACX80	★	*SMDT3900MEL-ACX80*		*SMDT3900MTL-C-ACX80*		*39.0mm*	*(1.5354)*	SMDH395□
SMDT4000MTL-ACX80	★	*SMDT4000MEL-ACX80*		*SMDT4000MTL-C-ACX80*		*40.0mm*	*(1.5748)*	SMDH410□
SMDT4050MTL-ACX80	★	*SMDT4050MEL-ACX80*		*SMDT4050MTL-C-ACX80*		*40.5mm*	*(1.5945)*	
SMDT4100MTL-ACX80	★	*SMDT4100MEL-ACX80*		*SMDT4100MTL-C-ACX80*		*41.0mm*	*(1.6142)*	
SMDT4200MTL-ACX80	★	*SMDT4200MEL-ACX80*		*SMDT4200MTL-C-ACX80*		*42.0mm*	*(1.6535)*	SMDH425□

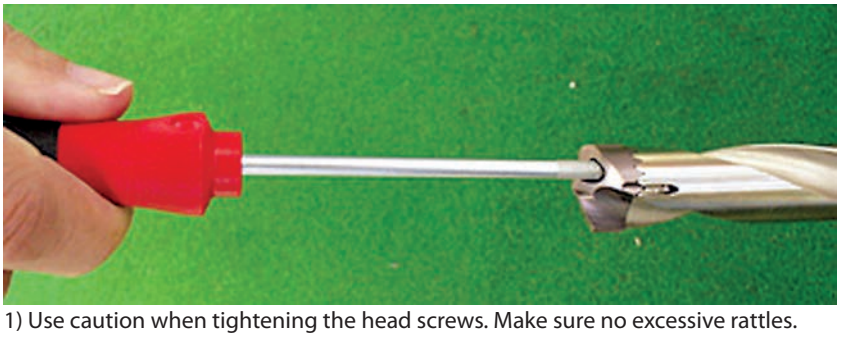
■ CLEANING INSTRUCTIONS



1) **Air Pressure**
Remove the used head and any debris from the serrated parts of the holder with an air blower.

2) **Brushing**
Use a wire or nylon brush to remove debris left behind by air blower.

■ ATTACHING INSTRUCTIONS



1) Use caution when tightening the head screws. Make sure no excessive rattles.
2) Pre-tighten both left/ right screws until it stops lightly
3) Hold SMD body and a wrench in straigh and tighten screws. Forcing out wrench may cause screw hole breakage.

■ Recommended Tightening Torque

Drill Head Size (in/*mm*)	Screw	Recommended Tightening Torque (in/lbs.)
.4688 - .6102 *12.00 - 15.50*	BXD02208IP	6.6 to 8.8
.6103 - .7283 *15.51 - 18.50*	BXD02509IP	8.2 to 11.0
.7284 - .8464 *18.51 - 21.50*	BXD03011IP	16.3 to 21.6
.8465 - .9763 *21.51 - 24.80*	BXD03512IP	24.2 to 32.9
.9764 - 1.0944 *24.81 - 27.80*	BXD04014IP	36.6 to 48.8
1.0945 - 1.3189 *27.81 - 33.50*	BXD04515IP	44.0 to 58.7

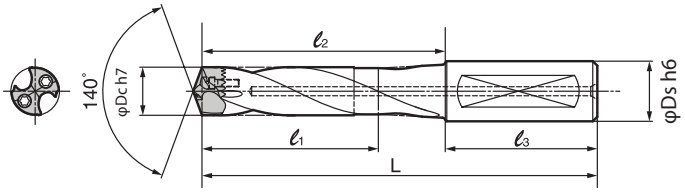
Caution!

1) Please wear safety gloves and glasses
2) Please remove SMD from any adapator when replacing SMDT Tip
3) If a new tip is lecft outside the box for long, it may be contaminated

Serrations may contain some debris. Placing a tip without removing any foreign particles may cause loose screws and possibly lead to tip and body breakage.

SMD Replaceable Tip Drill

3X Diameter



■ SMD INCH BODIES (3X Diameter)

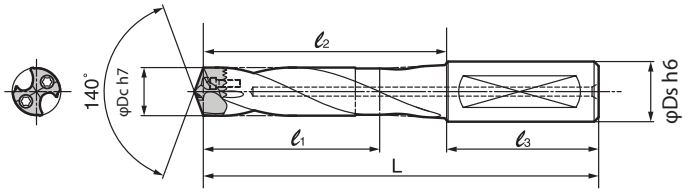
Catalog Number	Drill Tip Diameter øDc (inch/*mm*)		Stock	øDs	L	ℓ1 max depth	ℓ2	ℓ3	Screw	Wrench
SMDH047M	0.4688 - 0.4917	*12.00mm - 12.49mm*	●	0.625	4.141	1.734	2.266	1.875	BXD02208IP	TRDR08IP
SMDH049M	0.4921 - 0.5114	*12.50mm - 12.99mm*	●	0.625	4.334	1.859	2.459	1.875	BXD02208IP	TRDR08IP
SMDH051M	0.5118 - 0.5311	*13.00mm - 13.49mm*	●	0.625	4.334	1.859	2.459	1.875	BXD02208IP	TRDR08IP
SMDH055M	0.5315 - 0.5709	*13.50mm - 14.50mm*	●	0.750	4.527	2.008	2.527	2.000	BXD02208IP	TRDR08IP
SMDH059M	0.5713 - 0.6102	*14.51mm - 15.50mm*	●	0.750	4.921	2.126	2.921	2.000	BXD02208IP	TRDR08IP
SMDH063M	0.6106 - 0.6496	*15.51mm - 16.50mm*	●	0.750	5.118	2.283	3.118	2.000	BXD02509IP	TRDR10IP
SMDH067M	0.6500 - 0.6890	*16.51mm - 17.50mm*	●	0.750	5.315	2.401	3.315	2.000	BXD02509IP	TRDR10IP
SMDH071M	0.6894 - 0.7283	*17.51mm - 18.50mm*	●	0.750	5.512	2.559	3.512	2.000	BXD02509IP	TRDR10IP
SMDH075M	0.7287 - 0.7677	*18.51mm - 19.50mm*	●	1.000	6.102	2.677	3.852	2.250	BXD03011IP	TRDR15IP
SMDH079M	0.7681 - 0.8070	*19.51mm - 20.50mm*	●	1.000	6.102	2.834	3.852	2.250	BXD03011IP	TRDR15IP
SMDH083M	0.8074 - 0.8465	*20.51mm - 21.50mm*	●	1.000	6.102	2.953	3.852	2.250	BXD03011IP	TRDR15IP
SMDH087M	0.8469 - 0.8976	*21.51mm - 22.80mm*	●	1.000	6.299	3.110	4.049	2.250	BXD03512IP	TRDR15IP
SMDH091M	0.8980 - 0.9370	*22.81mm - 23.80mm*	●	1.000	6.299	3.228	4.049	2.250	BXD03512IP	TRDR15IP
SMDH096M	0.9374 - 0.9764	*23.81mm - 24.80mm*	●	1.000	6.693	3.385	4.443	2.250	BXD03512IP	TRDR15IP
SMDH100M	0.9768 - 1.0157	*24.81mm - 25.80mm*	●	1.250	6.693	3.465	4.318	2.375	BXD04014IP	TRDR20IP
SMDH104M	1.0161 - 1.0551	*25.81mm - 26.80mm*	●	1.250	6.890	3.622	4.517	2.375	BXD04014IP	TRDR20IP
SMDH107M	1.0555 - 1.0945	*26.81mm - 27.80mm*	●	1.250	6.890	3.701	4.517	2.375	BXD04014IP	TRDR20IP
SMDH112M	1.0949 - 1.1339	*27.81mm - 28.80mm*	●	1.250	7.086	3.819	4.711	2.375	BXD04515IP	TRDR25IP
SMDH115M	1.1343 - 1.1732	*28.81mm - 29.80mm*	●	1.250	7.283	3.937	4.908	2.375	BXD04515IP	TRDR25IP
SMDH118M	1.1736 - 1.2125	*29.81mm - 30.80mm*	●	1.250	7.283	4.094	4.908	2.375	BXD04515IP	TRDR25IP
SMDH1250M	1.2130 - 1.2598	*30.81mm - 32.00mm*	●	1.250	8.315	4.331	5.315	3.000	BXD04515IP	TRDR25IP
SMDH1319M	1.2602 - 1.3189	*32.01 mm - 33.50mm*	●	1.500	8.512	4.528	5.512	3.000	BXD04515IP	TRDR25IP

■ SMD METRIC BODIES (3X Diameter)

3X Diameter Body No.	Drill Tip Diameter øDc (inch/*mm*)		Stock	øDs	L	ℓ1 max depth	ℓ2	ℓ3	Screw	Wrench
SMDH120M	0.4688 - 0.4917	*12.00mm - 12.49mm*	★	16.0	105	44	57	48	BXD02208IP	TRDR08IP
SMDH125M	0.4921 - 0.5114	*12.50mm - 12.99mm*	★	16.0	105	44	57	48	BXD02208IP	TRDR08IP
SMDH130M	0.5118 - 0.5311	*13.00mm - 13.49mm*	★	16.0	110	47	62	48	BXD02208IP	TRDR08IP
SMDH140M	0.5315 - 0.5709	*13.50mm - 14.50mm*	★	16.0	116.5	52.5	68.5	48	BXD02208IP	TRDR08IP
SMDH150M	0.5713 - 0.6102	*14.51mm - 15.50mm*	★	20.0	126.5	55.5	76.5	50	BXD02208IP	TRDR08IP
SMDH160M	0.6106 - 0.6496	*15.51mm - 16.50mm*	★	20.0	131.5	59.5	81.5	50	BXD02509IP	TRDR10IP
SMDH170M	0.6500 - 0.6890	*16.51mm - 17.50mm*	★	20.0	136.5	62.5	86.5	50	BXD02509IP	TRDR10IP
SMDH180M	0.6894 - 0.7283	*17.51mm - 18.50mm*	★	20.0	141.5	66.5	91.5	50	BXD02509IP	TRDR10IP
SMDH190M	0.7287 - 0.7677	*18.51mm - 19.50mm*	★	25.0	156.5	69.5	100.5	56	BXD03011IP	TRDR15IP
SMDH200M	0.7681 - 0.8070	*19.51mm - 20.50mm*	★	25.0	156.5	73.5	100.5	56	BXD03011IP	TRDR15IP
SMDH210M	0.8074 - 0.8465	*20.51mm - 21.50mm*	★	25.0	156.5	76.5	100.5	56	BXD03011IP	TRDR15IP
SMDH220M	0.8469 - 0.8976	*21.51mm - 22.80mm*	★	25.0	161.1	80.1	105.1	56	BXD03512IP	TRDR15IP
SMDH230M	0.8980 - 0.9370	*22.81mm - 23.80mm*	★	25.0	160.6	82.6	104.6	56	BXD03512IP	TRDR15IP
SMDH240M	0.9374 - 0.9764	*23.81mm - 24.80mm*	★	32.0	170.2	86.2	110.2	60	BXD03512IP	TRDR15IP
SMDH250M	0.9768 - 1.0157	*24.81mm - 25.80mm*	★	32.0	170	88	110	60	BXD04014IP	TRDR20IP
SMDH260M	1.0161 - 1.0551	*25.81mm - 26.80mm*	★	32.0	175	92	115	60	BXD04014IP	TRDR20IP
SMDH270M	1.0555 - 1.0945	*26.81mm - 27.80mm*	★	32.0	175	94	115	60	BXD04014IP	TRDR20IP
SMDH280M	1.0949 - 1.1339	*27.81mm - 28.80mm*	★	32.0	180	97	120	60	BXD04515IP	TRDR25IP
SMDH290M	1.1343 - 1.1732	*28.81mm - 29.80mm*	★	32.0	180	100	120	60	BXD04515IP	TRDR25IP
SMDH300M	1.1736 - 1.2125	*29.81mm - 30.80mm*	★	32.0	185	104	125	60	BXD04515IP	TRDR25IP
SMDH320M	1.2130 - 1.2598	*30.81mm - 32.00mm*	★	32.0	195	97.9	135	60	BXD04515IP	TRDR25IP
SMDH335M	1.2602 - 1.3189	*32.01 mm - 33.50mm*	★	32.0	200	103.3	140	60	BXD04515IP	TRDR25IP
SMDH350M	1.3193 - 1.3780	*33.51mm - 35.00mm*	★	40.0	215	106.8	145	70	BX0515	HD040
SMDH365M	1.3783 - 1.4370	*35.01mm - 36.50mm*	★	40.0	220	112.3	150	70	BX0515	HD040
SMDH380M	1.4374 - 1.4961	*36.51mm - 38.00mm*	★	40.0	225	115.8	155	70	BX0515	HD040
SMDH395M	1.4965 - 1.5551	*38.01mm - 39.50mm*	★	40.0	230	121.3	160	70	BX0515	HD040
SMDH410M	1.5555 - 1.6142	*39.51mm - 41.00mm*	★	40.0	245	129.8	175	70	BX0515	HD040
SMDH425M	1.6146 - 1.6732	*41.01mm - 42.50mm*	★	40.0	250	135.3	180	70	BX0515	HD040

★ = Worldwide Warehouse item available in 10 business days ● = USA Stocked item Note: Special diameters available upon request

5X Diameter



■ SMD INCH BODIES (5X Diameter)

Catalog Number	Drill Tip Diameter øDc (inch/*mm*)		Stock	øDs	L	ℓ_1 max depth	ℓ_2	ℓ_3	Screw	Wrench
SMDH047L	0.4688 - 0.4917	*12.00mm - 12.49mm*	●	0.625	5.109	2.672	3.234	1.875	BXD02208IP	TRDR08IP
SMDH049L	0.4921 - 0.5114	*12.50mm - 12.99mm*	●	0.625	5.500	2.906	3.625	1.875	BXD02208IP	TRDR08IP
SMDH051L	0.5118 - 0.5311	*13.00mm - 13.49mm*	●	0.625	5.500	2.906	3.625	1.875	BXD02208IP	TRDR08IP
SMDH055L	0.5315 - 0.5709	*13.50mm - 14.50mm*	●	0.750	5.708	3.150	3.708	2.000	BXD02208IP	TRDR08IP
SMDH059L	0.5713 - 0.6102	*14.51mm - 15.50mm*	●	0.750	6.102	3.346	4.102	2.000	BXD02208IP	TRDR08IP
SMDH063L	0.6106 - 0.6496	*15.51mm - 16.50mm*	●	0.750	6.496	3.582	4.496	2.000	BXD02509IP	TRDR10IP
SMDH067L	0.6500 - 0.6890	*16.51mm - 17.50mm*	●	0.750	6.693	3.780	4.693	2.000	BXD02509IP	TRDR10IP
SMDH071L	0.6894 - 0.7283	*17.51mm - 18.50mm*	●	0.750	6.890	4.015	4.890	2.000	BXD02509IP	TRDR10IP
SMDH075L	0.7287 - 0.7677	*18.51mm - 19.50mm*	●	1.000	7.480	4.212	5.230	2.250	BXD03011IP	TRDR15IP
SMDH079L	0.7681 - 0.8070	*19.51mm - 20.50mm*	●	1.000	7.677	4.449	5.427	2.250	BXD03011IP	TRDR15IP
SMDH083L	0.8074 - 0.8465	*20.51mm - 21.50mm*	●	1.000	7.677	4.645	5.427	2.250	BXD03011IP	TRDR15IP
SMDH087L	0.8469 - 0.8976	*21.51mm - 22.80mm*	●	1.000	7.874	4.882	5.624	2.250	BXD03512IP	TRDR15IP
SMDH091L	0.8980 - 0.9370	*22.81mm - 23.80mm*	●	1.000	8.268	5.078	6.018	2.250	BXD03512IP	TRDR15IP
SMDH096L	0.9374 - 0.9764	*23.81mm - 24.80mm*	●	1.000	8.661	5.315	6.411	2.250	BXD03512IP	TRDR15IP
SMDH100L	0.9768 - 1.0157	*24.81mm - 25.80mm*	●	1.250	8.858	5.512	6.483	2.375	BXD04014IP	TRDR20IP
SMDH104L	1.0161 - 1.0551	*25.81mm - 26.80mm*	●	1.250	9.005	5.748	6.680	2.375	BXD04014IP	TRDR20IP
SMDH107L	1.0555 - 1.0945	*26.81mm - 27.80mm*	●	1.250	9.252	5.945	6.877	2.375	BXD04014IP	TRDR20IP
SMDH112L	1.0949 - 1.1339	*27.81mm - 28.80mm*	●	1.250	9.449	6.181	7.074	2.375	BXD04515IP	TRDR25IP
SMDH115L	1.1343 - 1.1732	*28.81mm - 29.80mm*	●	1.250	9.645	6.378	7.270	2.375	BXD04515IP	TRDR25IP
SMDH118L	1.1736 - 1.2125	*29.81mm - 30.80mm*	●	1.250	10.039	6.575	7.664	2.375	BXD04515IP	TRDR25IP
SMDH1250L	1.2130 - 1.2598	*30.81mm - 32.00mm*	●	1.250	10.874	6.890	7.874	3.000	BXD04515IP	TRDR25IP
SMDH1319L	1.2602 - 1.3189	*32.01 mm - 33.50mm*	●	1.500	11.268	7.284	8.268	3.000	BXD04515IP	TRDR25IP

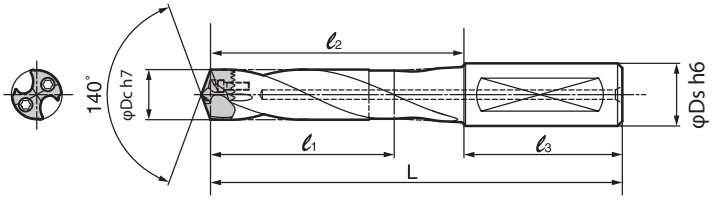
■ SMD METRIC BODIES (5X Diameter)

5X Diameter Body No.	Drill Tip Diameter øDc (inch/*mm*)		Stock	øDs	L	ℓ_1 max depth	ℓ_2	ℓ_3	Screw	Wrench
SMDH120L	0.4688 - 0.4917	*12.00mm - 12.49mm*	★	16.0	130	69	82	48	BXD02208IP	TRDR08IP
SMDH125L	0.4921 - 0.5114	*12.50mm - 12.99mm*	★	16.0	130	69	82	48	BXD02208IP	TRDR08IP
SMDH130L	0.5118 - 0.5311	*13.00mm - 13.49mm*	★	16.0	140	74	102	48	BXD02208IP	TRDR08IP
SMDH140L	0.5315 - 0.5709	*13.50mm - 14.50mm*	★	16.0	146.5	81.5	98.5	48	BXD02208IP	TRDR08IP
SMDH150L	0.5713 - 0.6102	*14.51mm - 15.50mm*	★	20.0	156.5	86.5	106.5	50	BXD02208IP	TRDR08IP
SMDH160L	0.6106 - 0.6496	*15.51mm - 16.50mm*	★	20.0	166.5	92.5	116.5	50	BXD02509IP	TRDR10IP
SMDH170L	0.6500 - 0.6890	*16.51mm - 17.50mm*	★	20.0	171.5	97.5	121.5	50	BXD02509IP	TRDR10IP
SMDH180L	0.6894 - 0.7283	*17.51mm - 18.50mm*	★	20.0	176.5	103.5	126.5	50	BXD02509IP	TRDR10IP
SMDH190L	0.7287 - 0.7677	*18.51mm - 19.50mm*	★	25.0	191.5	108.5	135.5	56	BXD03011IP	TRDR15IP
SMDH200L	0.7681 - 0.8070	*19.51mm - 20.50mm*	★	25.0	196.5	114.5	140.5	56	BXD03011IP	TRDR15IP
SMDH210L	0.8074 - 0.8465	*20.51mm - 21.50mm*	★	25.0	196.5	119.5	140.5	56	BXD03011IP	TRDR15IP
SMDH220L	0.8469 - 0.8976	*21.51mm - 22.80mm*	★	25.0	201.1	125.1	145.4	56	BXD03512IP	TRDR15IP
SMDH230L	0.8980 - 0.9370	*22.81mm - 23.80mm*	★	25.0	210.6	129.6	154.6	56	BXD03512IP	TRDR15IP
SMDH240L	0.9374 - 0.9764	*23.81mm - 24.80mm*	★	32.0	220.2	135.2	160.2	60	BXD03512IP	TRDR15IP
SMDH250L	0.9768 - 1.0157	*24.81mm - 25.80mm*	★	32.0	225	140	165	60	BXD04014IP	TRDR20IP
SMDH260L	1.0161 - 1.0551	*25.81mm - 26.80mm*	★	32.0	230	146	170	60	BXD04014IP	TRDR20IP
SMDH270L	1.0555 - 1.0945	*26.81mm - 27.80mm*	★	32.0	235	151	175	60	BXD04014IP	TRDR20IP
SMDH280L	1.0949 - 1.1339	*27.81mm - 28.80mm*	★	32.0	240	157	180	60	BXD04515IP	TRDR25IP
SMDH290L	1.1343 - 1.1732	*28.81mm - 29.80mm*	★	32.0	245	162	185	60	BXD04515IP	TRDR25IP
SMDH300L	1.1736 - 1.2125	*29.81mm - 30.80mm*	★	32.0	255	167	195	60	BXD04515IP	TRDR25IP
SMDH320L	1.2130 - 1.2598	*30.81mm - 32.00mm*	★	32.0	260	163	200	60	BXD04515IP	TRDR25IP
SMDH335L	1.2602 - 1.3189	*32.01 mm - 33.50mm*	★	32.0	270	171.5	210	60	BXD04515IP	TRDR25IP
SMDH350L	1.3193 - 1.3780	*33.51mm - 35.00mm*	★	40.0	290	182	220	70	BX0515	HD040
SMDH365L	1.3783 - 1.4370	*35.01mm - 36.50mm*	★	40.0	295	187.5	225	70	BX0515	HD040
SMDH380L	1.4374 - 1.4961	*36.51mm - 38.00mm*	★	40.0	305	195.8	235	70	BX0515	HD040
SMDH395L	1.4965 - 1.5551	*38.01mm - 39.50mm*	★	40.0	315	206.3	245	70	BX0515	HD040
SMDH410L	1.5555 - 1.6142	*39.51mm - 41.00mm*	★	40.0	325	209.8	255	70	BX0515	HD040
SMDH425L	1.6146 - 1.6732	*41.01mm - 42.50mm*	★	40.0	335	220.3	265	70	BX0515	HD040

★ = Worldwide Warehouse item available in 10 business days ● = USA Stocked item Note: Special diameters available upon request

SMD Replaceable Tip Drill

8X Diameter



■ SMD INCH BODIES (8X Diameter)

Catalog Number	Drill Tip Diameter øDc (inch/*mm*)		Stock	øDs	L	ℓ1 max depth	ℓ2	ℓ3	Screw	Wrench
SMDH055D	0.5315 - 0.5709	*13.50mm - 14.50mm*	●	0.750	7.480	4.961	5.480	2.000	BXD02208IP	TRDR08IP
SMDH059D	0.5713 - 0.6102	*14.51mm - 15.50mm*	●	0.750	7.874	5.315	5.874	2.000	BXD02208IP	TRDR08IP
SMDH063D	0.6106 - 0.6496	*15.51mm - 16.50mm*	●	0.750	8.307	5.630	6.307	2.000	BXD02509IP	TRDR10IP
SMDH067D	0.6500 - 0.6890	*16.51mm - 17.50mm*	●	0.750	8.701	5.984	6.701	2.000	BXD02509IP	TRDR10IP
SMDH071D	0.6894 - 0.7283	*17.51mm - 18.50mm*	●	0.750	8.898	6.299	6.898	2.000	BXD02509IP	TRDR10IP
SMDH075D	0.7287 - 0.7677	*18.51mm - 19.50mm*	●	1.000	9.882	6.654	7.630	2.250	BXD03011IP	TRDR15IP
SMDH079D	0.7681 - 0.8070	*19.51mm - 20.50mm*	●	1.000	10.276	6.969	8.024	2.250	BXD03011IP	TRDR15IP
SMDH083D	0.8074 - 0.8465	*20.51mm - 21.50mm*	●	1.000	10.472	7.323	8.220	2.250	BXD03011IP	TRDR15IP
SMDH087D	0.8469 - 0.8976	*21.51mm - 22.80mm*	●	1.000	10.669	7.638	8.417	2.250	BXD03512IP	TRDR15IP
SMDH091D	0.8980 - 0.9370	*22.81mm - 23.80mm*	●	1.000	11.024	7.953	8.772	2.250	BXD03512IP	TRDR15IP
SMDH096D	0.9374 - 0.9764	*23.81mm - 24.80mm*	●	1.000	11.614	8.268	9.362	2.250	BXD03512IP	TRDR15IP
SMDH100D	0.9768 - 1.0157	*24.81mm - 25.80mm*	●	1.250	11.811	8.622	9.437	2.375	BXD04014IP	TRDR20IP
SMDH104D	1.0161 - 1.0551	*25.81mm - 26.80mm*	●	1.250	12.205	8.937	9.830	2.375	BXD04014IP	TRDR20IP
SMDH107D	1.0555 - 1.0945	*26.81mm - 27.80mm*	●	1.250	12.508	9.291	10.133	2.375	BXD04014IP	TRDR20IP
SMDH112D	1.0949 - 1.1339	*27.81mm - 28.80mm*	●	1.250	12.795	9.606	10.420	2.375	BXD04515IP	TRDR25IP
SMDH115D	1.1343 - 1.1732	*28.81mm - 29.80mm*	●	1.250	13.189	9.961	10.814	2.375	BXD04515IP	TRDR25IP
SMDH118D	1.1736 - 1.2125	*29.81mm - 30.80mm*	●	1.250	13.503	10.276	11.128	2.375	BXD04515IP	TRDR25IP

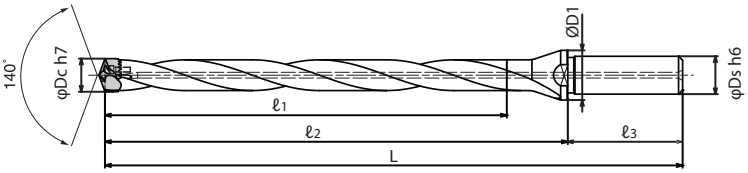
■ SMD METRIC BODIES (8X Diameter)

8X Diameter Body No.	Drill Tip Diameter øDc (inch / *mm*)		Stock	øDs	L	ℓ1 max depth	ℓ2	ℓ3	Screw	Wrench
SMDH140D	0.5315 - 0.5709	*13.50mm - 14.50mm*	★	16.0	191.5	124.5	143.5	48	BXD02208IP	TRDR08IP
SMDH150D	0.5713 - 0.6102	*14.51mm - 15.50mm*	★	20.0	201.5	133.5	151.5	50	BXD02208IP	TRDR08IP
SMDH160D	0.6106 - 0.6496	*15.51mm - 16.50mm*	★	20.0	211.5	141.5	161.5	50	BXD02509IP	TRDR10IP
SMDH170D	0.6500 - 0.6890	*16.51mm - 17.50mm*	★	20.0	221.5	150.5	171.5	50	BXD02509IP	TRDR10IP
SMDH180D	0.6894 - 0.7283	*17.51mm - 18.50mm*	★	20.0	226.5	158.5	176.5	50	BXD02509IP	TRDR10IP
SMDH190D	0.7287 - 0.7677	*18.51mm - 19.50mm*	★	25.0	251.5	167.5	195.5	56	BXD03011IP	TRDR15IP
SMDH200D	0.7681 - 0.8070	*19.51mm - 20.50mm*	★	25.0	261.5	175.5	205.5	56	BXD03011IP	TRDR15IP
SMDH210D	0.8074 - 0.8465	*20.51mm - 21.50mm*	★	25.0	266.5	184.5	210.5	56	BXD03011IP	TRDR15IP
SMDH220D	0.8469 - 0.8976	*21.51mm - 22.80mm*	★	25.0	271.1	192.1	215.1	56	BXD03512IP	TRDR15IP
SMDH230D	0.8980 - 0.9370	*22.81mm - 23.80mm*	★	25.0	280.6	200.6	224.6	56	BXD03512IP	TRDR15IP
SMDH240D	0.9374 - 0.9764	*23.81mm - 24.80mm*	★	32.0	295.2	208.2	235.2	60	BXD03512IP	TRDR15IP
SMDH250D	0.9768 - 1.0157	*24.81mm - 25.80mm*	★	32.0	300	217	240	60	BXD04014IP	TRDR20IP
SMDH260D	1.0161 - 1.0551	*25.81mm - 26.80mm*	★	32.0	310	225	250	60	BXD04014IP	TRDR20IP
SMDH270D	1.0555 - 1.0945	*26.81mm - 27.80mm*	★	32.0	320	234	260	60	BXD04014IP	TRDR20IP
SMDH280D	1.0949 - 1.1339	*27.81mm - 28.80mm*	★	32.0	325	242	265	60	BXD04515IP	TRDR25IP
SMDH290D	1.1343 - 1.1732	*28.81mm - 29.80mm*	★	32.0	335	251	275	60	BXD04515IP	TRDR25IP
SMDH300D	1.1736 - 1.2125	*29.81mm - 30.80mm*	★	32.0	345	259	285	60	BXD04515IP	TRDR25IP
SMDH320D	1.2130 - 1.2598	*30.81mm - 32.00mm*	★	32.0	355	257.9	295	60	BXD04515IP	TRDR25IP
SMDH335D	1.2602 - 1.3189	*32.01 mm - 33.50mm*	★	32.0	370	273.3	310	60	BXD04515IP	TRDR25IP
SMDH350D	1.3193 - 1.3780	*33.51mm - 35.00mm*	★	40.0	395	287	325	70	BX0515	HD040
SMDH365D	1.3783 - 1.4370	*35.01mm - 36.50mm*	★	40.0	405	297.3	335	70	BX0515	HD040
SMDH380D	1.4374 - 1.4961	*36.51mm - 38.00mm*	★	40.0	420	310.8	350	70	BX0515	HD040
SMDH395D	1.4965 - 1.5551	*38.01mm - 39.50mm*	★	40.0	430	321.3	360	70	BX0515	HD040
SMDH410D	1.5555 - 1.6142	*39.51mm - 41.00mm*	★	40.0	450	334.8	380	70	BX0515	HD040
SMDH425D	1.6146 - 1.6732	*41.01mm - 42.50mm*	★	40.0	460	345.3	390	70	BX0515	HD040

★ = Worldwide Warehouse item available in 10 business days ● = USA Stocked item Note: Special diameters available upon request

12X Diameter

NEW



■ SMD INCH BODIES (12X Diameter)

○ Available 1st Quarter 2017

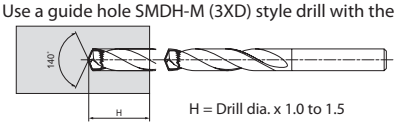
12X Diameter Body No.	Stock	Drill Tip Diameter øDc (inch / *mm*)		øDs	øD1	L	ℓ1 max depth	ℓ2	ℓ3	Screw	Wrench
SMDH055-12D	○	0.5315 - 0.5709	*13.50- 14.50*	0.750	0.094	9.480	6.614	7.480	2.000	BXD02208IP	TRDR08IP
SMDH059-12D	○	0.5713 - 0.6102	*14.51- 15.50*	0.750	0.094	9.965	7.087	7.965	2.000	BXD02208IP	TRDR08IP
SMDH063-12D	○	0.6106 - 0.6496	*15.51 - 16.50*	0.750	0.118	10.449	7.559	8.449	2.000	BXD02509IP	TRDR10IP
SMDH067-12D	○	0.6500 - 0.6890	*16.51 - 17.50*	0.750	0.118	10.937	8.031	8.937	2.000	BXD02509IP	TRDR10IP
SMDH071-12D	○	0.6894 - 0.7283	*17.51 - 18.50*	0.750	0.138	11.417	8.504	9.417	2.000	BXD02509IP	TRDR10IP
SMDH075-12D	○	0.7287 - 0.7677	*18.51- 19.50*	1.000	0.138	12.154	8.976	9.904	2.250	BXD03011IP	TRDR15IP
SMDH079-12D	○	0.7681 - 0.8070	*19.51- 20.50*	1.000	0.157	12.634	9.449	10.384	2.250	BXD03011IP	TRDR15IP
SMDH083-12D	○	0.8074 - 0.8465	*20.51 - 21.50*	1.000	0.157	13.118	9.921	10.868	2.250	BXD03011IP	TRDR15IP
SMDH087-12D	○	0.8469 - 0.8976	*21.51 - 22.80*	1.000	0.177	13.626	10.394	11.376	2.250	BXD03512IP	TRDR15IP
SMDH091-12D	○	0.8980 - 0.9370	*22.81 - 23.80*	1.000	0.177	14.165	10.866	11.915	2.250	BXD03512IP	TRDR15IP
SMDH096-12D	○	0.9374 - 0.9764	*23.81 - 24.80*	1.000	0.197	14.638	11.339	12.388	2.250	BXD03512IP	TRDR15IP
SMDH100-12D	○	0.9768 - 1.0157	*24.81 - 25.80*	1.250	0.197	15.232	11.811	12.857	2.375	BXD04014IP	TRDR20IP

■ SMD METRIC BODIES (12X Diameter)

12X Diameter Body No.	Stock	Drill Tip Diameter øDc (inch / *mm*)		øDs	øD1	L	ℓ1 max depth	ℓ2	ℓ3	Screw	Wrench
SMDH140-12D	○	0.5315 - 0.5709	*13.50- 14.50*	*16*	*20*	*236.0*	*168*	*185.0*	*48*	BXD02208IP	TRDR08IP
SMDH150-12D	○	0.5713 - 0.6102	*14.51- 15.50*	*20*	*25*	*250.3*	*180*	*197.3*	*50*	BXD02208IP	TRDR08IP
SMDH160-12D	○	0.6106 - 0.6496	*15.51 - 16.50*	*20*	*25*	*262.6*	*192*	*209.6*	*50*	BXD02509IP	TRDR10IP
SMDH170-12D	○	0.6500 - 0.6890	*16.51 - 17.50*	*20*	*25*	*275.0*	*204*	*222.0*	*50*	BXD02509IP	TRDR10IP
SMDH180-12D	○	0.6894 - 0.7283	*17.51 - 18.50*	*20*	*25*	*287.2*	*216*	*234.2*	*50*	BXD02509IP	TRDR10IP
SMDH190-12D	○	0.7287 - 0.7677	*18.51- 19.50*	*25*	*30*	*305.6*	*228*	*246.6*	*56*	BXD03011IP	TRDR15IP
SMDH200-12D	○	0.7681 - 0.8070	*19.51- 20.50*	*25*	*30*	*317.8*	*240*	*258.8*	*56*	BXD03011IP	TRDR15IP
SMDH210-12D	○	0.8074 - 0.8465	*20.51 - 21.50*	*25*	*30*	*330.1*	*252*	*271.1*	*56*	BXD03011IP	TRDR15IP
SMDH220-12D	○	0.8469 - 0.8976	*21.51 - 22.80*	*25*	*30*	*343.0*	*264*	*284.0*	*56*	BXD03512IP	TRDR15IP
SMDH230-12D	○	0.8980 - 0.9370	*22.81 - 23.80*	*25*	*30*	*354.8*	*276*	*295.8*	*56*	BXD03512IP	TRDR15IP
SMDH240-12D	○	0.9374 - 0.9764	*23.81 - 24.80*	*32*	*37*	*371.7*	*288*	*308.7*	*60*	BXD03512IP	TRDR15IP
SMDH250-12D	○	0.9768 - 1.0157	*24.81 - 25.80*	*32*	*37*	*383.8*	*300*	*320.8*	*60*	BXD04014IP	TRDR20IP

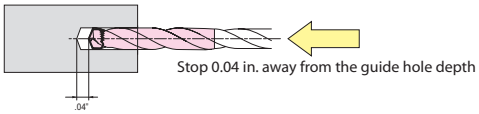
■ Recommended Drilling Method

1. **Make a guide hole using the SMDH-M style (3XD) drill**
   • Use a guide hole SMDH-M (3XD) style drill with the same diameter and chipbreaker as12XD type



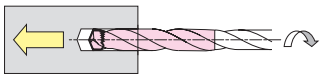
H = Drill dia. x 1.0 to 1.5

2. Feed the 12XD type throught the guide hole at low rotation speed
   • Rotation: 500 rpm Feed Rate: 40 - 80 ipm



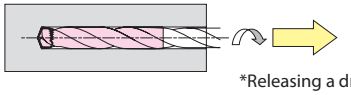
Stop 0.04 in. away from the guide hole depth

3. Increase speed until the set conditional speed is reached and start normal drilling



Increase rotation speed

4. After drilling, rotation speed is reduced and the drill is retracted from the work material
   • Rotation: 500 rpm Feed Rate: 40 - 80 ipm



Change rotation speed to 500 rpm

*Releasing a drill with a higher spindle speed may cause a shoulder damage by a run-out

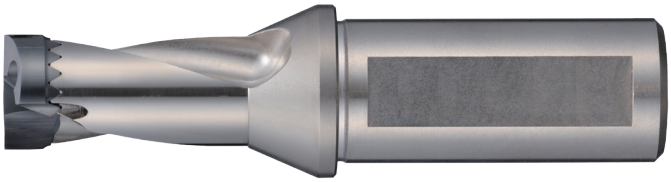
Recommended Speeds and Feeds - 12XD

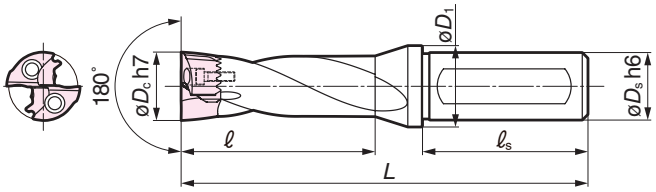
Speed: v (SFM) / Feed: f (IPR)

Drill Dia. (Inch)		Soft Steel	General Steel	Hardened Steel	Stainless Steel	Gray Cast Iron	Ductile Cast Iron	Aluminum Alloy
ΦDc		Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max
~0.6299	Vc	160 - 230 - 260	160 - 230 - 260	100 - 160 - 230	130 - 165 - 200	130 - 200 -260	130 - 160 - 230	590 - 650 - 790
	f	.0059 - .0078 - .014	.0059 - .0078 - .014	.0039 - .0059 - .0079	.0039 - .0059 - .0079	.0078 - .0098 - .012	.0078 - .0098 - .012	.014 - .018 - .022
~0.7874	Vc	160 - 230 - 260	160 - 230 - 260	100 - 160 - 230	130 - 200 - 230	160 - 230 - 300	130 - 200 - 260	590 - 650 - 790
	f	.0059 - .0098 - .014	.0059 - .0098 - .014	.0039 - .0059 - .0098	.0039 - .0059 - .0098	.0079 - .012 - .014	.0079 - .012 - .014	.014 - .019 - .024
~1.000	Vc	160 - 230 - 260	160 - 230 - 260	100 - 160 - 230	130 - 200 - 300	160 - 230 - 300	130 - 230 - 300	590 - 650 - 790
	f	.0078 - .012 - .014	.0078 - .012 - .014	.0039 - .0059 - .0098	.0039 - .0059 - .0098	.0079 - .012 - .016	.0098 - .012 - .014	.014 - .019 - .024

NEW

1.5X Diameter





■ SMD INCH BODIES (1.5X Diameter)

○ Available 1st Quarter 2017

Body No.	Stock	Drill Tip Diameter (inch / mm)		øDs	øD1	L	ℓ1 Max Depth	ℓ3	Screw	Wrench
SMDH047S	○	0.4688 - 0.4917	*12.00 - 12.49*	0.625	0.7874	3.4843	1.0039	1.875	BXD02208IP	TRDR08IP
SMDH049S	○	0.4921 - 0.5114	*12.50 - 12.99*	0.625	0.7874	3.4961	1.0157	1.875	BXD02208IP	TRDR08IP
SMDH049S	○	0.5118 - 0.5311	*13.00 - 13.49*	0.625	0.7874	3.5433	1.0630	1.875	BXD02208IP	TRDR08IP
SMDH055S	○	0.5315 - 0.5709	*13.50- 14.50*	0.750	0.7874	3.6969	1.1929	2.000	BXD02208IP	TRDR08IP
SMDH059S	○	0.5713 - 0.6102	*14.51- 15.50*	0.750	0.9843	3.8307	1.2717	2.000	BXD02208IP	TRDR08IP
SMDH063S	○	0.6106 - 0.6496	*15.51 - 16.50*	0.750	0.9843	3.9331	1.3740	2.000	BXD02509IP	TRDR10IP
SMDH067S	○	0.6500 - 0.6890	*16.51 - 17.50*	0.750	0.9843	3.9921	1.4331	2.000	BXD02509IP	TRDR10IP
SMDH071S	○	0.6894 - 0.7283	*17.51 - 18.50*	0.750	0.9843	4.0945	1.5354	2.000	BXD02509IP	TRDR10IP
SMDH075S	○	0.7287 - 0.7677	*18.51- 19.50*	1.000	1.1811	4.3858	1.5906	2.250	BXD03011IP	TRDR15IP
SMDH079S	○	0.7681 - 0.8070	*19.51- 20.50*	1.000	1.1811	4.4882	1.6929	2.250	BXD03011IP	TRDR15IP
SMDH083S	○	0.8074 - 0.8465	*20.51 - 21.50*	1.000	1.1811	4.5472	1.7520	2.250	BXD03011IP	TRDR15IP
SMDH087S	○	0.8469 - 0.8976	*21.51 - 22.80*	1.000	1.1811	4.6102	1.8150	2.250	BXD03512IP	TRDR15IP
SMDH091S	○	0.8980 - 0.9370	*22.81 - 23.80*	1.000	1.1811	4.6457	1.8504	2.250	BXD03512IP	TRDR15IP
SMDH096S	○	0.9374 - 0.9764	*23.81 - 24.80*	1.000	1.4567	4.8937	1.9409	2.250	BXD03512IP	TRDR15IP
SMDH100S	○	0.9768 - 1.0157	*24.81 - 25.80*	1.250	1.4567	4.9094	1.9567	2.375	BXD04014IP	TRDR20IP
SMDH104S	○	1.0161 - 1.0551	*25.81 - 26.80*	1.250	1.4567	5.0118	2.0591	2.375	BXD04014IP	TRDR20IP
SMDH107S	○	1.0555 - 1.0945	*26.81 - 27.80*	1.250	1.4567	5.0315	2.0787	2.375	BXD04014IP	TRDR20IP
SMDH112S	○	1.0949 - 1.1339	*27.81 - 28.80*	1.250	1.4567	5.0945	2.1417	2.375	BXD04515IP	TRDR25IP
SMDH115S	○	1.1343 - 1.1732	*28.81 - 29.80*	1.250	1.4567	5.1496	2.1969	2.375	BXD04515IP	TRDR25IP
SMDH118S	○	1.1736 - 1.2125	*29.81 - 30.80*	1.250	1.4567	5.2520	2.2992	2.375	BXD04515IP	TRDR25IP

■ SMD METRIC BODIES (1.5X Diameter)

Body No.	Stock	Drill Tip Diameter (inch / mm)		øDs	øD1	L	ℓ1 Max Depth	ℓ3	Screw	Wrench
SMDH120S	○	0.4688 - 0.4917	*12.00 - 12.49*	16.0	20.0	88.5	25.5	48	BXD02208IP	TRDR08IP
SMDH125S	○	0.4921 - 0.5114	*12.50 - 12.99*	16.0	20.0	88.8	25.8	48	BXD02208IP	TRDR08IP
SMDH130S	○	0.5118 - 0.5311	*13.00 - 13.49*	16.0	20.0	90.0	27.0	48	BXD02208IP	TRDR08IP
SMDH140S	○	0.5315 - 0.5709	*13.50- 14.50*	16.0	20.0	93.9	30.9	48	BXD02208IP	TRDR08IP
SMDH150S	○	0.5713 - 0.6102	*14.51- 15.50*	20.0	25.0	97.3	32.3	50	BXD02208IP	TRDR08IP
SMDH160S	○	0.6106 - 0.6496	*15.51 - 16.50*	20.0	25.0	99.9	34.9	50	BXD02509IP	TRDR10IP
SMDH170S	○	0.6500 - 0.6890	*16.51 - 17.50*	20.0	25.0	101.4	36.4	50	BXD02509IP	TRDR10IP
SMDH180S	○	0.6894 - 0.7283	*17.51 - 18.50*	20.0	25.0	104.0	39.0	50	BXD02509IP	TRDR10IP
SMDH190S	○	0.7287 - 0.7677	*18.51- 19.50*	25.0	30.0	111.4	40.4	56	BXD03011IP	TRDR15IP
SMDH200S	○	0.7681 - 0.8070	*19.51- 20.50*	25.0	30.0	114.0	43.0	56	BXD03011IP	TRDR15IP
SMDH210S	○	0.8074 - 0.8465	*20.51 - 21.50*	25.0	30.0	115.5	44.5	56	BXD03011IP	TRDR15IP
SMDH220S	○	0.8469 - 0.8976	*21.51 - 22.80*	25.0	30.0	117.1	46.1	56	BXD03512IP	TRDR15IP
SMDH230S	○	0.8980 - 0.9370	*22.81 - 23.80*	25.0	30.0	118.0	47.0	56	BXD03512IP	TRDR15IP
SMDH240S	○	0.9374 - 0.9764	*23.81 - 24.80*	32.0	37.0	124.3	49.3	60	BXD03512IP	TRDR15IP
SMDH250S	○	0.9768 - 1.0157	*24.81 - 25.80*	32.0	37.0	124.7	49.7	60	BXD04014IP	TRDR20IP
SMDH260S	○	1.0161 - 1.0551	*25.81 - 26.80*	32.0	37.0	127.3	52.3	60	BXD04014IP	TRDR20IP
SMDH270S	○	1.0555 - 1.0945	*26.81 - 27.80*	32.0	37.0	127.8	52.8	60	BXD04014IP	TRDR20IP
SMDH280S	○	1.0949 - 1.1339	*27.81 - 28.80*	32.0	37.0	129.4	54.4	60	BXD04515IP	TRDR25IP
SMDH290S	○	1.1343 - 1.1732	*28.81 - 29.80*	32.0	37.0	130.8	55.8	60	BXD04515IP	TRDR25IP
SMDH300S	○	1.1736 - 1.2125	*29.81 - 30.80*	32.0	37.0	133.4	58.4	60	BXD04515IP	TRDR25IP

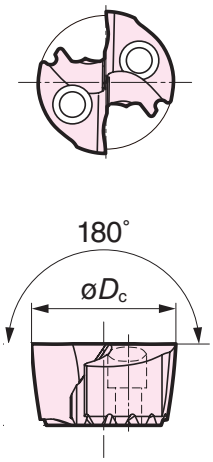
Tips for 1.5XD Diameter on the next page

1.5X Diameter

■ SMD Drills Tips (1.5X Diameter)

1.5XD Flat Drill Tip	Stock	øDc		Body
SMDT04688MFS-ACX70	○	15/32	0.4688	SMDH047S
SMDT1200MFS-ACX70	○	*12.0mm*	*0.4724*	
SMDT04844MFS-ACX70	○	*31/64*	*0.4844*	
SMDT1250MFS-ACX70	○	*12.5mm*	*0.4921*	SMDH049S
SMDT05000MFS-ACX70	○	*1/2*	*0.5000*	
SMDT1300MFS-ACX70	○	13.0mm	0.5118	SMDH051S
SMDT05156MFS-ACX70	○	33/64	0.5156	
SMDT05312MFS-ACX70	○	*17/32*	*0.5312*	
SMDT1350MFS-ACX70	○	13.5mm	0.5315	SMDH055S
SMDT05469MFS-ACX70	○	*35/64*	*0.5469*	
SMDT1400MFS-ACX70	○	14.0mm	0.5512	
SMDT05625MFS-ACX70	○	*9/16*	*0.5625*	
SMDT1450MFS-ACX70	○	*14.5mm*	*0.5709*	
SMDT05781MFS-ACX70	○	37/64	0.5781	SMDH059S
SMDT1500MFS-ACX70	○	*15.0mm*	*0.5906*	
SMDT05938MFS-ACX70	○	*19/32*	*0.5938*	
SMDT06094MFS-ACX70	○	39/64	0.6094	
SMDT1550MFS-ACX70	○	*15.5mm*	*0.6102*	
SMDT06250MFS-ACX70	○	*5/8*	*0.6250*	SMDH063S
SMDT1600MFS-ACX70	○	*16.0mm*	*0.6300*	
SMDT06406MFS-ACX70	○	41/64	0.6406	
SMDT1650MFS-ACX70	○	*16.5mm*	*0.6496*	
SMDT06563MFS-ACX70	○	21/32	0.6563	SMDH067S
SMDT1700MFS-ACX70	○	*17.0mm*	*0.6693*	
SMDT06719MFS-ACX70	○	43/64	0.6719	
SMDT06875MFS-ACX70	○	11/16	0.6875	
SMDT1750MFS-ACX70	○	*17.5mm*	*0.6890*	
SMDT07031MFS-ACX70	○	*45/64*	*0.7031*	SMDH071S
SMDT1800MFS-ACX70	○	*18.0mm*	*0.7087*	
SMDT07188MFS-ACX70	○	23/32	0.7188	
SMDT1850MFS-ACX70	○	*18.5mm*	*0.7283*	
SMDT07344MFS-ACX70	○	*47/64*	*0.7344*	SMDH075S
SMDT1900MFS-ACX70	○	19.0mm	0.7480	
SMDT07500MFS-ACX70	○	*3/4*	*0.7500*	
SMDT07656MFS-ACX70	○	*49/64*	*0.7656*	
SMDT1950MFS-ACX70	○	19.5mm	0.7677	
SMDT07813MFS-ACX70	○	*25/32*	*0.7813*	SMDH079S
SMDT2000MFS-ACX70	○	20.0mm	0.7874	
SMDT07969MFS-ACX70	○	51/64	0.7969	

○ Available 1st Quarter 2017



1.5XD Flat Drill Tip	Stock	øDc		Body
SMDT2050MFS-ACX70	○	*20.5mm*	*0.8071*	SMDH083S
SMDT08125MFS-ACX70	○	*13/16*	*0.8125*	
SMDT2100MFS-ACX70	○	*21.0mm*	*0.8268*	
SMDT08281MFS-ACX70	○	53/64	0.8281	
SMDT08438MFS-ACX70	○	*27/32*	*0.8438*	
SMDT2150MFS-ACX70	○	21.5mm	0.8465	
SMDT08594MFS-ACX70	○	*55/64*	*0.8594*	SMDH087S
SMDT2200MFS-ACX70	○	22.0mm	0.8661	
SMDT08750MFS-ACX70	○	*7/8*	*0.8750*	
SMDT2250MFS-ACX70	○	22.5mm	0.8858	
SMDT08906MFS-ACX70	○	*57/64*	*0.8906*	
SMDT2300MFS-ACX70	○	23.0mm	0.9055	SMDH091S
SMDT09062MFS-ACX70	○	*29/32*	*0.9062*	
SMDT09219MFS-ACX70	○	*59/64*	*0.9219*	
SMDT2350MFS-ACX70	○	*23.5mm*	*0.9252*	
SMDT09375MFS-ACX70	○	*15/16*	*0.9375*	SMDH096S
SMDT2400MFS-ACX70	○	*24.0mm*	*0.9449*	
SMDT09531MFS-ACX70	○	*61/64*	*0.9531*	
SMDT2450MFS-ACX70	○	*24.5mm*	*0.9646*	
SMDT09687MFS-ACX70	○	*31/32*	*0.9687*	
SMDT2500MFS-ACX70	○	*25.0mm*	*0.9843*	SMDH100S
SMDT09844MFS-ACX70	○	*63/64*	*0.9844*	
SMDT10000MFS-ACX70	○	*1*	*1.0000*	
SMDT2550MFS-ACX70	○	*25.5mm*	*1.0039*	
SMDT10156MFS-ACX70	○	*1 1/64*	*1.0156*	
SMDT2600MFS-ACX70	○	*26.0mm*	*1.0236*	SMDH104S
SMDT10312MFS-ACX70	○	*1 1/32*	*1.0312*	
SMDT2650MFS-ACX70	○	*26.5mm*	*1.0433*	
SMDT10469MFS-ACX70	○	*1 3/64*	*1.0469*	
SMDT10625MFS-ACX70	○	*1 1/16*	*1.0625*	SMDH107S
SMDT2700MFS-ACX70	○	*27.0mm*	*1.0630*	
SMDT10781MFS-ACX70	○	*1 5/64*	*1.0781*	
SMDT2750MFS-ACX70	○	*27.5mm*	*1.0827*	
SMDT10937MFS-ACX70	○	*1 3/32*	*1.0937*	
SMDT2800MFS-ACX70	○	*28.0mm*	*1.1024*	SMDH112S
SMDT11094MFS-ACX70	○	*1 7/64*	*1.1094*	
SMDT2850MFS-ACX70	○	*28.5mm*	*1.1220*	
SMDT11250MFS-ACX70	○	*1 1/8*	*1.1250*	
SMDT11406MFS-ACX70	○	*1 9/64*	*1.1406*	SMDH115S
SMDT2900MFS-ACX70	○	*29.0mm*	*1.1417*	
SMDT11562MFS-ACX70	○	*1 5/32*	*1.1562*	
SMDT2950MFS-ACX70	○	*29.5mm*	*1.1614*	
SMDT11719MFS-ACX70	○	*1 11/64*	*1.1719*	
SMDT3000MFS-ACX70	○	*30.0mm*	*1.1811*	SMDH118S
SMDT11875MFS-ACX70	○	*1 3/16*	*1.1875*	

○ Available 1st Quarter 2017

*1.5xD Drills only fit SMDT-MFS style tips.

■ Recommended Speeds & Feeds - 1.5XD

Speed: v (SFM) / Feed: f (IPR)

Drill Dia.		Soft Steel	General Steel	Hardened Steel	Stainless Steel	Gray Cast Iron	Ductile Cast Iron	Aluminum Alloy
ΦDc		Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max	Min - Optimum - Max
~0.6299	Vc	200 - 260 - 330	160 - 230 - 300	130 - 200 - 260	130 - 200 - 260	160 - 230 - 300	160 - 215 - 260	330 - 500 - 650
	f	.0039 - .0059 - .0079	.009 - .0059 - .0079	.0019 - .0039 - .0059	.0019 - .0039 - .0059	.0039 - .0059 - .0079	.0039 - .0059 - .0079	.0098 - .012 - .014
~0.7874	Vc	200 - 260 - 330	160 - 230 - 300	130 - 200 - 260	160 - 230 - 300	160 - 230 - 300	160 - 215 - 260	330 - 500 - 650
	f	.0039 - .0059 - .0079	.0039 - .0059 - .0079	.0019 - .0039 - .0059	.0019 - .0039 - .0059	.0039 - .0059 - .0079	.0039 - .0059 - .0079	.012 - .014 - .016
~1.212	Vc	200 - 260 - 330	160 - 230 - 300	130 - 200 - 260	160 - 230 - 300	160 - 230 - 300	160 - 215 - 260	330 - 500 - 650
	f	.0059 - .0079 - .0098	.0059 - .0079 - .0098	.0039 - .0059 - .0079	.0019 - .0039 - .0059	.0059 - .0079 - .0098	.0059 - .0079 - .0098	.014 - .016 - .018

Note:

1. The recommended hole depth is 2 x drill diameter. The depth is measured from the highest point of the hole on drilling in inclined surfaces.

2. The recommended cutting conditions are those for drilling on flat horizontal surfaces.

3. Adjust the feed rate according to the inclination angle when drilling on an inclined surface.

4. Set the feed rate at 70% or lower when the inclination angle is 30° or less.

5. Set the feed rate at 50% or lower when the inclination angle is larger than 30°.

6. This product is a drilling tool. Do not use it for traversing or helical milling.

SUMITOMO

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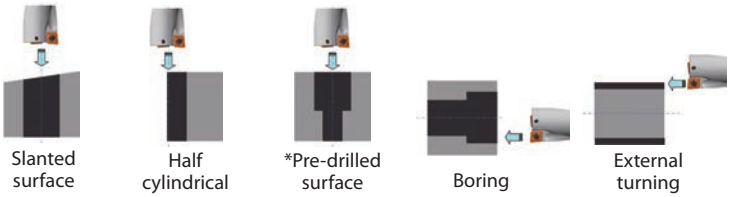
Indexable Drills

Pages 501-526

■ Features & Benefits

- New balanced design for stable drilling
- Three chipbreakers available for superior chip control
- Four-cornered insert design for easy tool management
- **New grades:** DLC coated DL1500 inserts for aluminum and ACP100 for steel now available

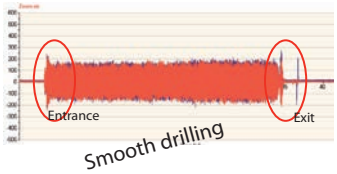
Applications



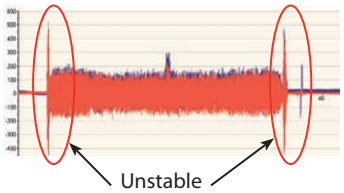
*For pre-drilled surface: secondary OD must be at least 1/16 larger than drill diameter.

Stable Drilling

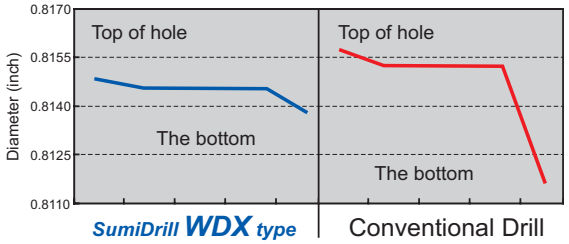
SumiDrill ***WDX*** *type*



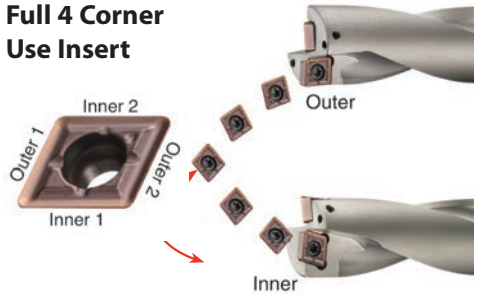
Conventional Drill



Hole Accuracy Comparison

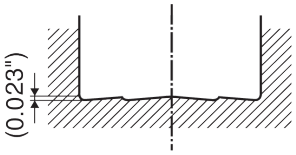


Full 4 Corner Use Insert



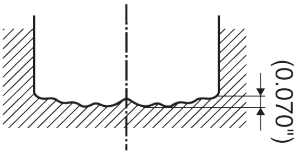
Flat Bottom Surface

SumiDrill ***WDX*** *type*



WDX0812D3S100 (0.8125")

Conventional Drill



Conventional drill (0.8125")

■ Hardware

	Applicable Holders		Screw	Wrench	Wrench	Recommended Tightening Torque (N·m)	Recommended Tightening Torque (in / lbs)
Inch	WDX0562D□S075 to WDX0594D□S075	Metric WDX130D□S20 to WDX150D□S20	BFTX01604N	TRX06		0.3	2.65
Inch	WDX0625D□S100 to WDX0687D□S100	Metric WDX155D□S20 to WDX180D□S25	BFTX0204N	TRX06		0.5	4.43
Inch	WDX0750D□S100 to WDX0875D□S100	Metric WDX185D□S25 to WDX225D□S25	BFTY02206		TRD07	1.0	8.85
Inch	WDX0937D□S125 to WDX1125D□S125	Metric WDX230D□S25 to WDX285D□S32	BFTX02506N		TRD08	1.5	13.28
Inch	WDX1187D□S125 to WDX1437D□S150	Metric WDX290D□S32 to WDX360D□S40	BFTX03584		TRD15	3.5	30.98
Inch	WDX1500D□S150 to WDX1750D□S150	Metric WDX370D□S40 to WDX450D□S40	BFTX0511N		TRD20	5.0	44.25
Inch	WDX1812D□S150 to WDX2625D□S150	Metric WDX460D□S40 to WDX680D□S40	BFTX0615N		TRD25	5.0	44.25

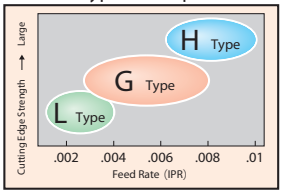
Insert Selection – WDX Type Insert Series Offers Wide Selection

4 Four material grades

Work Material \ Grade	ACP100	ACP300	ACK300	DL1500
P Steel (General Machining)	○	○		
P Steel (High-Speed Machining)			○	
M Stainless Steel	○	○		
K Cast Iron			○	
N Non-Ferrous Metal				○

+

3 Three types of chip breakers



→

10 Ten possible combinations

ACP100	ACP300	ACK300	DL1500
P M L Type	P M L Type	P K L Type	
P M G Type	P M G Type	P K G Type	N G Type
P H Type	P H Type	K H Type	

2nd Recommendation (P)

P Steel — Low Feed, Chip Management Type

L type ACP300 ACP100

- For machining SS400, SCM415, SCM420, etc.
- In case of chip control problem, high speed with low feed rate is recommended.
- In case of vibration due to burnt chips, reduce the feed rate.

P Steel — Strong Edge Type

H type ACP300

- For interrupted machining (at entrance/exit) of angled surfaces, reduce the feed rate (to approximately f 0.05) at each interruption.
- Ideal to use when the cutting edge is weakened due to machining hardened material (heat treatment)

P Steel — General Purpose

G type ACK300

- For application where sereve flank wear may be caused by machining general alloy or alloy steal

P Steel — Low Feed, Chip Management Type

L type ACK300

- For low feed rate conditions

P Steel — Improvement of chip control (low-carbon steel, etc.)

P Steel — Reduction of initial chipping (caused by interrupted machining, machining hard material, etc.)

P Steel — Lack of wear resistance

1st Recommendation (P M K N)

Breaker: General Purpose — G type

Grade:

- P Steel / M Stainless Steel — For machining general steel, alloy steel or stainless steel: ACP300 ACP100
- K Cast Iron — For machining cast iron: ACK300
- N Non-Ferrous Metal — For machining non-ferrous metals: DL1500

M Stainless Steel — Improvement of chip control

K Cast Iron — Reduction of initial chipping (interrupted/high feed rate machining, etc.)

2nd Recommendation (M K)

M Stainless Steel — Low feed, chip management type

L type ACP300 ACP100

- L Type ACP300 is ideal to solve chip evacuation problem caused by low cutting speed and low feed rate due to facility reasons.

K Cast Iron — Strong Edge Type

H type ACK300

- Similar to steel machining, H Type ACK300 is ideal for interrupted machining on angled surfaces.
- With strong edges, it is ideal for machining workpieces at high feed rate.

WDX Indexable
Coolant Through Drills

Fig. 1

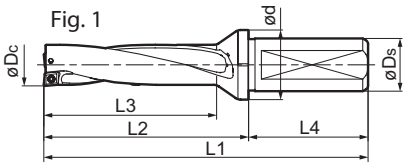


Fig. 2

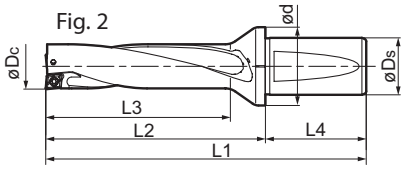
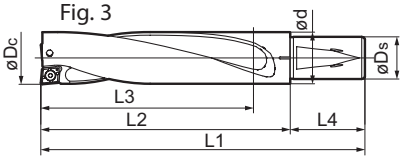


Fig. 3



SumiDrill WDX Bodies - 2XD - **INCH**

Catalog Number	Stock	øDc	L1	L2	L3	ød	øDs	L4	Fig.	Screw	Wrench	Insert
WDX0562D2S075	●	0.5625	3.8330	1.8330	1.2420	1.1020	0.7500	2.0000		BFTX01604N	TRX06	WDXT042004
WDX0594D2S075	●	0.5937	3.8960	1.8960	1.3060	1.1020	0.7500	2.0000		BFTX01604N	TRX06	WDXT042004
WDX0625D2S100	●	0.6250	4.4590	1.9590	1.3680	1.2600	1.0000	2.5000		BFTX0204N	TRX06	WDXT052504
WDX0656D2S100	●	0.6562	4.5210	2.0210	1.4300	1.2600	1.0000	2.5000		BFTX0204N	TRX06	WDXT052504
WDX0687D2S100	●	0.6875	4.5830	2.0830	1.4920	1.2600	1.0000	2.5000	1	BFTX0204N	TRX06	WDXT052504
WDX0750D2S100	●	0.7500	4.7090	2.2090	1.6180	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0787D2S100	●	0.7870	4.7830	2.2830	1.6920	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0812D2S100	●	0.8125	4.8340	2.3340	1.7430	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0875D2S100	●	0.8750	4.9590	2.4590	1.8680	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0937D2S125	●	0.9375	5.2020	2.7020	1.9930	1.6140	1.2500	2.5000		BFTX02506N	TRD08	WDXT073506
WDX1000D2S125	●	1.0000	5.3270	2.8270	2.1180	1.6140	1.2500	2.5000		BFTX02506N	TRD08	WDXT073506
WDX1062D2S125	●	1.0625	5.9520	2.9520	2.2430	1.6140	1.2500	3.0000		BFTX02506N	TRD08	WDXT073506
WDX1125D2S125	●	1.1250	6.0770	3.0770	2.3680	1.6140	1.2500	3.0000		BFTX02506N	TRD08	WDXT073506
WDX1187D2S125	●	1.1875	6.3590	3.3590	2.5320	1.9680	1.2500	3.0000		BFTX03584	TRX15	WDXT094008
WDX1250D2S125	●	1.2500	6.4840	3.4840	2.6570	1.9680	1.2500	3.0000	2	BFTX03584	TRX15	WDXT094008
WDX1312D2S150	●	1.3125	6.7270	3.7270	2.7820	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1375D2S150	●	1.3750	6.8520	3.8520	2.9070	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1437D2S150	●	1.4375	6.9770	3.9770	3.0320	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1500D2S150	●	1.5000	7.1020	4.1020	3.1570	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1562D2S150	●	1.5625	7.2260	4.2260	3.2810	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1625D2S150	●	1.6250	7.3520	4.3520	3.4070	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1687D2S150	●	1.6875	7.4780	4.4780	3.5330	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1750D2S150	●	1.7500	7.6020	4.6020	3.6570	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1812D2S150	●	1.8125	7.7280	4.7280	3.7830	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX1875D2S150	●	1.8750	7.8520	4.8520	3.9070	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX1937D2S150	●	1.9375	7.9780	4.9780	4.0330	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX2000D2S150	●	2.0000	8.1020	5.1020	4.1570	1.9490	1.5000	3.0000	3	BFTX0615N	TRD25	WDXT156012
WDX2125D2S150	●	2.1250	8.3520	5.3520	4.4070	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX2250D2S150	●	2.2500	9.0750	6.0750	4.8150	2.1730	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012
WDX2375D2S150	●	2.3750	9.3270	6.3270	5.0670	2.2950	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012
WDX2500D2S150	●	2.5000	9.5750	6.5750	5.3150	2.4210	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012
WDX2625D2S150	●	2.6250	9.8270	6.8270	5.5670	2.5470	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012

● = USA Stocked item

SumiDrill WDX Bodies - 3XD - **INCH**

Catalog Number	Stock	øDc	L1	L2	L3	ød	øDs	L4	Fig.	Screw	Wrench	Insert
WDX0562D3S075	●	0.5625	4.3950	2.3950	1.8040	1.1020	0.7500	2.0000		BFTX01604N	TRX06	WDXT042004
WDX0594D3S075	●	0.5937	4.4910	2.4910	1.9000	1.1020	0.7500	2.0000		BFTX01604N	TRX06	WDXT042004
WDX0625D3S100	●	0.6250	5.0840	2.5840	1.9930	1.2600	1.0000	2.5000		BFTX0204N	TRX06	WDXT052504
WDX0656D3S100	●	0.6562	5.1770	2.6770	2.0860	1.2600	1.0000	2.5000		BFTX0204N	TRX06	WDXT052504
WDX0687D3S100	●	0.6875	5.2700	2.7700	2.1790	1.2600	1.0000	2.5000	1	BFTX0204N	TRX06	WDXT052504
WDX0750D3S100	●	0.7500	5.4590	2.9590	2.3680	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0787D3S100	●	0.7870	5.5700	3.0700	2.4790	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0812D3S100	●	0.8125	5.6460	3.1460	2.5560	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0875D3S100	●	0.8750	5.8340	3.3340	2.7430	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0937D3S125	●	0.9375	6.1390	3.6390	2.9310	1.6140	1.2500	2.5000		BFTX02506N	TRD08	WDXT073506
WDX1000D3S125	●	1.0000	6.3270	3.8270	3.1180	1.6140	1.2500	2.5000		BFTX02506N	TRD08	WDXT073506
WDX1062D3S125	●	1.0625	7.0140	4.0140	3.3060	1.6140	1.2500	3.0000		BFTX02506N	TRD08	WDXT073506
WDX1125D3S125	●	1.1250	7.2020	4.2020	3.4930	1.6140	1.2500	3.0000		BFTX02506N	TRD08	WDXT073506
WDX1187D3S125	●	1.1875	7.5470	4.5470	3.7200	1.9680	1.2500	3.0000		BFTX03584	TRX15	WDXT094008
WDX1250D3S125	●	1.2500	7.7340	4.7340	3.9070	1.9680	1.2500	3.0000	2	BFTX03584	TRX15	WDXT094008
WDX1312D3S150	●	1.3125	8.0400	5.0400	4.0950	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1375D3S150	●	1.3750	8.2270	5.2270	4.2820	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1437D3S150	●	1.4375	8.4150	5.4150	4.4700	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1500D3S150	●	1.5000	8.8780	5.8780	4.6970	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1562D3S150	●	1.5625	9.0640	6.0640	4.8830	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1625D3S150	●	1.6250	9.2530	6.2530	5.0720	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1687D3S150	●	1.6875	9.4420	6.4420	5.2610	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1750D3S150	●	1.7500	9.6280	6.6280	5.4470	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1812D3S150	●	1.8125	9.8170	6.8170	5.6360	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX1875D3S150	●	1.8750	10.0030	7.0030	5.8820	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX1937D3S150	●	1.9375	10.1920	7.1920	6.0110	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX2000D3S150	●	2.0000	10.3780	7.3780	6.1970	1.9490	1.5000	3.0000	3	BFTX0615N	TRD25	WDXT156012
WDX2125D3S150	●	2.1250	10.7530	7.7530	6.5720	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX2250D3S150	●	2.2500	11.3270	8.3270	7.0670	2.1730	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012
WDX2375D3S150	●	2.3750	11.7010	8.7010	7.4410	2.2950	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012
WDX2500D3S150	●	2.5000	12.0750	9.0750	7.8150	2.4210	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012
WDX2625D3S150	●	2.6250	12.4490	9.4490	8.1890	2.5470	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012

● = USA Stocked item

Fig. 1

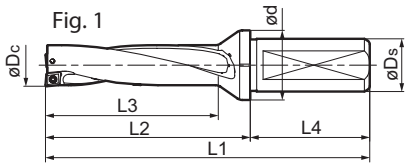


Fig. 2

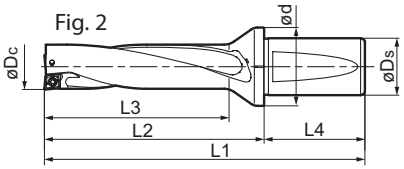
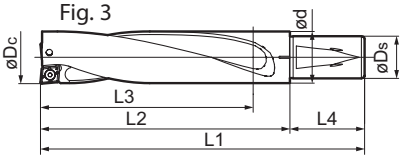


Fig. 3



SumiDrill WDX Bodies - 4XD - INCH

Catalog Number	Stock	øDc	L1	L2	L3	ød	øDs	L4	Fig.	Screw	Wrench	Insert
WDX0562D4S075	●	0.5625	4.9570	2.9570	2.3660	1.1020	0.7500	2.0000		BFTX01604N	TRX06	WDXT042004
WDX0594D4S075	●	0.5937	5.0850	3.0850	2.4940	1.1020	0.7500	2.0000		BFTX01604N	TRX06	WDXT042004
WDX0625D4S100	●	0.6250	5.7090	3.2090	2.6180	1.2600	1.0000	2.5000		BFTX0204N	TRX06	WDXT052504
WDX0656D4S100	●	0.6562	5.8330	3.3330	2.7420	1.2600	1.0000	2.5000		BFTX0204N	TRX06	WDXT052504
WDX0687D4S100	●	0.6875	5.9570	3.4570	2.8660	1.2600	1.0000	2.5000	1	BFTX0204N	TRX06	WDXT052504
WDX0750D4S100	●	0.7500	6.2090	3.7090	3.1180	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0787D4S100	●	0.7870	6.3570	3.8570	3.2660	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0812D4S100	●	0.8125	6.4590	3.9590	3.3680	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0875D4S100	●	0.8750	6.7090	4.2090	3.6180	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0937D4S125	●	0.9375	7.0770	4.5770	3.8680	1.6140	1.2500	2.5000		BFTX02506N	TRD08	WDXT073506
WDX1000D4S125	●	1.0000	7.3270	4.8270	4.1180	1.6140	1.2500	2.5000		BFTX02506N	TRD08	WDXT073506
WDX1062D4S125	●	1.0625	8.0770	5.0770	4.3680	1.6140	1.2500	3.0000		BFTX02506N	TRD08	WDXT073506
WDX1125D4S125	●	1.1250	8.3270	5.3270	4.6180	1.6140	1.2500	3.0000		BFTX02506N	TRD08	WDXT073506
WDX1187D4S125	●	1.1875	8.7340	5.7340	4.9070	1.9680	1.2500	3.0000		BFTX03584	TRX15	WDXT094008
WDX1250D4S125	●	1.2500	8.9840	5.9840	5.1570	1.9680	1.2500	3.0000	2	BFTX03584	TRX15	WDXT094008
WDX1312D4S150	●	1.3125	9.3520	6.3520	5.4070	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1375D4S150	●	1.3750	9.6020	6.6020	5.6570	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1437D4S150	●	1.4375	9.8520	6.8520	5.9070	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1500D4S150	●	1.5000	10.3780	7.3780	6.1970	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1562D4S150	●	1.5625	10.6260	7.6260	6.4450	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1625D4S150	●	1.6250	10.8780	7.8780	6.6970	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1687D4S150	●	1.6875	11.1300	8.1300	6.9490	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1750D4S150	●	1.7500	11.3780	8.3780	7.1970	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1812D4S150	●	1.8125	11.6300	8.6300	7.4490	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX1875D4S150	●	1.8750	11.8780	8.8780	7.6970	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX1937D4S150	●	1.9375	12.1300	9.1300	7.9490	1.9490	1.5000	3.0000	3	BFTX0615N	TRD25	WDXT156012
WDX2000D4S150	●	2.0000	12.3780	9.3780	8.1970	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX2125D4S150	●	2.1250	12.8780	9.8780	8.6970	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX2250D4S150	●	2.2500	13.5750	10.5750	9.3150	2.1730	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012
WDX2375D4S150	●	2.3750	14.0750	11.0750	9.8150	2.2950	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012
WDX2500D4S150	●	2.5000	14.5750	11.5750	10.3150	2.4210	1.5000	3.0000		BFTX0615N	TRD25	WDXT186012

● = USA Stocked item

SumiDrill WDX Bodies - 5XD* - INCH

Catalog Number	Stock	øDc	L1	L2	L3	ød	øDs	L4	Fig.	Screw	Wrench	Insert
WDX0562D5S075	●	0.5620	5.5190	3.5190	2.9280	1.1020	0.7500	2.0000		BFTX01604N	TRX06	WDXT042004
WDX0594D5S075	●	0.5940	5.6790	3.6790	3.0880	1.1020	0.7500	2.0000		BFTX01604N	TRX06	WDXT042004
WDX0625D5S100	●	0.6250	6.3340	3.8340	3.2430	1.2600	1.0000	2.5000		BFTX0204N	TRX06	WDXT052504
WDX0656D5S100	●	0.6560	6.4890	3.9890	3.3980	1.2600	1.0000	2.5000		BFTX0204N	TRX06	WDXT052504
WDX0687D5S100	●	0.6870	6.6440	4.1440	3.5530	1.2600	1.0000	2.5000	1	BFTX0204N	TRX06	WDXT052504
WDX0750D5S100	●	0.7500	6.9590	4.4590	3.8680	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0787D5S100	●	0.7870	7.1440	4.6440	4.0530	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0812D5S100	●	0.8120	7.2690	4.7690	4.1780	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0875D5S100	●	0.8750	7.5840	5.0840	4.4930	1.2990	1.0000	2.5000		BFTY02206	TRD07	WDXT063006
WDX0937D5S125	●	0.9370	8.0120	5.5120	4.8030	1.6140	1.2500	2.5000		BFTX02506N	TRD08	WDXT073506
WDX1000D5S125	●	1.0000	8.3270	5.8270	5.1180	1.6140	1.2500	2.5000		BFTX02506N	TRD08	WDXT073506
WDX1062D5S125	●	1.0620	9.1370	6.1370	5.4280	1.6140	1.2500	3.0000		BFTX02506N	TRD08	WDXT073506
WDX1125D5S125	●	1.1250	9.4520	6.4520	5.7430	1.6140	1.2500	3.0000		BFTX02506N	TRD08	WDXT073506
WDX1187D5S125	●	1.1870	9.9200	6.9200	6.0930	1.9680	1.2500	3.0000		BFTX03584	TRX15	WDXT094008
WDX1250D5S125	●	1.2500	10.2350	7.2350	6.4080	1.9680	1.2500	3.0000		BFTX03584	TRX15	WDXT094008
WDX1312D5S150	●	1.3120	10.6630	7.6630	6.7180	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1375D5S150	●	1.3750	10.9780	7.9780	7.0330	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1437D5S150	●	1.4370	11.2880	8.2880	7.3430	2.1260	1.5000	3.0000		BFTX03584	TRX15	WDXT094008
WDX1500D5S150	●	1.5000	11.8780	8.8780	7.6970	1.9490	1.5000	3.0000	2	BFTX0511N	TRD20	WDXT125012
WDX1562D5S150	●	1.5620	12.1880	9.1880	8.0070	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1625D5S150	●	1.6250	12.5030	9.5030	8.3220	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1687D5S150	●	1.6870	12.8130	9.8130	8.6320	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1750D5S150	●	1.7500	13.1280	10.1280	8.9470	1.9490	1.5000	3.0000		BFTX0511N	TRD20	WDXT125012
WDX1812D5S150	●	1.8120	13.4380	10.4380	9.2570	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX1875D5S150	●	1.8750	13.7530	10.7530	9.5720	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX1937D5S150	●	1.9370	14.0630	11.0630	9.8820	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX2000D5S150	●	2.0000	14.3780	11.3780	10.1970	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012
WDX2125D5S150	●	2.1250	15.0030	12.0030	10.8220	1.9490	1.5000	3.0000		BFTX0615N	TRD25	WDXT156012

● = USA Stocked item

***NOTE:** Coolant adapter sleeves for lathes are available upon request.

** 5XD WDX Drills have 2 coolant holes in the back of the drill and no single threaded port

Sumitomo Electric Carbide, Inc. is now offering WDX-L Indexable Drill with side port coolant. Due to not all spindles being coolant-thru, the WDX-L allows for customers to use coolant through the side port.

Features & Benefits

- Diameters available in 0.5625" to 2.5000"
- WDX-L uses WDXT inserts (same as WDX style)
- Available in 4XD style

Figure 1

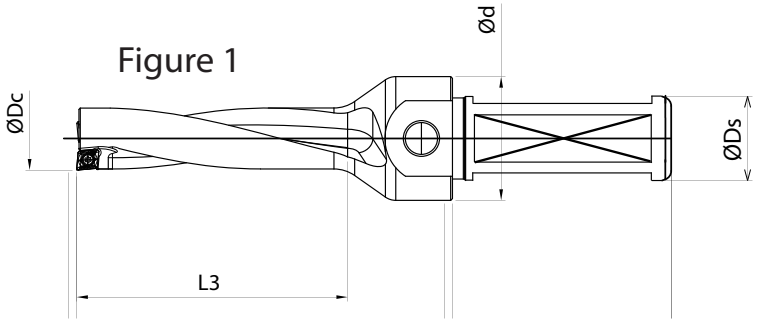
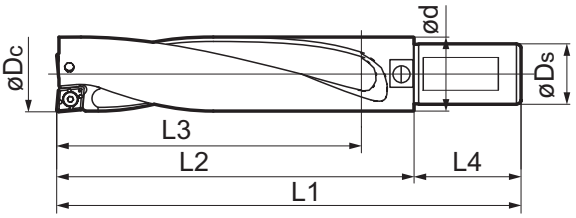


Figure 2



SumiDrill WDX Bodies - 4XD Side Port - INCH													
Catalog Number	Stock	øDc	L1	L2	L3	ød	øDs	L4	Screw	Wrench	Insert	Pipe Plug	Fig.
WDX0562D4S100-L	●	0.5625	5.350	3.350	2.366	1.102	1.000	2.000	BFTX01604N	TRX06	WDXT042004	XP02	
WDX0594D4S100-L	●	0.5937	5.478	3.478	2.494	1.102	1.000	2.000	BFTX01604N	TRX06	WDXT042004	XP02	
WDX0625D4S100-L	●	0.6250	6.181	3.681	2.618	1.260	1.000	2.500	BFTX0204N	TRX06	WDXT052504	XP04	
WDX0656D4S100-L	●	0.6562	6.305	3.805	2.742	1.260	1.000	2.500	BFTX0204N	TRX06	WDXT052504	XP04	
WDX0687D4S100-L	●	0.6875	6.429	3.929	2.866	1.260	1.000	2.500	BFTX0204N	TRX06	WDXT052504	XP04	
WDX0750D4S100-L	●	0.7500	6.681	4.181	3.118	1.299	1.000	2.500	BFTY02206	TRD07	WDXT063006	XP04	
WDX0787D4S100-L	●	0.7870	6.829	4.329	3.266	1.299	1.000	2.500	BFTY02206	TRD07	WDXT063006	XP04	
WDX0812D4S100-L	●	0.8125	6.931	4.431	3.368	1.299	1.000	2.500	BFTY02206	TRD07	WDXT063006	XP04	
WDX0875D4S100-L	●	0.8750	7.181	4.681	3.618	1.299	1.000	2.500	BFTY02206	TRD07	WDXT063006	XP04	
WDX0937D4S125-L	●	0.9375	7.549	5.049	3.868	1.614	1.250	2.500	BFTX02506N	TRD08	WDXT073506	XP04	
WDX1000D4S125-L	●	1.0000	7.799	5.299	4.118	1.614	1.250	2.500	BFTX02506N	TRD08	WDXT073506	XP04	1
WDX1062D4S125-L	●	1.0625	8.549	5.549	4.368	1.614	1.250	3.000	BFTX02506N	TRD08	WDXT073506	XP04	
WDX1125D4S125-L	●	1.1250	8.799	5.799	4.618	1.614	1.250	3.000	BFTX02506N	TRD08	WDXT073506	XP04	
WDX1187D4S125-L	●	1.1875	9.206	6.206	4.907	1.968	1.250	3.000	BFTX03584	TRX15	WDXT094008	XP04	
WDX1250D4S125-L	●	1.2500	9.456	6.456	5.157	1.968	1.250	3.000	BFTX03584	TRX15	WDXT094008	XP04	
WDX1312D4S150-L	●	1.3125	9.824	6.824	5.407	2.126	1.500	3.000	BFTX03584	TRX15	WDXT094008	XP04	
WDX1375D4S150-L	●	1.3750	10.074	7.074	5.657	2.126	1.500	3.000	BFTX03584	TRX15	WDXT094008	XP04	
WDX1437D4S150-L	●	1.4375	10.324	7.324	5.907	2.126	1.500	3.000	BFTX03584	TRX15	WDXT094008	XP04	
WDX1500D4S150-L	●	1.5000	10.850	7.850	6.197	1.949	1.500	3.000	BFTX0511N	TRD20	WDXT125012	XP04	
WDX1562D4S150-L	●	1.5625	11.098	8.098	6.445	1.949	1.500	3.000	BFTX0511N	TRD20	WDXT125012	XP04	
WDX1625D4S150-L	●	1.6250	11.350	8.350	6.697	1.949	1.500	3.000	BFTX0511N	TRD20	WDXT125012	XP04	
WDX1687D4S150-L	●	1.6875	11.602	8.602	6.949	1.949	1.500	3.000	BFTX0511N	TRD20	WDXT125012	XP04	
WDX1750D4S150-L	●	1.7500	11.850	8.850	7.197	1.949	1.500	3.000	BFTX0511N	TRD20	WDXT125012	XP04	
WDX1812D4S150-L	●	1.8125	12.102	9.102	7.449	1.949	1.500	3.000	BFTX0615N	TRD25	WDXT156012	XP04	
WDX1875D4S150-L	●	1.8750	12.350	9.350	7.697	1.949	1.500	3.000	BFTX0615N	TRD25	WDXT156012	XP04	
WDX1937D4S150-L	●	1.9375	12.602	9.602	7.949	1.949	1.500	3.000	BFTX0615N	TRD25	WDXT156012	XP04	
WDX2000D4S150-L	●	2.0000	12.850	9.850	8.197	1.949	1.500	3.000	BFTX0615N	TRD25	WDXT156012	XP04	2
WDX2125D4S150-L	●	2.1250	13.350	10.350	8.697	1.949	1.500	3.000	BFTX0615N	TRD25	WDXT156012	XP04	
WDX2250D4S150-L	●	2.2500	14.047	11.047	9.315	2.173	1.500	3.000	BFTX0615N	TRD25	WDXT186012	XP04	
WDX2375D4S150-L	●	2.3750	14.547	11.547	9.815	2.295	1.500	3.000	BFTX0615N	TRD25	WDXT186012	XP04	
WDX2500D4S150-L	●	2.5000	15.047	12.047	10.315	2.421	1.500	3.000	BFTX0615N	TRD25	WDXT186012	XP04	

Fig. 1

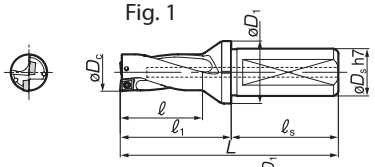


Fig. 2

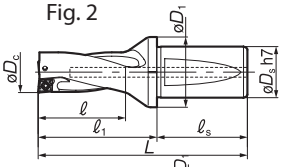


Fig. 3

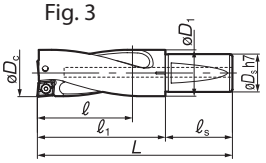


Fig. 4

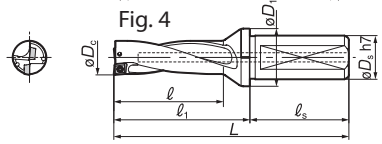


Fig. 5

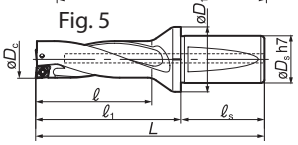
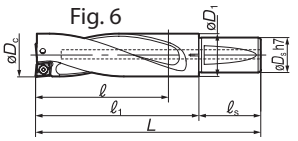


Fig. 6



SumiDrill WDX Bodies - 2XD - *METRIC*

Catalog Number	Stock	øD$_c$	L	ℓ$_1$	ℓ	øD$_1$	øD$_s$	ℓ$_s$	Insert	Fig.
WDX130D2S20	★	13.0	88	44	29	28.0	20	44	WDXT 042004	1
WDX135D2S20	★	13.5	89	45	30					
WDX140D2S20	★	14.0	90	46	31					
WDX145D2S20	★	14.5	91	47	32					
WDX150D2S20	★	15.0	92	48	33					
WDX155D2S20	★	15.5	93	49	34	30.0	20	44	WDXT 052504	
WDX160D2S20	★	16.0	94	50	35					
WDX165D2S20	★	16.5	95	51	36					
WDX170D2S20	★	17.0	96	52	37					
WDX175D2S25	★	17.5	109	53	38	32.0	25	56		
WDX180D2S25	★	18.0	110	54	39					
WDX185D2S25	★	18.5	111	55	40	33.0	25	56	WDXT 063006	
WDX190D2S25	★	19.0	112	56	41					
WDX195D2S25	★	19.5	113	57	42					
WDX200D2S25	★	20.0	114	58	43					
WDX205D2S25	★	20.5	115	59	44					
WDX210D2S25	★	21.0	116	60	45					
WDX215D2S25	★	21.5	117	61	46					
WDX220D2S25	★	22.0	118	62	47					
WDX225D2S25	★	22.5	119	63	48					
WDX230D2S25	★	23.0	123	67	49	37.0	25	56	WDXT 073506	
WDX235D2S25	★	23.5	124	68	50					
WDX240D2S25	★	24.0	125	69	51					
WDX245D2S25	★	24.5	126	70	52					
WDX250D2S25	★	25.0	127	71	53					
WDX255D2S32	★	25.5	134	74	54	41.0	32	60		2
WDX260D2S32	★	26.0	135	75	55					
WDX265D2S32	★	26.5	136	76	56					
WDX270D2S32	★	27.0	137	77	57					
WDX275D2S32	★	27.5	138	78	58					
WDX280D2S32	★	28.0	139	79	59					
WDX285D2S32	★	28.5	140	80	60					
WDX290D2S32	★	29.0	143	83	62	50.0	32	60		
WDX295D2S32	★	29.5	144	84	63					
WDX300D2S40	★	30.0	158	88	64	54.0	40	70	WDXT 094008	
WDX310D2S40	★	31.0	160	90	66					
WDX320D2S40	★	32.0	162	92	68					
WDX330D2S40	★	33.0	164	94	70					
WDX340D2S40	★	34.0	166	96	72					
WDX350D2S40	★	35.0	168	98	74					
WDX360D2S40	★	36.0	170	100	76					
WDX370D2S40	★	37.0	179	109	79	49.5	40	70	WDXT 125012	
WDX380D2S40	★	38.0	181	111	81					
WDX390D2S40	★	39.0	183	113	83					
WDX400D2S40	★	40.0	185	115	85					
WDX410D2S40	★	41.0	187	117	87					
WDX420D2S40	★	42.0	189	119	89					
WDX430D2S40	★	43.0	191	121	91					
WDX440D2S40	★	44.0	193	123	93					
WDX450D2S40	★	45.0	195	125	95					
WDX460D2S40	★	46.0	197	127	97	49.5	40	70	WDXT 156012	
WDX470D2S40	★	47.0	199	129	99					
WDX480D2S40	★	48.0	201	131	101					
WDX490D2S40	★	49.0	203	133	103					
WDX500D2S40	★	50.0	205	135	105					
WDX510D2S40	★	51.0	207	137	107					3
WDX520D2S40	★	52.0	209	139	109	50.5				
WDX530D2S40	★	53.0	211	141	111	51.5				
WDX540D2S40	★	54.0	213	143	113	52.5				
WDX550D2S40	★	55.0	215	145	115	53.5				
WDX560D2S40	★	56.0	222	152	120	54.0	40	70	WDXT 186012	
WDX570D2S40	★	57.0	224	154	122	55.0				
WDX580D2S40	★	58.0	226	156	124	56.0				
WDX590D2S40	★	59.0	228	158	126	57.0				
WDX600D2S40	★	60.0	230	160	128	58.0				
WDX610D2S40	★	61.0	232	162	130	59.0				
WDX620D2S40	★	62.0	234	164	132	60.0				
WDX630D2S40	★	63.0	236	166	134	61.0				
WDX640D2S40	★	64.0	238	168	136	62.0				
WDX650D2S40	★	65.0	240	170	138	63.0				
WDX660D2S40	★	66.0	242	172	140	64.0				
WDX670D2S40	★	67.0	244	174	142	65.0				
WDX680D2S40	★	68.0	246	176	144	66.0				

★ = Worldwide Warehouse item

SumiDrill WDX Bodies - 3XD - *METRIC*

Catalog Number	Stock	øD$_c$	L	ℓ$_1$	ℓ	øD$_1$	øD$_s$	ℓ$_s$	Insert	Fig.
WDX130D3S20	★	13.0	101.0	57.0	42.0	28.0	20	44	WDXT 042004	4
WDX135D3S20	★	13.5	102.5	58.5	43.5					
WDX140D3S20	★	14.0	104.0	60.0	45.0					
WDX145D3S20	★	14.5	105.5	61.5	46.5					
WDX150D3S20	★	15.0	107.0	63.0	48.0					
WDX155D3S20	★	15.5	108.5	64.5	49.5	30.0	20	44	WDXT 052504	
WDX160D3S20	★	16.0	110.0	66.0	51.0					
WDX165D3S20	★	16.5	111.5	67.5	52.5					
WDX170D3S20	★	17.0	113.0	69.0	54.0					
WDX175D3S25	★	17.5	126.5	70.5	55.5	32.0	25	56		
WDX180D3S25	★	18.0	128.0	72.0	57.0					
WDX185D3S25	★	18.5	129.5	73.5	58.5	33.0	25	56	WDXT 063006	
WDX190D3S25	★	19.0	131.0	75.0	60.0					
WDX195D3S25	★	19.5	132.5	76.5	61.5					
WDX200D3S25	★	20.0	134.0	78.0	63.0					
WDX205D3S25	★	20.5	135.5	79.5	64.5					
WDX210D3S25	★	21.0	137.0	81.0	66.0					
WDX215D3S25	★	21.5	138.5	82.5	67.5					
WDX220D3S25	★	22.0	140.0	84.0	69.0					
WDX225D3S25	★	22.5	141.5	85.5	70.5					
WDX230D3S25	★	23.0	146.0	90.0	72.0	37.0	25	56	WDXT 073506	
WDX235D3S25	★	23.5	147.5	91.5	73.5					
WDX240D3S25	★	24.0	149.0	93.0	75.0					
WDX245D3S25	★	24.5	150.5	94.5	76.5					
WDX250D3S25	★	25.0	152.0	96.0	78.0					
WDX255D3S32	★	25.5	159.5	99.5	79.5	41.0	32	60		5
WDX260D3S32	★	26.0	161.0	101.0	81.0					
WDX265D3S32	★	26.5	162.5	102.5	82.5					
WDX270D3S32	★	27.0	164.0	104.0	84.0					
WDX275D3S32	★	27.5	165.5	105.5	85.5					
WDX280D3S32	★	28.0	167.0	107.0	87.0					
WDX285D3S32	★	28.5	168.5	108.5	88.5					
WDX290D3S32	★	29.0	172.0	112.0	91.0	50.0	32	60		
WDX295D3S32	★	29.5	173.5	113.5	92.5					
WDX300D3S40	★	30.0	188.0	118.0	94.0	54.0	40	70	WDXT 094008	
WDX310D3S40	★	31.0	191.0	121.0	97.0					
WDX320D3S40	★	32.0	194.0	124.0	100.0					
WDX330D3S40	★	33.0	197.0	127.0	103.0					
WDX340D3S40	★	34.0	200.0	130.0	106.0					
WDX350D3S40	★	35.0	203.0	133.0	109.0					
WDX360D3S40	★	36.0	206.0	136.0	112.0					
WDX370D3S40	★	37.0	216.0	146.0	116.0	49.5	40	70	WDXT 125012	
WDX380D3S40	★	38.0	219.0	149.0	119.0					
WDX390D3S40	★	39.0	222.0	152.0	122.0					
WDX400D3S40	★	40.0	225.0	155.0	125.0					
WDX410D3S40	★	41.0	228.0	158.0	128.0					
WDX420D3S40	★	42.0	231.0	161.0	131.0					
WDX430D3S40	★	43.0	234.0	164.0	134.0					
WDX440D3S40	★	44.0	237.0	167.0	137.0					
WDX450D3S40	★	45.0	240.0	170.0	140.0					
WDX460D3S40	★	46.0	243.0	173.0	143.0	49.5	40	70	WDXT 156012	
WDX470D3S40	★	47.0	246.0	176.0	146.0					
WDX480D3S40	★	48.0	249.0	179.0	149.0					
WDX490D3S40	★	49.0	252.0	182.0	152.0					
WDX500D3S40	★	50.0	255.0	185.0	155.0					
WDX510D3S40	★	51.0	258.0	188.0	158.0					6
WDX520D3S40	★	52.0	261.0	191.0	161.0	50.5				
WDX530D3S40	★	53.0	264.0	194.0	164.0	51.5				
WDX540D3S40	★	54.0	267.0	197.0	167.0	52.5				
WDX550D3S40	★	55.0	270.0	200.0	170.0	53.5				
WDX560D3S40	★	56.0	278.0	208.0	176.0	54.0	40	70	WDXT 186012	
WDX570D3S40	★	57.0	281.0	211.0	179.0	55.0				
WDX580D3S40	★	58.0	284.0	214.0	182.0	56.0				
WDX590D3S40	★	59.0	287.0	217.0	185.0	57.0				
WDX600D3S40	★	60.0	290.0	220.0	188.0	58.0				
WDX610D3S40	★	61.0	293.0	223.0	191.0	59.0				
WDX620D3S40	★	62.0	296.0	226.0	194.0	60.0				
WDX630D3S40	★	63.0	299.0	229.0	197.0	61.0				
WDX640D3S40	★	64.0	302.0	232.0	200.0	62.0				
WDX650D3S40	★	65.0	305.0	235.0	203.0	63.0				
WDX660D3S40	★	66.0	308.0	238.0	206.0	64.0				
WDX670D3S40	★	67.0	311.0	241.0	209.0	65.0				
WDX680D3S40	★	68.0	314.0	244.0	212.0	66.0				

★ = Worldwide Warehouse item

WDX Indexable
Coolant Through Drills

Fig. 1

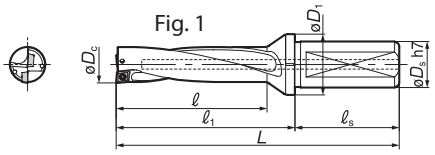


Fig. 2

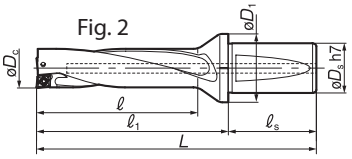
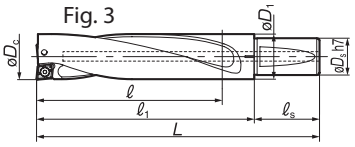


Fig. 3



SumiDrill WDX Bodies - 4XD - *METRIC*

Catalog Number	Stock	øD$_c$	L	ℓ$_1$	ℓ	øD$_1$	øD$_s$	ℓ$_s$	Insert	Fig.
WDX130D4S20	★	13.0	114	70	55	28.0	20	44	WDXT 042004	1
WDX135D4S20	★	13.5	116	72	57					
WDX140D4S20	★	14.0	118	74	59					
WDX145D4S20	★	14.5	120	76	61					
WDX150D4S20	★	15.0	122	78	63					
WDX155D4S20	★	15.5	124	80	65	30.0	20	44	WDXT 052504	
WDX160D4S20	★	16.0	126	82	67					
WDX165D4S20	★	16.5	128	84	69					
WDX170D4S20	★	17.0	130	86	71					
WDX175D4S25	★	17.5	144	88	73	32.0	25	56		
WDX180D4S25	★	18.0	146	90	75					
WDX185D4S25	★	18.5	148	92	77	33.0	25	56	WDXT 063006	
WDX190D4S25	★	19.0	150	94	79					
WDX195D4S25	★	19.5	152	96	81					
WDX200D4S25	★	20.0	154	98	83					
WDX205D4S25	★	20.5	156	100	85					
WDX210D4S25	★	21.0	158	102	87					
WDX215D4S25	★	21.5	160	104	89					
WDX220D4S25	★	22.0	162	106	91					
WDX225D4S25	★	22.5	164	108	93					
WDX230D4S25	★	23.0	169	113	95	37.0	25	56	WDXT 073506	
WDX235D4S25	★	23.5	171	115	97					
WDX240D4S25	★	24.0	173	117	99					
WDX245D4S25	★	24.5	175	119	101					
WDX250D4S25	★	25.0	177	121	103					
WDX255D4S32	★	25.5	185	125	105	41.0	32	60		2
WDX260D4S32	★	26.0	187	127	107					
WDX265D4S32	★	26.5	189	129	109					
WDX270D4S32	★	27.0	191	131	111					
WDX275D4S32	★	27.5	193	133	113					
WDX280D4S32	★	28.0	195	135	115					
WDX285D4S32	★	28.5	197	137	117					
WDX290D4S32	★	29.0	201	141	120	50.0	32	60	WDXT 094008	
WDX295D4S32	★	29.5	203	143	122					
WDX300D4S40	★	30.0	218	148	124	54.0	40	70		
WDX310D4S40	★	31.0	222	152	128					
WDX320D4S40	★	32.0	226	156	132					
WDX330D4S40	★	33.0	230	160	136					
WDX340D4S40	★	34.0	234	164	140					
WDX350D4S40	★	35.0	238	168	144					
WDX360D4S40	★	36.0	242	172	148					
WDX370D4S40	★	37.0	253	183	153	49.5	40	70	WDXT 125012	
WDX380D4S40	★	38.0	257	187	157					
WDX390D4S40	★	39.0	261	191	161					
WDX400D4S40	★	40.0	265	195	165					
WDX410D4S40	★	41.0	269	199	169					
WDX420D4S40	★	42.0	273	203	173					
WDX430D4S40	★	43.0	277	207	177					
WDX440D4S40	★	44.0	281	211	181					
WDX450D4S40	★	45.0	285	215	185					
WDX460D4S40	★	46.0	289	219	189	49.5	40	70	WDXT 156012	
WDX470D4S40	★	47.0	293	223	193					
WDX480D4S40	★	48.0	297	227	197					
WDX490D4S40	★	49.0	301	231	201					
WDX500D4S40	★	50.0	305	235	205					
WDX510D4S40	★	51.0	309	239	209					3
WDX520D4S40	★	52.0	313	243	213	50.5				
WDX530D4S40	★	53.0	317	247	217	51.5				
WDX540D4S40	★	54.0	321	251	221	52.5				
WDX550D4S40	★	55.0	325	255	225	53.5				
WDX560D4S40	★	56.0	334	264	232	54.0	40	70	WDXT 186012	
WDX570D4S40	★	57.0	338	268	236	55.0				
WDX580D4S40	★	58.0	342	272	240	56.0				
WDX590D4S40	★	59.0	346	276	244	57.0				
WDX600D4S40	★	60.0	350	280	248	58.0				
WDX610D4S40	★	61.0	354	284	252	59.0				
WDX620D4S40	★	62.0	358	288	256	60.0				
WDX630D4S40	★	63.0	362	292	260	61.0				

★ = Worldwide Warehouse item

SumiDrill WDX Bodies - 5XD - *METRIC*

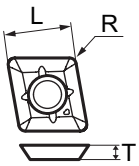
Catalog Number	Stock	øD$_c$	L	ℓ$_1$	ℓ	øD$_1$	øD$_s$	ℓ$_s$	Insert	Fig.	Coolant Sleeve**
WDX 130D5S20	★	13.0	127.0	83.0	68.0	28.0	20.0	44.0	WDXT 042004	1	SLV20M
WDX 135D5S20	★	13.5	129.5	85.5	70.5						
WDX 140D5S20	★	14.0	132.0	88.0	73.0						
WDX 145D5S20	★	14.5	134.5	90.5	75.5						
WDX 150D5S20	★	15.0	137.0	93.0	78.0						
WDX 155D5S20	★	15.5	139.5	95.5	80.5	30.0	20.0	44.0	WDXT 052504		
WDX 160D5S20	★	16.0	142.0	98.0	83.0						
WDX 165D5S20	★	16.5	144.5	100.5	85.5						
WDX 170D5S20	★	17.0	147.0	103.0	88.0						
WDX 175D5S25	★	17.5	161.5	105.5	90.5	32.0	25.0	56.0			SLV25M
WDX 180D5S25	★	18.0	164.0	108.0	93.0						
WDX 185D5S25	★	18.5	166.5	110.5	95.5	33.0	25.0	56.0	WDXT 063006		
WDX 190D5S25	★	19.0	169.0	113.0	98.0						
WDX 195D5S25	★	19.5	171.5	115.5	100.5						
WDX 200D5S25	★	20.0	174.0	118.0	103.0						
WDX 205D5S25	★	20.5	176.5	120.5	105.5						
WDX 210D5S25	★	21.0	179.0	123.0	108.0						
WDX 215D5S25	★	21.5	181.5	125.5	110.5						
WDX 220D5S25	★	22.0	184.0	128.0	113.0						
WDX 225D5S25	★	22.5	186.5	130.5	115.5						
WDX 230D5S25	★	23.0	192.0	136.0	118.0	37.0	25.0	56.0	WDXT 073506		
WDX 235D5S25	★	23.5	194.5	138.5	120.5						
WDX 240D5S25	★	24.0	197.0	141.0	123.0						
WDX 245D5S25	★	24.5	199.5	143.5	125.5						
WDX 250D5S25	★	25.0	202.0	146.0	128.0						
WDX 260D5S32	★	26.0	213.0	153.0	133.0	41.0		60.0		2	SLV32M
WDX 270D5S32	★	27.0	218.0	158.0	138.0						
WDX 280D5S32	★	28.0	223.0	163.0	143.0						
WDX 290D5S32	★	29.0	230.0	170.0	149.0	50.0	32.0	60.0	WDXT 094008		
WDX 300D5S32	★	30.0	238.0	178.0	154.0	54.0					
WDX 310D5S32	★	31.0	243.0	183.0	159.0						
WDX 320D5S32	★	32.0	248.0	188.0	164.0						
WDX 300D5S40	★	30.0	248.0	178.0	154.0		40.0	70.0			SLV40M
WDX 310D5S40	★	31.0	253.0	183.0	159.0						
WDX 320D5S40	★	32.0	258.0	188.0	164.0						
WDX 330D5S40	★	33.0	263.0	193.0	169.0						
WDX 340D5S40	★	34.0	268.0	198.0	174.0						
WDX 350D5S40	★	35.0	273.0	203.0	179.0						
WDX 360D5S40	★	36.0	278.0	208.0	184.0						

★ = Worldwide Warehouse item
***NOTE:** Coolant adapter sleeves for lathes are available upon request.
**** :** Coolant adapter sleeves sold separately
*** 5XD WDX Drills have 2 coolant holes in the back of the drill and no single threaded port

SumiDrill WDX Inserts

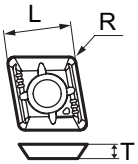
L-Type

Fig. 3



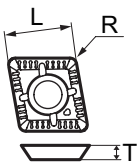
G-Type

Fig. 4



H-Type

Fig. 5



Catalog Number	Stock				Fig.	L	T	R	WDX Body
	ACP100	ACP300	ACK300	DL1500					
WDXT042004-L	●	●	●		3	0.1654	0.0788	0.0157	WDX0562D□ ~ WDX0594D□
WDXT042004-G	●	●	●	●	4				
WDXT042004-H	●	●	●		5				
WDXT052504-L	●	●	●		3	0.1969	0.0984	0.0157	WDX0625D□ ~ WDX0687D□
WDXT052504-G	●	●	●	●	4				
WDXT052504-H	●	●	●		5				
WDXT063006-L	●	●	●		3	0.2362	0.1181	0.0236	WDX0750D□ ~ WDX0875D□
WDXT063006-G	●	●	●	●	4				
WDXT063006-H	●	●	●		5				
WDXT073506-L	●	●	●		3	0.2953	0.1378	0.0236	WDX0937D□ ~ WDX1125D□
WDXT073506-G	●	●	●	●	4				
WDXT073506-H	●	●	●		5				
WDXT094008-L	●	●	●		3	0.3780	0.1575	0.0315	WDX1187D□ ~ WDX1437D□
WDXT094008-G	●	●	●	●	4				
WDXT094008-H	●	●	●		5				
WDXT125012-L	●	●	●		3	0.4882	0.1969	0.0472	WDX1500D□ ~ WDX1750D□
WDXT125012-G	●	●	●	●	4				
WDXT125012-H	●	●	●		5				
WDXT156012-L	●	●	●		3	0.5984	0.2362	0.0472	WDX1813D□ ~ WDX2125D□
WDXT156012-G	●	●	●	●	4				
WDXT156012-H	●	●	●		5				
WDXT186012-L	●	●	●		3	0.7087	0.2362	0.0472	WDX2250D□ ~ WDX2625D□
WDXT186012-G	●	●	●		4				
WDXT186012-H	●	●	●		5				

WDX		Work Material	Hardness HB	Chip Breaker	Insert Grade	Cutting Speed SFM	Feed Rate - IPR (Inches per revolution)			
							ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
2D	P	Low Carbon Steel	<190	G	ACP300	450 - 780	.002 - .006	.003 - .008	.005 - .010	.006 - .012
				L	ACP300	450 - 750	.002 - .004	.002 - .005	.003 - .006	N/A
			190 ~ 250	G	ACP300	400 - 700	.003 - .009	.004 - .010	.005 - .010	.006 - .012
				L	ACP300	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
			250 ~ 300	G	ACP300	350 - 550	.003 - .007	.003 - .008	.004 - .009	.004 - .010
				L	ACP300	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
		Medium Carbon Steel	180 ~ 275	G	ACP300	350 - 700	.002 - .007	.003 - .008	.005 - .010	.006 - .010
				L	ACP300	350 - 650	.002 - .004	.002 - .005	.003 - .006	N/A
			275 ~ 350	G	ACP300	300 - 500	.002 - .006	.003 - .007	.004 - .008	.006 - .009
				L	ACP300	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
		Alloy Steel	200 ~ 350	G	ACP300	350 - 650	.003 - .006	.003 - .008	.006 - .010	.006 - .012
				L	ACP300	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
	M	300 Austenitic Stainless Steel	160	G	ACP300	400 - 650	.003 - .007	.003 - .008	.005 - .010	.006 - .012
			280	G	ACP300	325 - 500	.002 - .006	.003 - .006	.004 - .008	.006 - .010
		400 Martensitic Stainless Steel	160	G	ACP300	400 - 650	.003 - .007	.003 - .008	.004 - .010	.006 - .012
			240	G	ACP300	325 - 600	.002 - .006	.003 - .006	.004 - .008	.006 - .010
	K	Cast Iron		H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .014	.006 - .017
		Ductile Iron		H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .014	.006 - .017
	S	Exotic Alloys	200 ~ 375	G	ACP300	80 - 250	.002 - .005	.003 - .007	.003 - .008	.003 - .010
	N	Aluminum alloy		G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
		Copper Alloy		G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

WDX		Work Material	Hardness HB	Chip Breaker	Insert Grade	Cutting Speed SFM	Feed Rate - IPR (Inches per revolution)			
							ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
3D	P	Low Carbon Steel	<190	G	ACP300	450 - 780	.002 - .006	.003 - .008	.005 - .010	.006 - .012
				L	ACP300	450 - 750	.002 - .004	.002 - .005	.003 - .006	N/A
			190 ~ 250	G	ACP300	400 - 700	.003 - .009	.004 - .010	.005 - .010	.006 - .012
				L	ACP300	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
			250 ~ 350	G	ACP300	350 - 550	.003 - .007	.003 - .008	.004 - .009	.004 - .010
				L	ACP300	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
		Medium Carbon Steel	180 ~ 275	G	ACP300	350 - 700	.002 - .007	.003 - .008	.005 - .010	.006 - .010
				L	ACP300	350 - 650	.002 - .004	.002 - .005	.003 - .006	N/A
			275 ~ 350	G	ACP300	300 - 500	.002 - .006	.003 - .007	.004 - .008	.006 - .009
				L	ACP300	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
		Alloy Steel	200 ~ 350	G	ACP300	350 - 650	.003 - .006	.003 - .008	.006 - .010	.006 - .012
				L	ACP300	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
	M	300 Austenitic Stainless Steel	160	G	ACP300	400 - 650	.003 - .007	.003 - .008	.005 - .010	.006 - .012
			280	G	ACP300	325 - 500	.002 - .006	.003 - .006	.004 - .008	.006 - .010
		400 Martensitic Stainless Steel	160	G		400 - 650	.003 - .007	.003 - .008	.004 - .010	.006 - .012
			240	G	ACP300	325 - 600	.002 - .006	.003 - .006	.004 - .008	.006 - .010
	K	Cast Iron		H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .014	.006 - .017
		Ductile Iron		H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .014	.006 - .017
	S	Exotic Alloys	200 ~ 375	G	ACP300	80 - 250	.002 - .005	.003 - .007	.003 - .008	.003 - .010
	N	Aluminum alloy		G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
		Copper Alloy		G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

WDX		Work Material	Hardness HB	Chip Breaker	Insert Grade	Cutting Speed SFM	Feed Rate - IPR (Inches per revolution)			
							ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
4D	P	Low Carbon Steel	<190	G	ACP300	450 - 780	.002 - .004	.003 - .006	.004 - .007	.004 - .008
				L	ACP300	450 - 750	.002 - .004	.002 - .004	.003 - .005	N/A
			190 ~ 250	G	ACP300	400 - 700	.003 - .006	.003 - .007	.005 - .008	.004 - .009
				L	ACP300	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
			250 ~ 350	G	ACP300	350 - 550	.003 - .006	.003 - .007	.003 - .007	.004 - .008
				L	ACP300	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
		Medium Carbon Steel	180 ~ 275	G	ACP300	350 - 700	.003 - .006	.003 - .008	.004 - .008	.006 - .010
				L	ACP300	350 - 650	.002 - .004	.002 - .005	.003 - .005	N/A
			275 ~ 350	G	ACP300	300 - 500	.003 - .005	.003 - .007	.004 - .008	.005 - .009
				L	ACP300	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
		Alloy Steel	200 ~ 350	G	ACP300	350 - 650	.003 - .006	.003 - .008	.004 - .008	.006 - .010
				L	ACP300	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
	M	300 Austenitic Stainless Steel	160	G	ACP300	400 - 650	.003 - .006	.003 - .007	.005 - .008	.005 - .009
			280	G	ACP300	325 - 500	.002 - .005	.003 - .005	.004 - .006	.004 - .008
		400 Martensitic Stainless Steel	160	G	ACP300	400 - 650	.003 - .006	.003 - .007	.004 - .008	.006 - .010
			240	G	ACP300	325 - 600	.002 - .005	.003 - .005	.004 - .006	.005 - .008
	K	Cast Iron		H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .012	.006 - .014
		Ductile Iron		H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .012	.006 - .014
	S	Exotic Alloys	200 ~ 375	G	ACP300	80 - 250	.002 - .004	.002 - .005	.003 - .006	.004 - .007
	N	Aluminum alloy		G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
		Copper Alloy		G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

WDX		Work Material	Hardness HB	Chip Breaker	Insert Grade	Cutting Speed SFM	Feed Rate - IPR (Inches per revolution)			
							ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
5D	P	Low Carbon Steel	<190	G	ACP300	450 - 780	.002 - .004	.003 - .006	.004 - .007	
				L	ACP300	450 - 750	.002 - .004	.002 - .005	.002 - .005	
			190 ~ 250	G	ACP300	400 - 700	.003 - .006	.003 - .007	.005 - .008	
				L	ACP300	400 - 700	.002 - .004	.002 - .005	.002 - .005	
			250 ~ 350	G	ACP300	350 - 550	.003 - .006	.003 - .007	.003 - .007	
				L	ACP300	350 - 525	.002 - .004	.002 - .004	.002 - .005	
		Medium Carbon Steel	180 ~ 275	G	ACP300	350 - 700	.003 - .006	.003 - .008	.004 - .008	
				L	ACP300	350 - 650	.002 - .004	.002 - .005	.002 - .005	
			275 ~ 350	G	ACP300	300 - 500	.003 - .005	.003 - .007	.004 - .008	
				L	ACP300	300 - 500	.002 - .003	.002 - .004	.002 - .005	
		Alloy Steel	200 ~ 350	G	ACP300	350 - 650	.003 - .006	.003 - .008	.004 - .008	
				L	ACP300	300 - 450	.002 - .004	.003 - .005	.003- .006	
	M	300 Austenitic Stainless Steel	160	G	ACP300	400 - 650	.002 - .004	.003 - .006	.003 - .007	
			280	G	ACP300	325 - 500	.001 - .003	.003 - .005	.003 - .006	
		400 Martensitic Stainless Steel	160	G	ACP300	400 - 650	.002 - .004	.003 - .006	.003 - .007	
			240	G	ACP300	325 - 600	.001 - .003	.003 - .005	.003 - .006	
	K	Cast Iron		H	ACK300	400 - 650	.004 - .008	.004 - .010	.005 - .011	
		Ductile Iron		H	ACK300	300 - 500	.004 - .008	.004 - .010	.005 - .011	
	S	Exotic Alloys	200 ~ 375	G	ACP300	80 - 250	.002 - .004	.003 - .006	.003 - .007	
	N	Aluminum alloy		G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	
		Copper Alloy		G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	

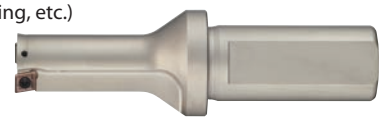
PDL / PCT Type

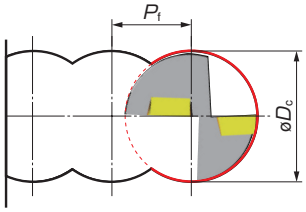
Features & Benefits

- The tool cuts in the Z axis direction where tool rigidity is highest, allowing high efficiency roughing for aeronautic components and in applications with long tool overhang must be used to machine deep holes and pockets.
- The flat cutting edge design produces near-flat bottom profiles to reduce depth of cut variation during finishing.
- All sizes come with an air hole for supplying coolant internally to improve chip evacuation.
- The tools use SumiDrill WDX type inserts for handling a wide range of work materials, from steel to non-ferrous metals and exotic alloys.

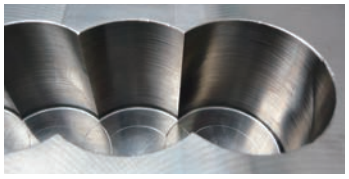
Characteristics

- The PDL type has a central insert making it possible to make radial cuts beyond the tool's radius, pitch feed cutting, and drilling. (Pocket milling, etc.)

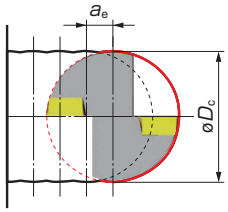


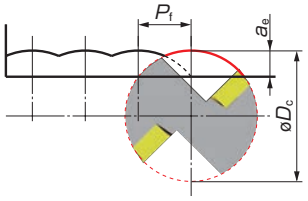


Keep the value of Pf for PDL type tools to less than 70% of the tool diameter (øDc).

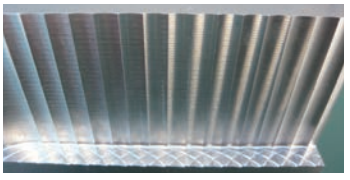


- Although the PCT type has limited radial cutting ability, the tool has many effective teeth enabling it to perform high feed cutting. (Medium finishing of corners, hole expansion, deep grooving, etc.)



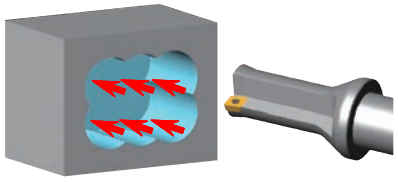


Keep the value of Pf for PCT type tools to less than 50% of the tool diameter (øDc). For a_e, refer to the dimension under "a_e max" in the stock/dimensions tables titled "Holders Max. Depth: 3D/5D".



Application Examples

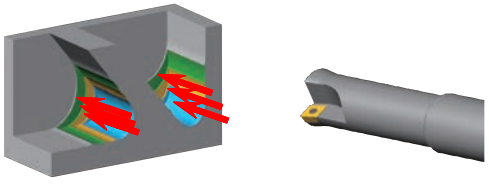
Pocketing PDL Work Material: Ti Alloy



Tool: PDL400D2S40 (ø40)
Insert: WDXT125012-G
Grade: ACK300

Cutting Speed: v_c=130 sfm
Feed Rate: f=0.003 ipr
Depth of Cut: $a_e(p_f)$= 1 in.

Corner Finishing PCT Work Piece: Ti Alloy

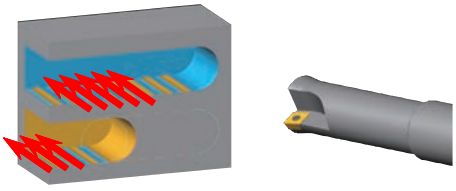


Tool:
PCT320D3S32 (ø32)
PCT250D3S25 (ø25)
PCT200D3S20 (ø20)
Grade: ACK300

Insert:
WDXT094008-G
WDXT073506-G
WDXT063006-G

Cutting Speed: v_c=165 sfm
Feed Rate: f_z=0.0031 ipt
Depth of Cut: a_e=0.13 to 0.26 in.

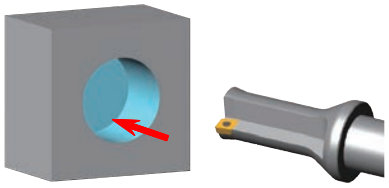
Grooving PCT Work Piece: Ti Alloy



Tool: PCT320D5S32 (ø32)
Insert: WDXT094008-G
Grade: ACK300

Cutting Speed: v_c=130 sfm
Feed Rate: f_z=0.0027ipt
Depth of Cut: $a_e(p_f)$= 0.20 in.

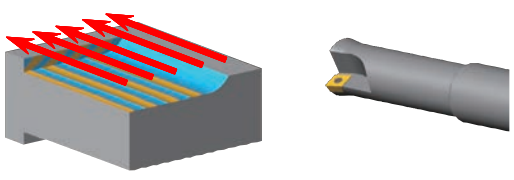
Drilling PDL Work Material: SUS316



Tool: PDL200D3S25 (ø20)
Insert: WDXT063006-G
Grade: ACP300

Cutting Speed: v_c=600 sfm
Feed Rate: f =0.004 ipr
Depth of Cut: a_e= 0.80 in.

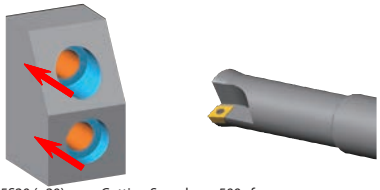
Aeronautic Components PCT Work Piece: SUS304



Tool: PCT320D3S32 (ø32)
Insert: WDXT094008-G
Grade: ACP300

Cutting Speed: v_c= 600 sfm
Feed Rate: f_z=0.006 ipt
Depth of Cut: a_e= 0.28 in.
p_f= 0.2 in.

Machine Components PCT Work Piece: SCM435



Tool: PCT200D5S20 (ø20)
Insert: WDXT063006-G
Grade: ACK300

Cutting Speed: v_c= 500 sfm
Feed Rate: f_z=0.006 ipt
Depth of Cut: a_e= 0.14 in.

2XD, 3XD, 4XD & 5XD-*METRIC*

PDL / PCT Type

Carbon Steel, Alloy Steel Up to 0.28%	Carbon Steel, Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless Steel	Ti-Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper Alloy	Composite CFRP
◎	◎		○		○	◎		◎	◎	◎	○	

2D 3D

W/ oil hole Indexable

PVD Coat Aurora DLC Coat

Fig 1

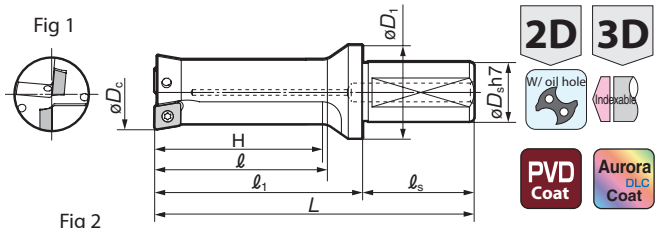
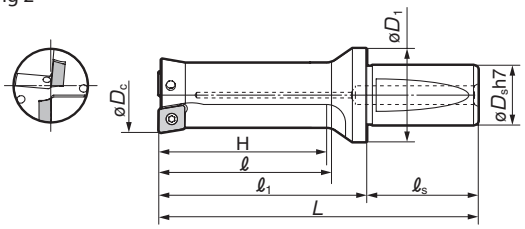


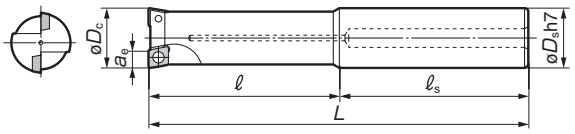
Fig 2



Carbon Steel, Alloy Steel Up to 0.28%	Carbon Steel, Alloy Steel From 0.29%	Tempered Steel	Hardened Steel Up to 45HRC	Hardened Steel From 46HRC	Stainless Steel	Ti-Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper Alloy	Composite CFRP
◎	◎		○		○	◎		◎	◎	◎	○	

PVD Coat Aurora DLC Coat W/ oil hole Indexable 3D 5D

Fig 3



PDL Metric 2XD

Cat. No.	Stock	Dimensions (mm) øDc	L	ℓ1	ℓ	øD1	øDs	ℓs	H	Applicable Insert	Fig.
PDL 160D2S20	★	**16.0**	94	50	35	28	20	44	**32**	WDXT052504	
200D2S25	★	**20.0**	114	58	43	33	25	56	**40**	WDXT063006	1
250D2S25	★	**25.0**	127	71	53	37	25	56	**50**	WDXT073506	
PDL 320D2S40	★	**32.0**	162	92	68	54	40	70	**64**	WDXT094008	2
400D2S40	★	**40.0**	185	115	85	54	40	70	**80**	WDXT125012	

PDL Metric 3XD

Cat. No.	Stock	Dimensions (mm) øDc	L	ℓ1	ℓ	øD1	øDs	ℓs	H	Applicable Insert	Fig.
PDL 160D3S20	★	16.0	110	66	51	28	20	44	48	WDXT052504	
200D3S25	★	20.0	134	78	63	33	25	56	60	WDXT063006	1
250D3S25	★	25.0	152	96	78	37	25	56	75	WDXT073506	
PDL 320D3S40	★	32.0	194	124	100	54	40	70	96	WDXT094008	2
400D3S40	★	40.0	225	155	125	54	40	70	120	WDXT125012	

PCT Metric 3XD

Cat. No.	Stock	Dimensions (mm) øDc	ae max	L	ℓ	ℓs	øDs	No.of flutes	Applicable Insert	Fig.
PCT 160D3S16	★	16.0	4.0	123	53	70	16	2	WDXT052504	
200D3S20	★	20.0	5.0	145	65	80	20	2	WDXT063006	
250D3S25	★	25.0	6.5	160	80	80	25	2	WDXT073506	3
320D3S32	★	32.0	8.5	191	101	90	32	2	WDXT094008	
400D3S42	★	40.0	11.0	225	125	100	42	3	WDXT125012	

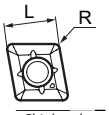
PCT Metric 5XD

Cat. No.	Stock	Dimensions (mm) øDc	ae max	L	ℓ	ℓs	øDs	No.of flutes	Applicable Insert	Fig.
PCT 160D5S16	★	16.0	4.0	155	85	70	16	2	WDXT052504	
200D5S20	★	20.0	5.0	185	105	80	20	2	WDXT063006	
250D5S25	★	25.0	6.5	210	130	80	25	2	WDXT073506	3
320D5S32	★	32.0	8.5	255	165	90	32	2	WDXT094008	
400D5S42	★	40.0	11.0	305	205	100	42	3	WDXT125012	

Parts

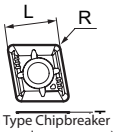
Screw	Spanner	Spanner	Recommended Tightening Torque (N·m)	Applicable Holders
BFTX0204N	TRX06	–	**0.5**	PDL160D2S20 PDL160D3S20 PCT160D3S16 PCT160D5S16
BFTY02206	–	TRD07	**1.0**	PDL200D2S25 PDL200D3S25 PCT200D3S20 PCT200D5S20
BFTX02506N	–	TRD08	**1.5**	PDL250D2S25 PDL250D3S25 PCT250D3S25 PCT250D5S25
BFTX03584	–	TRD15	**3.5**	PDL320D2S40 PDL320D3S40 PCT320D3S32 PCT320D5S32
BFTX0511N	–	TRD20	**5.0**	PDL400D2S40 PDL400D3S40 PCT400D3S42 PCT400D5S42

Fig 4



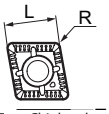
L Type Chipbreaker
(Low feed, chip management type)

Fig 5



G Type Chipbreaker
(General purpose type)

Fig 6



H Type Chipbreaker
(Strong edge type)

Application	Grade	ACP100	ACP300	ACK300	DL1500
	Cutting Conditions				
	High Speed/Light				N
	General Purpose	M	M		
	Roughing	PM	PM	K	

Cat. No.	ACP100	ACP300	ACK300	DL1500	Fig.	Dimensions (mm) ℓ	Thickness	r_ε	Applicable Holders
WDXT 052504-L	●	●	●		4				PDL160D2S20 PDL160D3S20 PCT160D3S16 PCT160D5S16
052504-G	●	●	●	●	5	5.0	2.5	0.4	
052504-H	●	●	●		6				
WDXT 063006-L	●	●	●		4				PDL200D2S25 PDL200D3S25 PCT200D3S20 PCT200D5S20
063006-G	●	●	●	●	5	6.0	3.0	0.6	
063006-H	●	●	●		6				
WDXT 073506-L	●	●	●		4				PDL250D2S25 PDL250D3S25 PCT250D3S25 PCT250D5S25
073506-G	●	●	●	●	5	7.5	3.5	0.6	
073506-H	●	●	●		6				
WDXT 094008-L	●	●	●		4				PDL320D2S40 PDL320D3S40 PCT320D3S32 PCT320D5S32
094008-G	●	●	●	●	5	9.6	4.0	0.8	
094008-H	●	●	●		6				
WDXT 125012-L	●	●	●		4				PDL400D2S40 PDL400D3S40 PCT400D3S42 PCT400D5S42
125012-G	●	●	●	●	5	12.4	5.0	1.2	
125012-H	●	●	●		6				

PDL / PCT Type

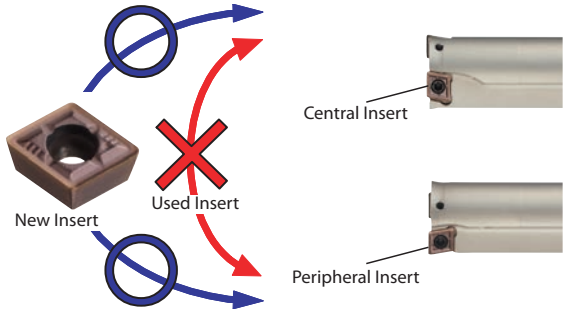
Recommended Cutting Conditions PDL 2XD

	Work Piece		Hardness HB	Recommended Breaker	Recommended Insert Grade	v_c Cutting Speed (sfm)	*f* Feed Rate (ipt) <Min.-Max.> ø0.625"	ø0.75",ø1.000"	ø1.250"	ø1.500"
P	Steel, Carbon Steel	A283 and similar Structural Steels	125	G	ACP300	390-790	0.002-0.004	0.002-0.004	0.002-0.004	0.002-0.005
		1015 Steel	125	L	ACP300	430-720	0.002-0.005	0.002-0.005	0.002-0.005	0.002-0.006
		1045 Steel	190	G	ACP300	330-660	0.003-0.009	0.003-0.009	0.003-0.010	0.004-0.011
		1045 Steel (Hardened)	250	G	ACP300	260-520	0.002-0.007	0.002-0.007	0.002-0.007	0.003-0.009
		1075 Steel	270	G	ACP300	330-520	0.003-0.008	0.003-0.008	0.003-0.009	0.004-0.010
		1075C Steel (Hardened)	300	G	ACP300	230-460	0.002-0.006	0.002-0.004	0.002-0.007	0.003-0.008
	Low Alloy Steel	4100, 4300 and 8600 Steels	180	L	ACP300	330-590	0.002-0.005	0.002-0.006	0.002-0.006	0.002-0.007
		4100, 4300 and 8600 Steels (Hardened)	275	G	ACP300	260-520	0.002-0.006	0.002-0.004	0.002-0.007	0.003-0.008
		4100, 4300 and 8600 Steels (Hardened)	300	G	ACP300	250-460	0.002-0.006	0.002-0.004	0.002-0.007	0.003-0.008
		4100, 4300 and 8600 Steels (Hardened)	350	G	ACP300	200-360	0.002-0.006	0.002-0.004	0.002-0.007	0.003-0.008
	High Alloy Steel	A2, D2 and other Tool and Die Steels	200	G	ACP300	330-520	0.003-0.009	0.003-0.009	0.003-0.010	0.004-0.011
		A2, D2 and other Tool and Die Steels (Hardened)	325	G	ACP300	260-390	0.002-0.007	0.002-0.007	0.002-0.007	0.003-0.009
M	Stainless Steel	403 and other Martensitic and Ferritic Stainlesses	200	G	ACP300	330-590	0.002-0.007	0.002-0.007	0.002-0.007	0.003-0.009
		403 and other Martensitic Stainlesses (Hardened)	240	G	ACP300	300-490	0.002-0.007	0.002-0.007	0.002-0.007	0.003-0.009
		304, 316 and other Austenitic Stainlesses	180	G	ACP300	330-590	0.002-0.007	0.002-0.007	0.002-0.007	0.003-0.009
K	Cast Iron			H	ACK300	390-660	0.004-0.013	0.004-0.014	0.004-0.016	0.005-0.017
	Ductile Cast Iron			H	ACK300	300-490	0.004-0.013	0.004-0.014	0.004-0.016	0.005-0.017
S	Exotic Alloys (Heat Resistant Alloy, Super Alloy, Ti Alloy, etc.)		200	G	ACP300	80-230	0.002-0.007	0.002-0.007	0.002-0.019	0.003-0.009
N	Aluminium Alloy			G	DL1500	660-1050	0.002-0.006	0.002-0.004	0.002-0.007	0.003-0.008
	Copper Alloy			G	DL1500	590-920	0.002-0.006	0.002-0.004	0.002-0.007	0.003-0.008

Recommended Cutting Conditions PDL 3XD

	Work Piece		Hardness HB	Recommended Breaker	Recommended Insert Grade	v_c Cutting Speed (sfm)	*f* Feed Rate (ipt) <Min.-Max.> ø0.625"	ø0.75",ø1.000"	ø1.250"	ø1.500"
P	Steel, Carbon Steel	A283 and similar Structural Steels	125	G	ACP300	390-790	0.002-0.004	0.002-0.004	0.002-0.004	0.002-0.005
		1015 Steel	125	L	ACP300	430-720	0.002-0.004	0.002-0.004	0.002-0.004	0.002-0.005
		1045 Steel	190	G	ACP300	330-660	0.003-0.008	0.003-0.008	0.003-0.009	0.004-0.009
		1045 Steel (Hardened)	250	G	ACP300	260-520	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		1075 Steel	270	G	ACP300	330-520	0.003-0.007	0.003-0.007	0.003-0.008	0.004-0.009
		1075C Steel (Hardened)	300	G	ACP300	230-460	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
	Low Alloy Steel	4100, 4300 and 8600 Steels	180	L	ACP300	330-590	0.002-0.005	0.002-0.005	0.002-0.005	0.002-0.006
		4100, 4300 and 8600 Steels (Hardened)	275	G	ACP300	260-520	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		4100, 4300 and 8600 Steels (Hardened)	300	G	ACP300	250-460	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		4100, 4300 and 8600 Steels (Hardened)	350	G	ACP300	200-360	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
	High Alloy Steel	A2, D2 and other Tool and Die Steels	200	G	ACP300	330-520	0.003-0.008	0.003-0.008	0.003-0.009	0.004-0.009
		A2, D2 and other Tool and Die Steels (Hardened)	325	G	ACP300	260-390	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
M	Stainless Steel	403 and other Martensitic and Ferritic Stainlesses	200	G	ACP300	330-590	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		403 and other Martensitic Stainlesses (Hardened)	240	G	ACP300	300-490	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		304, 316 and other Austenitic Stainlesses	180	G	ACP300	330-590	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
K	Cast Iron			H	ACK300	390-660	0.004-0.010	0.002-0.011	0.004-0.013	0.005-0.014
	Ductile Cast Iron			H	ACK300	300-490	0.004-0.010	0.002-0.011	0.004-0.013	0.005-0.014
S	Exotic Alloys (Heat Resistant Alloy, Super Alloy, Ti Alloy, etc.)		200	G	ACP300	80-230	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
N	Aluminium Alloy			G	DL1500	660-1050	0.002-0.007	0.002-0.007	0.002-0.007	0.003-0.008
	Copper Alloy			G	DL1500	590-920	0.002-0.007	0.002-0.007	0.002-0.007	0.003-0.008

Notes About Mounting Inserts (PDL type)



PDL type: Inserts can be used on either the centre or the outside.
Inserts used on the outside cannot be used in the center. Similarly, inserts used in the center cannot be used on the outside.
PCT type: 2 corners can be used only for the outer inserts.

Identification Information

PCT, PDL Type Identification

PCT 250 D3 S25

- PCT: Tool Diameter (ø25.0)
- 250: Max Depth L/D (3D)
- D3: Shank Size (ø25.0)

PCT, PDL Type Insert Identification

WDXT 07 35 06 -G

- WDXT: Width Across Flats (7.5)
- 07 35: Thickness x 10 (3.5)
- 06: Corner Radius x 10 (R0.6)
- -G: Breaker Type

2XD, 3XD, 4XD & 5XD-*INCH*
PDL / PCT Type

Recommended Cutting Conditions PDL 4XD

	Work Piece		Hardness HB	Recommended Breaker	Recommended Insert Grade	v_c Cutting Speed (sfm)	*f* Feed Rate (ipt) <Min.-Max.> ø0.625"	ø0.75",ø1.000"	ø1.250"	ø1.500"
P	Steel, Carbon Steel	A283 and similar Structural Steels	125	G	ACP300	390-790	0.002-0.004	0.002-0.004	0.002-0.004	0.002-0.005
		1015 Steel	125	L	ACP300	430-720	0.002-0.004	0.002-0.004	0.002-0.004	0.002-0.005
		1045 Steel	190	G	ACP300	330-660	0.003-0.008	0.003-0.008	0.003-0.009	0.004-0.009
		1045 Steel (Hardened)	250	G	ACP300	260-520	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		1075 Steel	270	G	ACP300	330-520	0.003-0.007	0.003-0.007	0.003-0.008	0.004-0.009
		1075C Steel (Hardened)	300	G	ACP300	230-460	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
	Low Alloy Steel	4100, 4300 and 8600 Steels	180	L	ACP300	330-590	0.002-0.005	0.002-0.005	0.002-0.005	0.002-0.006
		4100, 4300 and 8600 Steels (Hardened)	275	G	ACP300	260-520	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		4100, 4300 and 8600 Steels (Hardened)	300	G	ACP300	250-460	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		4100, 4300 and 8600 Steels (Hardened)	350	G	ACP300	200-360	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
	High Alloy Steel	A2, D2 and other Tool and Die Steels	200	G	ACP300	330-520	0.003-0.008	0.003-0.008	0.003-0.009	0.004-0.009
		A2, D2 and other Tool and Die Steels (Hardened)	325	G	ACP300	260-390	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
M	Stainless Steel	403 and other Martensitic and Ferritic Stainlesses	200	G	ACP300	330-590	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		403 and other Martensitic Stainlesses (Hardened)	240	G	ACP300	300-490	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
		304, 316 and other Austenitic Stainlesses	180	G	ACP300	330-590	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
K	Cast Iron			H	ACK300	390-660	0.004-0.010	0.002-0.011	0.004-0.013	0.005-0.014
	Ductile Cast Iron			H	ACK300	300-490	0.004-0.010	0.002-0.011	0.004-0.013	0.005-0.014
S	Exotic Alloys (Heat Resistant Alloy, Super Alloy, Ti Alloy, etc.)		200	G	ACP300	80-230	0.002-0.006	0.002-0.006	0.002-0.006	0.003-0.007
N	Aluminium Alloy			G	DL1500	660-1050	0.002-0.007	0.002-0.007	0.002-0.007	0.003-0.008
	Copper Alloy			G	DL1500	590-920	0.002-0.007	0.002-0.007	0.002-0.007	0.003-0.008

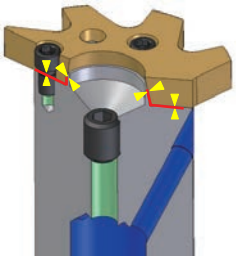
Recommended Cutting Conditions PDL 5XD

	Work Piece		Hardness HB	Recommended Breaker	Recommended Insert Grade	v_c Cutting Speed (sfm)	*f* Feed Rate (ipt) <Min.-Max.> ø0.625"	ø0.75",ø1.000"	ø1.250"	ø1.500"
P	Steel, Carbon Steel	A283 and similar Structural Steels	125	G	ACP300	390-790	0.002-0.004	0.002-0.004	0.002-0.004	0.002-0.004
		1015 Steel	125	L	ACP300	430-720	0.002-0.003	0.002-0.003	0.002-0.003	0.002-0.004
		1045 Steel	190	G	ACP300	330-660	0.003-0.006	0.003-0.006	0.003-0.007	0.004-0.007
		1045 Steel (Hardened)	250	G	ACP300	260-520	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.006
		1075 Steel	270	G	ACP300	330-520	0.003-0.006	0.003-0.006	0.003-0.006	0.004-0.007
		1075C Steel (Hardened)	300	G	ACP300	230-460	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.005
	Low Alloy Steel	4100, 4300 and 8600 Steels	180	L	ACP300	330-590	0.002-0.004	0.002-0.004	0.002-0.004	0.002-0.004
		4100, 4300 and 8600 Steels (Hardened)	275	G	ACP300	260-520	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.005
		4100, 4300 and 8600 Steels (Hardened)	300	G	ACP300	250-460	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.005
		4100, 4300 and 8600 Steels (Hardened)	350	G	ACP300	200-360	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.005
	High Alloy Steel	A2, D2 and other Tool and Die Steels	200	G	ACP300	330-520	0.003-0.006	0.003-0.006	0.003-0.007	0.004-0.007
		A2, D2 and other Tool and Die Steels (Hardened)	325	G	ACP300	260-390	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.006
M	Stainless Steel	403 and other Martensitic and Ferritic Stainlesses	200	G	ACP300	330-590	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.006
		403 and other Martensitic Stainlesses (Hardened)	240	G	ACP300	300-490	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.006
		304, 316 and other Austenitic Stainlesses	180	G	ACP300	330-590	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.006
K	Cast Iron			H	ACK300	390-660	0.003-0.008	0.004-0.009	0.004-0.010	0.004-0.011
	Ductile Cast Iron			H	ACK300	300-490	0.003-0.008	0.004-0.009	0.004-0.010	0.004-0.011
S	Exotic Alloys (Heat Resistant Alloy, Super Alloy, Ti Alloy, etc.)		200	G	ACP300	80-230	0.002-0.004	0.002-0.004	0.002-0.005	0.002-0.006
N	Aluminium Alloy			G	DL1500	660-1050	0.002-0.006	0.002-0.006	0.002-0.006	0.002-0.007
	Copper Alloy			G	DL1500	590-920	0.002-0.006	0.002-0.006	0.002-0.006	0.002-0.007

- Characteristics
  - Achieves efficiency through high speed, high feeding ability!! (v_C=50 to 200m/min, f =0.4 to 1.0mm/rev)

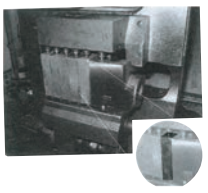
  · Compatibility with a wide range of cutting conditions allows less strict cutting conditions and coolant control
  · Minimal cut edge length design eliminates biting and tearing for improved quality and reliability
  Indexable cut edge design improves reliability of quality and life
  · Cut edge diameters available from ø11.9 to ø140.6 mm

- Easy insert replacement
- Flexible tool overhang lengths possible by combining the modular holder/arbor and holder with correction mechanism
- Can be used as a self-guiding tool with special guide pad holder



Positioning based on HSK taper has two points of contact with radial runout accuracy < 4 µm and face contact guarantees excellent power transmission

■ Application Examples

Tool Type					
Work	 Connection rod	 Engine case	 Universal joint yoke	 Crank case, bearing stage	 Bearing case
Work Material	S50C or equivalent (260 to 310HB)	FC200 (190HB)	CK45 S50C or equivalent	AlMgSi17/ FC200	FCD400
Bore ø (mm)	ø17.017	ø25.159	ø24 F7	ø65 H6	ø32.984
Surface Roughness max Ra/Rz	16	7	10	16	10
No. of Teeth	6	8	8	12	8
Lap Speed v_c (m/min)	250	23	127	120	320
Spindle Speed (min^{-1})	4,683	293	1,685	588	3,100
Feed Rate f_z (mm/t)	0.14	0.085	0.16	0.15	0.20
Feed Rate v_f (mm/min)	3,934	199	2,164	1,058	4,941
Depth of Cut a_p (mm/radius)	0.225	0.15	0.15	0.15	0.15
Wet/ Dry	Emulsion Type	Dry	Emulsion Type	Emulsion Type	MQL
Life, etc	1.25 efficiency	13,000 holes	7,500 pcs	160 pcs	90 Set

SUMIREAMER
SR Series

■SumiReamer SR Type Configurations

① Insert → Toolholder → Arbor

Insert
- SRG Type (For Stop/Through Boring)
- SRL Type (For Through Boring)

Diameter：φ11.900 to φ140.600mm

Toolholder
- SRD Type (For Through Boring)
- SRB Type (For Stop Boring)

Applicable Diameter Range：φ11.900 to φ35.600mm
Shank Length：100 to 274mm

Arbor (Insert Run-Out Adjustment Mechanism)
- BT/A Type — Taper Size：40 to 50
- HSK Type — Taper Size：50 to 100

② Head → Shank → Arbor

Head
- SRKG Type (For Through Boring)
- SRKB Type (For Stop Boring)

Applicable Diameter Range：φ35.601 to φ140.600mm
Head Length：30 to 60mm

Shank (Insert Run-Out Adjustment Mechanism)
- SRA Type
  - ZS(Cylindrical Shank) Type : ZS-20/25/32/40
  - WD(Weldon Shank) Type : WD-20/25/32/40
  - WN(Whistle Notch Shank) Type : WN-20/25/32/40

Applicable Diameter Range：φ35.601 to φ140.600mm
Shank Length：80 to 160mm

Arbor
- BT/A Type — Taper Size：40 to 50
- HSK Type — Taper Size：50 to 100

③ Head → Shank → Arbor → Extensions

Head
- SRKG Type (For Through Boring)
- SRKB Type (For Stop Boring)

Applicable Diameter Range：φ35.601 to φ140.600mm
Head Length：30 to 60mm

Shank (Insert Run-Out Adjustment Mechanism)
- SRA Type
  - BM(Beta Module Shank) Type : BM-32/40/50/63

Applicable Diameter Range：φ35.601 to φ140.600mm
Shank Length：80 to 160mm

⚠ Check Sizes
When using a BM (Beta Module) type shank, choose a matching standard size.

Arbor
- BT/A Type — Taper Size：40 to 50
- HSK Type — Taper Size：50 to 100

Extensions
- B12 Type — Shank Length：40 to 75mm
- B13 Type — Shank Length：35 to 180mm

Multiple extensions can be connected together
When connecting multiple extensions, it is recommended to consider rigidity and use longer shank sizes so that the total number of extensions is as low as possible.

Sumi Reamer SR Type Insert : SRG Type

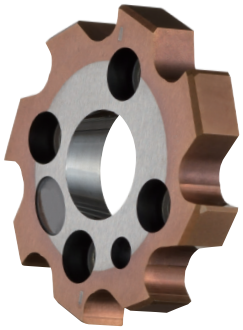
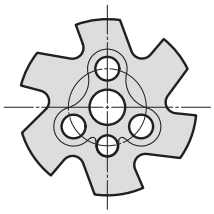


Fig 1



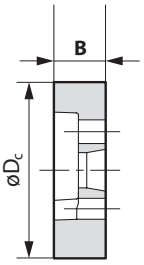
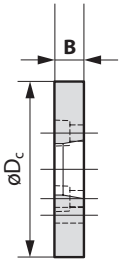
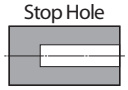
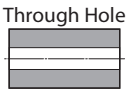


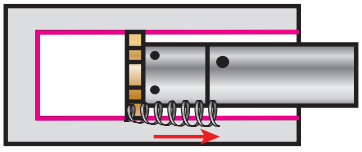
Fig 2





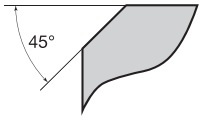


Conceptual Image of Chip Evacuation



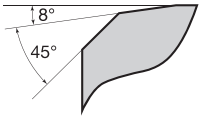
Chips Evacuated Toward Front

A01 Type



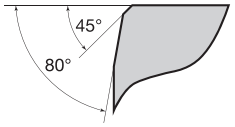
Standard Type

C01 Type



Emphasis on Surface Roughness

S02 Type



Emphasis on Direct Line

SR Type Inserts

■ Japan Stock Items (SRG Type)

Cat. No.	Stock	★iameter ø★c	Tolerance	Thickness B	No. of Teeth
SRG 12.0H7-A01-F0512R1	★	ø12	H7	4.3	6
SRG 13.0H7-A01-F0512R1	★	ø13	H7	4.3	6
SRG 14.0H7-A01-F0512R1	★	ø14	H7	4.3	6
SRG 15.0H7-A01-F0512R1	★	ø15	H7	4.3	6
SRG 16.0H7-A01-F0512R1	★	ø16	H7	4.3	6
SRG 17.0H7-A01-F0512R1	★	ø17	H7	4.3	6
SRG 18.0H7-A01-F0512R1	★	ø18	H7	4.3	6
SRG 19.0H7-A01-F0512R1	★	ø19	H7	4.3	6
SRG 20.0H7-A01-F0512R1	★	ø20	H7	4.3	6
SRG 21.0H7-A01-F0512R1	★	ø21	H7	4.3	6
SRG 22.0H7-A01-F0512R1	★	ø22	H7	4.3	6
SRG 23.0H7-A01-F0512R1	★	ø23	H7	4.3	6
SRG 24.0H7-A01-F0512R1	★	ø24	H7	4.3	8
SRG 25.0H7-A01-F0512R1	★	ø25	H7	4.3	8
SRG 26.0H7-A01-F0512R1	★	ø26	H7	4.3	8
SRG 27.0H7-A01-F0512R1	★	ø27	H7	4.3	8
SRG 28.0H7-A01-F0512R1	★	ø28	H7	4.3	8
SRG 29.0H7-A01-F0512R1	★	ø29	H7	4.3	8
SRG 30.0H7-A01-F0512R1	★	ø30	H7	4.3	8

■ Order Items (Made-to-order)

Diameter Range øD_c	Thickness B	No. of Teeth z	Order Number
ø11.900 to ø15.600	4.3	6	
ø15.601 to ø18.600	4.3	6	
ø18.601 to ø23.600	4.3	6	
ø23.601 to ø28.600	4.3	8	SRG… (See below)
ø28.601 to ø35.600	4.3	8	
ø35.601 to ø43.600	4.3	8	or
ø43.601 to ø51.600	4.3	10	
ø51.601 to ø60.600	4.3	10	SRL… (See below)
ø60.601 to ø80.600	4.3	12	
ø80.601 to ø106.600	4.3	12	
ø106.601 to ø120.600	5.3	12	
ø120.601 to ø140.600	5.3	12	

SRG (Special) and SRL (Special) are made-to-order items.

■ SR Type Reamer Insert Identification

Specifying Inserts Using Work Hole Diameter Tolerance
The actual desired reamer diameter will be on the upper limit side of the median work tolerance, and will differ depending on diameter/tolerance range/grade. Please contact us for details.

SR G 18.2 +20 -10 -A01 M1-F05 12R 1
1 2 3 4 5 6 7 8 9

1. SR Type
2. G = Straight, L = Lefthand helix
3. Work Hole Diameter(mm)
4. Tolerance (µm) +/- or standard (ex. H7)
5. Approach Angle Code
6. Nano Finishing
7. Grade Symbol
8. Coating Code
9. Coating Thickness Code: 1 = Thin, 2 = Thick

Specifying Inserts Using Desired Reamer Diameter
By adding a "Q" after the diameter, it is possible to specify exact desired reamer dimensions. Uncoated types are available within ±2µ, thin-layer coated types within ±3µ, and thick-layer coated types within ±4µ.

SR L 18.2 Q +3 -3 - A01 M1-F05 12R 1
1 2 3 4 5 6 7 8 9

1. SR Type
2. G = Straight, L = Lefthand helix
3. Work Hole Diameter(mm)
4. Tolerance (µm) +/-
5. Approach Angle Code
6. Nano finishing
7. Grade Symbol
8. Coating Code
9. Coating Thickness Code: 1 = Thin, 2 = Thick

Sumi Reamer SR Type Insert : SRL Type

Fig 1

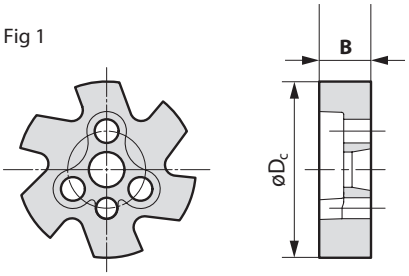
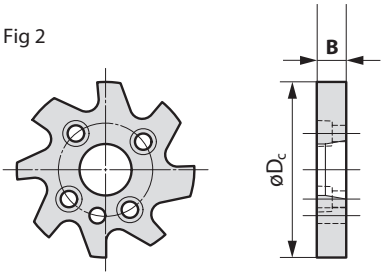
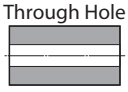


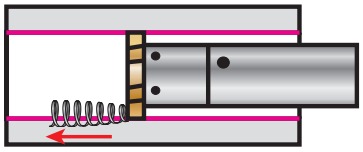
Fig 2



Through Hole

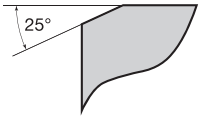


Conceptual Image of Chip Evacuation



Chips Evacuated Toward Back

B01 Type



For Steel Through-Holes

SR Type Inserts

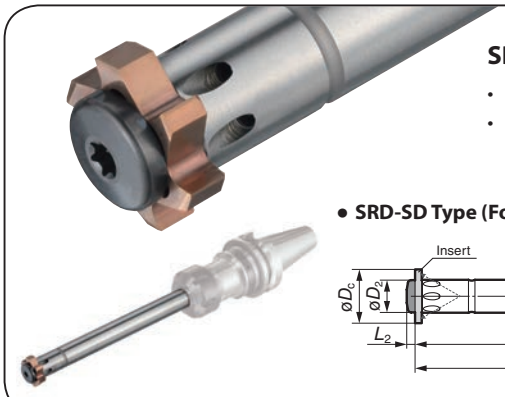
■ Japan Stock Items (SRL Type)

Cat. No.	Stock	★iameter ø★c	Tolerance	Thickness B	No. of Teeth z
SRL 12.0H7-A01-F0512R1	★	ø12	H7	4.3	6
SRL 13.0H7-A01-F0512R1	★	ø13	H7	4.3	6
SRL 14.0H7-A01-F0512R1	★	ø14	H7	4.3	6
SRL 15.0H7-A01-F0512R1	★	ø15	H7	4.3	6
SRL 16.0H7-A01-F0512R1	★	ø16	H7	4.3	6
SRL 17.0H7-A01-F0512R1	★	ø17	H7	4.3	6
SRL 18.0H7-A01-F0512R1	★	ø18	H7	4.3	6
SRL 19.0H7-A01-F0512R1	★	ø19	H7	4.3	6
SRL 20.0H7-A01-F0512R1	★	ø20	H7	4.3	6
SRL 21.0H7-A01-F0512R1	★	ø21	H7	4.3	6
SRL 22.0H7-A01-F0512R1	★	ø22	H7	4.3	6
SRL 23.0H7-A01-F0512R1	★	ø23	H7	4.3	6
SRL 24.0H7-A01-F0512R1	★	ø24	H7	4.3	8
SRL 25.0H7-A01-F0512R1	★	ø25	H7	4.3	8
SRL 26.0H7-A01-F0512R1	★	ø26	H7	4.3	8
SRL 27.0H7-A01-F0512R1	★	ø27	H7	4.3	8
SRL 28.0H7-A01-F0512R1	★	ø28	H7	4.3	8
SRL 29.0H7-A01-F0512R1	★	ø29	H7	4.3	8
SRL 30.0H7-A01-F0512R1	★	ø30	H7	4.3	8

■ Recommended Cutting Conditions

(Min. - Max.)

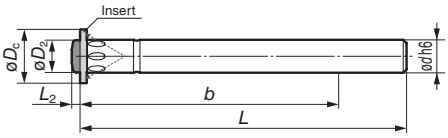
ISO	Work Material	Helix	Adopted Grades	Grade	Depth of Cut a_p (mm/radius)			Cutting Speed v_c (m/min)	Feed Rate f_z (mm/t)
					Below ø20	ø20 to ø35	ø35 or more		
P	Carbon Steel	G (Straight)	F0512R1	Micro-Fine Grained Carbide + PVD	0.05 to 0.12	0.08 to 0.15	0.10 to 0.25	80 to 220	0.10 to 0.25
		L (Lefthand Helix)			0.05 to 0.12	0.08 to 0.15	0.10 to 0.25	100 to 220	0.15 to 0.35
		G (Straight)	T1200A	Cermet	0.05 to 0.12	0.08 to 0.15	0.10 to 0.25	120 to 250	0.10 to 0.25
		L (Lefthand Helix)			0.05 to 0.12	0.08 to 0.15	0.10 to 0.25	120 to 250	0.15 to 0.35
	Aloy Steel	G (Straight)	F0512R1	Micro-Fine Grained Carbide + PVD	0.05 to 0.12	0.08 to 0.15	0.10 to 0.25	60 to 180	0.06 to 0.20
		L (Lefthand Helix)			0.05 to 0.12	0.08 to 0.15	0.10 to 0.25	60 to 180	0.10 to 0.22
		G (Straight)	T1200A	Cermet	0.05 to 0.12	0.08 to 0.15	0.10 to 0.25	70 to 200	0.08 to 0.20
		L (Lefthand Helix)			0.05 to 0.12	0.08 to 0.15	0.10 to 0.25	70 to 200	0.12 to 0.25
	Die Steel	G (Straight)	F0512R1	Micro-Fine Grained Carbide + PVD	0.05 to 0.10	0.08 to 0.15	0.10 to 0.20	15 to 60	0.06 to 0.20
	Tool Steels	G (Straight)	F0512R1	Micro-Fine Grained Carbide + PVD	0.05 to 0.10	0.08 to 0.15	0.10 to 0.20	15 to 30	0.04 to 0.15
M	Stainless Steel	G (Straight)	F0512R1	Micro-Fine Grained Carbide + PVD	0.05 to 0.10	0.08 to 0.15	0.08 to 0.20	15 to 60	0.06 to 0.20
K	Cast Iron	G (Straight)	F0512R1	Micro-Fine Grained Carbide + PVD	0.05 to 0.18	0.08 to 0.20	0.10 to 0.25	80 to 250	0.10 to 0.30
N	Non-Ferrous Metal	G (Straight)	F0510C	Micro-Fine Grained Carbide + DLC	0.05 to 0.12	0.08 to 0.15	0.10 to 0.25	100 to 250	0.10 to 0.30



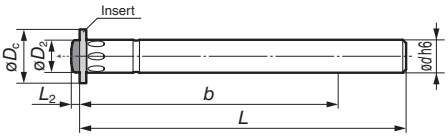
SD Type (Center Bolt Clamp Type)

- Can be clamped using one center bolt to improve work efficiency
- Applicable to high-torque (high-load) machining

● SRD-SD Type (For Through Boring)



● SRB-SD Type (For Stop Boring)



Steel Shank Toolholder SRD-SD/SRB-SD Series (Center Bolt Clamp Type)

■ Spare Parts

	Diameter $øD_c$ Range	Cat. No. SRD Type (For Through Boring) Cat. No.	Stock	Cat. No. SRB Type (For Stop Boring) Cat. No.	Stock	Dimensions(mm) ød	L	b	$øD_2$	L_2	Cap Screw (For SRD)	Cap Screw (For SRB)	Wrench
Short	ø11.900 to ø15.600	SRD 16-10-100SD		SRB 16-10-100SD		10	100	60	9.8	2.5	C00-90-22	C00-90-22B	G00-20-27
	ø15.601 to ø18.600	19-12-115SD		19-12-115SD		12	115	70	11.8	3.0	C00-90-23	C00-90-23B	G00-20-28
	ø18.601 to ø23.600	24-16-128SD		24-16-128SD		16	128	80	15.8	4.0	C00-90-24	C00-90-24B	G00-20-29
	ø23.601 to ø28.600	29-20-145SD		29-20-145SD		20	145	95	15.8	4.0			
	ø28.601 to ø35.600	36-25-170SD		36-25-170SD		25	170	120	24.5	4.0	C00-90-25	C00-90-25B	
Long	ø11.900 to ø15.600	SRD 16-10-160SD		SRB 16-10-160SD		10	160	120	9.8	2.5	C00-90-22	C00-90-22B	G00-20-27
	ø15.601 to ø18.600	19-12-185SD		19-12-185SD		12	185	140	11.8	3.0	C00-90-23	C00-90-23B	G00-20-28
	ø18.601 to ø23.600	24-16-208SD		24-16-208SD		16	208	160	15.8	4.0	C00-90-24	C00-90-24B	G00-20-29
	ø23.601 to ø28.600	29-20-240SD		29-20-240SD		20	240	190	15.8	4.0			
	ø28.601 to ø35.600	36-25-274SD		36-25-274SD		25	274	224	24.5	4.0	C00-90-25	C00-90-25B	

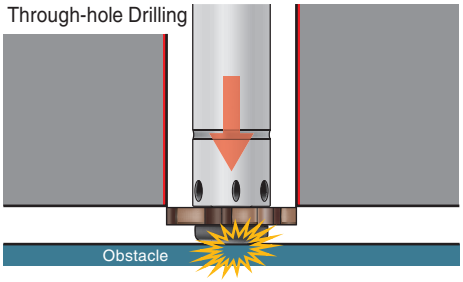
Carbide Shank Toolholder SRD-SD/SRB-SD Series (Center Bolt Clamp Type)

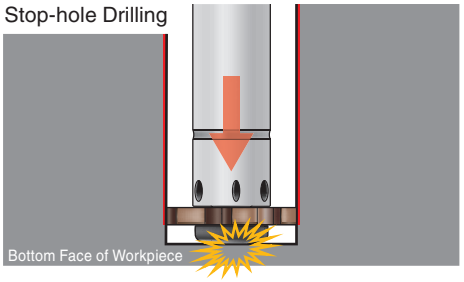
■ Spare Parts

	Diameter $øD_c$ Range	Cat. No. SRD Type (For Through Boring) Cat. No.	Stock	Cat. No. SRB Type (For Stop Boring) Cat. No.	Stock	Dimensions(mm) ød	L	b	$øD_2$	L_2	Cap Screw (For SRD)	Cap Screw (For SRB)	Wrench
Long	ø11.900 to ø15.600	SRD 16-10-160HMSD		SRB 16-10-160HMSD		10	160	120	9.8	2.5	C00-90-22	C00-90-22B	G00-20-27
	ø15.601 to ø18.600	19-12-185HMSD		19-12-185HMSD		12	185	140	11.8	3.0	C00-90-23	C00-90-23B	G00-20-28
	ø18.601 to ø23.600	24-16-208HMSD		24-16-208HMSD		16	208	160	15.8	4.0	C00-90-24	C00-90-24B	G00-20-29
	ø23.601 to ø28.600	29-20-240HMSD		29-20-240HMSD		20	240	190	15.8	4.0			
	ø28.601 to ø35.600	36-25-274HMSD		36-25-274HMSD		25	274	224	24.5	4.0	C00-90-25	C00-90-25B	

Important Notes About SD Type (Center Bolt Clamp Type)

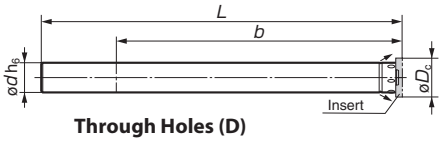
This product can be used for both through-hole and Blind-hole drilling. However, the head of the center bolt protrudes from the end of the body. Therefore, ensure clearance by referring to the protrusion amount of the center bolt (L_2) shown in the dimension table.



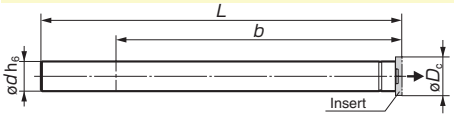


SUMIREAMER
SR SERIES

■ Insert Holder



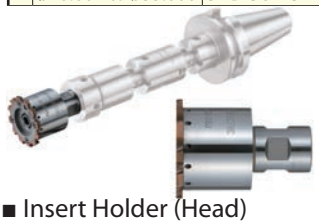
Through Holes (D)



Stop Hole (B)

■ Spare Parts

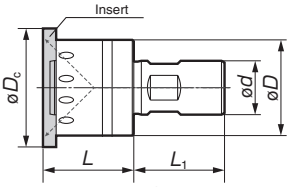
	Reamer Diameter øDc Range	Cat. No. Through Holes (D) Cat. No.	Stock	Stop Hole (B) Cat. No.	Stock	Carbide Shank SRD Type Cat. No.	Stock	Carbide Shank SRB Type Cat. No.	Stock	Dimensions ød h6	L	b	Cap Screw	Wrench
Short	ø11.900 to ø15.600	**SRD 16-10-100**	★	**SRB 16-10-100**	★					10	100	60	C00-90-00-(3x)	G00-20-01
	ø15.601 to ø18.600	**SRD 19-12-115**	★	**SRB 19-12-115**	★					12	115	70	C00-90-00-(3x)	G00-20-01
	ø18.601 to ø23.600	**SRD 24-16-128**	★	**SRB 24-16-128**	★					16	128	80	C00-90-01-(3x)	G00-20-02
	ø23.601 to ø28.600	**SRD 29-20-145**	★	**SRB 29-20-145**	★					20	145	95	C00-90-01-(4x)	G00-20-02
	ø28.601 to ø35.600	**SRD 36-25-170**	★	**SRB 36-25-170**	★					25	170	120	C00-90-01-(4x)	G00-20-02
Long	ø11.900 to ø15.600	**SRD 16-10-160**		**SRB 16-10-160**		**SRD 16-10-160HM**		**SRB 16-10-160HM**		10	160	120	C00-90-00-(3x)	G00-20-01
	ø15.601 to ø18.600	**SRD 19-12-185**		**SRB 19-12-185**		**SRD 19-12-185HM**		**SRB 19-12-185HM**		12	185	140	C00-90-00-(3x)	G00-20-01
	ø18.601 to ø23.600	**SRD 24-16-208**		**SRB 24-16-208**		**SRD 24-16-208HM**		**SRB 24-16-208HM**		16	208	160	C00-90-01-(3x)	G00-20-02
	ø23.601 to ø28.600	**SRD 29-20-240**		**SRB 29-20-240**		**SRD 29-20-240HM**		**SRB 29-20-240HM**		20	240	190	C00-90-01-(4x)	G00-20-02
	ø28.601 to ø35.600	**SRD 36-25-274**		**SRB 36-25-274**		**SRD 36-25-274HM**		**SRB 36-25-274HM**		25	274	224	C00-90-01-(4x)	G00-20-02



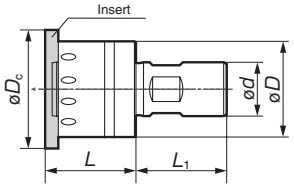
■ Insert Holder (Head)

■ SRK Type

SRKG Type (For Through Boring)



SRKB Type (For Stop Boring)

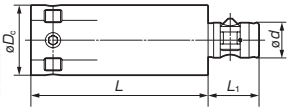


■ Spare Parts

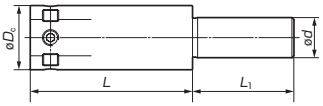
Reamer Diameter øDc Range	Cat. No. SKRG Type Cat. No.	Stock	SRKB Type Cat. No.	Stock	Dimensions D	d	L	L1	Cap Screw (1)	Wrench (2)	Cap Screw (3)	Wrench (4)
ø35.601 to ø43.600	**SRKG 44-32-18-030**		**SRKB 44-32-18-030**		32	18	30	30	C00-90-02-(4x)	G00-20-02	C00-26-23	G00-02-07
ø43.601 to ø51.600	**SRKG 52-39-20-035**		**SRKB 52-39-20-035**		39	20	35	30	C00-90-02-(5x)	G00-20-02	C00-26-38	G00-02-07
ø51.601 to ø60.600	**SRKG 61-46-25-040**		**SRKB 61-46-25-040**		46	25	40	35	C00-90-02-(5x)	G00-20-02	C00-24-26	G00-02-08
ø60.601 to ø80.600	**SRKG 81-56-32-050**		**SRKB 81-56-32-050**		56	32	50	40	C00-90-04-(4x)	G00-20-03	C00-26-37	G00-02-09
ø80.601 to ø100.600	**SRKG 101-76-40-060**		**SRKB 101-76-40-060**		76	40	60	50	C00-90-04-(4x)	G00-20-03	C00-24-31	G00-02-16
ø100.601 to ø120.600	**SRKG 121-76-40-060**		**SRKB 121-76-40-060**		76	40	60	50	C00-90-04-(4x)	G00-20-03	C00-24-31	G00-02-16
ø120.601 to ø140.600	**SRKG 121-76-40-060**		**SRKB 121-76-40-060**		76	40	60	50	C00-90-04-(4x)	G00-20-03	C00-24-31	G00-02-16

■ **SRA Type**

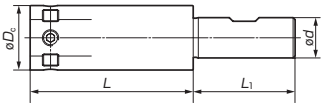
BM (Beta Module Shank) Type



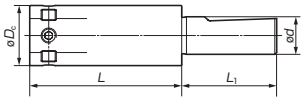
ZS (Cylindrical Shank) Type



WD (Weldon Shank) Type



WN(Whistle Notch Shank) Type

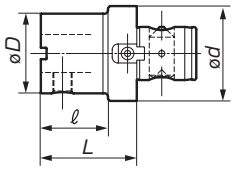


■ Holder (with diameter correction mechanism)

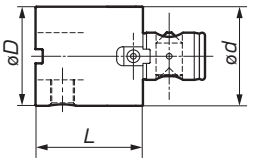
■ Spare Parts

Reamer Diameter øDc Range	Cat. No. Through Holes (D) Cat. No.	Stock	Dimensions D	d	L	L1	Cap Screw (1)	Wrench (2)	Clamp (3)	Screw (4)
ø35.601 to ø43.600	**SRA 44-32-BM32-080**		32	BM-32	80	8.5	C00-90-08-(4x)	G00-02-05	Z00-32-21	Z00-32-23
	SRA 44-32-ZS20-080			ZS-20		50				
	SRA 44-32-WD20-080			WD-20						
	SRA 44-32-WN20-080			WN-20						
ø43.601 to ø51.600	**SRA 52-39-BM40-100**		39	BM-40	100	26	C00-90-10-(4x)	G00-02-06	Z00-40-21	Z00-40-23
	SRA 52-39-ZS25-100			ZS-25		56				
	SRA 52-39-WD25-100			WD-25						
	SRA 52-39-WN25-100			WN-25						
ø51.601 to ø60.600	**SRA 61-46-BM50-120**		46	BM-50	120	31	C00-90-10-(4x)	G00-02-06	Z00-50-21	Z00-50-23
	SRA 61-46-ZS32-120			ZS-32		60				
	SRA 61-46-WD32-120			WD-32						
	SRA 61-46-WN32-120			WN-32						
ø60.601 to ø80.600	**SRA 81-56-BM50-140**		56	BM-50	140	31	C00-90-12-(4x)	G00-02-07	Z00-50-21	Z00- 50-23
	SRA 81-56-BM50-080				80					
	SRA 81-56-ZS40-140			ZS-40	140	70				
	SRA 81-56-ZS40-080				80					
	SRA 81-56-WD40-140			WD-40	140					
	SRA 81-56-WD40-080				80					
	SRA 81-56-WN40-140			WN-40	140					
	SRA 81-56-WN40-080				80					
ø80.601 to ø140.600	**SRA 101-76-BM63-160**		76	BM-63	160	31	C00-90-16-(4x)	G00-02-08	Z00-63-21	Z00-63-23
	SRA 101-76-BM63-100				100					
	SRA 101-76-ZS40-100			ZS-40	160	70				
	SRA 101-76-ZS40-160				100					
	SRA 101-76-WD40-160			WD-40	160					
	SRA 101-76-WD40-100				100					
	SRA 101-76-WN40-160			WN-40	160					
	SRA 101-76-WN40-100				100					

■ B12 Type



■ B13 Type



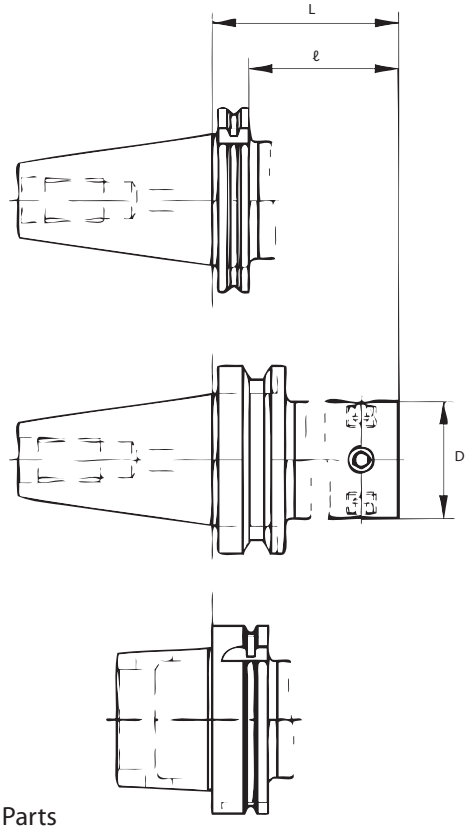
■ Extensions

Cat. No.	øD	ød	L	l	Weight (kg)
B12-32-25-040	**25**	32	40	25	0.2
B12-40-25-040	**25**	42	40	25	0.3
32-045	**32**	42	45	30	0.3
B12-50-40-050	**42**	50	50	35	0.5
B12-63-25-045	**25**	63	45	25	0.7
32-050	**32**	63	50	30	0.9
40-055	**42**	63	55	35	1.1
B12-80-40-060	**42**	80	60	35	2.2
63-060	**63**	80	60	35	2.4
B12-100-40-060	**42**	100	60	35	3.1
63-060	**63**	100	60	35	3.3
80-075	**80**	100	75	50	3.5

Cat. No.	øD	ød	L	l	Weight (kg)
B13-25-25-045	**25**	25	45	–	0.2
070	**25**	25	70	–	0.3
B13-32-32-035	**32**	32	35	–	0.2
070	**32**	32	70	–	0.4
B13-40-40-045	**42**	42	45	–	0.4
070	**42**	42	70	–	0.7
B13-50-50-065	**50**	50	65	–	1.0
100	**50**	50	100	–	1.5
B13-63-63-060	**63**	63	60	–	1.3
125	**63**	63	125	–	2.9
B13-80-80-080	**80**	80	80	–	2.9
160	**80**	80	160	–	4.9
B13-100-100-080	**100**	100	80	–	4.9
180	**100**	100	180	–	10.9

■ **Adapters**

Adapters	SR Parameter	⬠	D	L	ℓ	kg	Product Code
DIN69871-A/D	**SR044**	40	32	65	46	1.1	SRAD10 40A 44 065
	SR052	40	39	65	46	1.2	SRAD10 40A 52 065
	SR061	40	46	75	56	1.4	SRAD10 40A 61 075
	SR081	40	56	80	61	1.6	SRAD10 40A 81 080
	SR101-SR141	40	76	95	76	2.2	SRAD10 40A 101 095
	SR044	50	32	65	46	2.9	SRAD10 50A 44 065
	SR052	50	39	65	46	3	SRAD10 50A 52 065
	SR061	50	46	75	56	3.2	SRAD10 50A 61 075
	SR081	50	56	80	61	3.6	SRAD10 50A 81 080
	SR101-SR142	50	76	95	76	4.6	SRAD10 50A 101 095
DIN69871-B	**SR044**	40	32	65	46	1.1	SRAD10 40B 44 065
	SR052	40	39	65	46	1.2	SRAD10 40B 52 065
	SR061	40	46	75	56	1.4	SRAD10 40B 61 075
	SR081	40	56	80	61	1.6	SRAD10 40B 81 080
	SR101-SR142	40	76	95	76	2.2	SRAD10 40B 101 095
	SR044	50	32	65	46	2.9	SRAD10 50B 44 065
	SR052	50	39	65	46	3	SRAD10 50B 52 065
	SR061	50	46	75	56	3.2	SRAD10 50B 61 075
	SR081	50	56	80	61	3.6	SRAD10 50B 81 080
	SR101-SR143	50	76	95	76	4.6	SRAD10 50B 101 095
MAS-BT/A	**SR044**	40	32	65	33	1.1	SRAT10 40A 44 060
	SR052	40	39	65	38	1.3	SRAT10 40A 52 065
	SR061	40	46	75	43	1.4	SRAT10 40A 61 070
	SR081	40	56	80	53	1.7	SRAT10 40A 81 080
	SR101-SR143	40	76	95	-	2.5	SRAT10 40A 101 095
	SR044	50	32	65	27	3.7	SRAT10 50A 44 060
	SR052	50	39	65	27	3.8	SRAT10 50A 52 065
	SR061	50	46	75	37	4	SRAT10 50A 61 070
	SR081	50	56	80	47	4.3	SRAT10 50A 81 080
	SR101-SR144	50	76	95	57	5.1	SRAT10 50A 101 095
DIN698893-HSK-A	**SR044**	63	32	85	59	1	SRAH10 63A 44 085
	SR052	63	39	90	64	1.2	SRAH10 63A 52 090
	SR061	63	46	100	74	1.5	SRAH10 63A 61 100
	SR081	63	56	105	79	1.8	SRAH10 63A 81 105
	SR101-SR144	63	76	120	94	2.4	SRAH10 63A 101 120
	SR044	100	32	85	61	2.3	SRAH10 100A 44 090
	SR052	100	39	90	66	2.6	SRAH10 100A 52 095
	SR061	100	46	100	71	2.8	SRAH10 100A 61 100
	SR081	100	56	105	91	3.5	SRAH10 100A 81 120
	SR101-SR142	100	76	120	101	5	SRAH10 100A 101 130



■ Spare Parts

SR Parameter	Screw	Wrench
SR044	C00 90 08 (4x)	G00 02 05
SR052	C00 90 10 (4x)	G00 02 06
SR061	C00 90 10 (4x)	G00 02 06
SR081	C00 90 12 (4x)	G00 02 07
SR101 - SR141	C00 90 16 (4x)	G00 02 08

SUMIREAMER
SR Series

■ Arbor BETA Module

Fig. 1

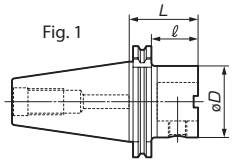


Fig. 2

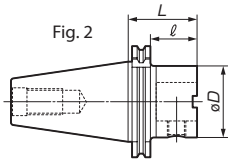


Fig. 3

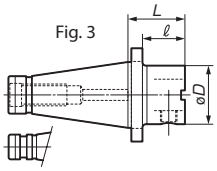


Fig. 4

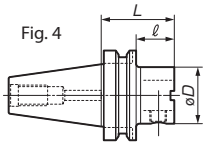
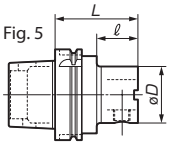


Fig. 5



■ DIN 69871-A/D

Cat. No.	Stock	BETA No.	Taper Size	L	ℓ	D	kg	MCC	Fig.
BD10-40A-25-050		25	40	50	31	25	0.8	B25	
BD10-40A-32-050		32	40	50	31	35	0.9	B32	
BD10-40A-40-035		40	40	35	16	42	0.9	B40	
BD10-40A-40-050		40	40	50	31	42	1.1	B40	
BD10-40A-63-065		63	40	65	46	63	1.5	B63	
BD10-40A-50-050		50	40	50	31	50	1.2	B50	
BD10-40A-63-090		63	40	90	70	63	2.0	B63	
BD10-50A-25-060		25	50	60	41	25	2.8	B25	1
BD10-50A-32-060		32	50	60	41	32	2.9	B32	
BD10-50A-40-060		40	50	60	41	42	3.0	B40	
BD10-50A-50-060		50	50	60	41	50	3.2	B50	
BD10-50A-63-060		63	50	60	41	63	3.3	B63	
BD10-50A-80-070		80	50	70	51	80	4.0	B80	
BD10-50A-100-115		100	50	115	96	100	6.9	B100	

■ MAS-BT/A

Cat. No.	Stock	BETA No.	Taper Size	L	ℓ	D	kg	MCC	Fig.
BT10-40A-25-060		25	40	60	33	25	0.8	B25	
BT10-40A-32-060		32	40	60	33	32	0.9	B32	
BT10-40A-40-028		40	40	28	1	42	0.9	B40	
BT10-40A-40-060		40	40	60	33	42	1.2	B40	
BT10-40A-50-060		50	40	60	33	50	1.3	B50	
BT10-40A-63-055		63	40	55	28	63	1.4	B63	
BT10-40A-63-070		63	40	70	43	63	1.7	B63	4
BT10-50A-32-070		32	50	70	32	32	3.7	B32	
BT10-50A-40-070		40	50	70	32	42	3.9	B40	
BT10-50A-50-070		50	50	70	32	50	4.1	B50	
BT10-50A-63-080		63	50	80	42	63	4.3	B63	
BT10-50A-80-100		80	50	100	62	80	5.5	B80	
BT10-50A-100-110		100	50	110	72	100	7.0	B100	

■ DIN 69871-B

Cat. No.	Stock	BETA No.	Taper Size	L	ℓ	D	kg	MCC	Fig.
BD10-40B-25-050		25	40	50	31	25	0.8	B25	
BD10-40B-32-050		32	40	50	31	35	0.9	B32	
BD10-40B-40-035		40	40	35	16	42	0.9	B40	
BD10-40B-40-050		40	40	50	31	42	1.1	B40	
BD10-40B-50-065		50	40	50	31	50	1.2	B50	
BD10-40B-63-050		63	40	65	46	63	1.5	B63	
BD10-40B-63-090		63	40	90	70	63	2.0	B63	
BD10-50B-25-060		25	50	60	41	25	2.8	B25	2
BD10-50B-32-060		32	50	60	41	32	2.9	B32	
BD10-50B-40-060		40	50	60	41	42	3.0	B40	
BD10-50B-50-060		50	50	60	41	50	3.2	B50	
BD10-50B-63-060		63	50	60	41	63	3.3	B63	
BD10-50B-80-070		80	50	70	51	80	4.0	B80	
BD10-50B-100-115		100	50	115	96	100	6.9	B100	

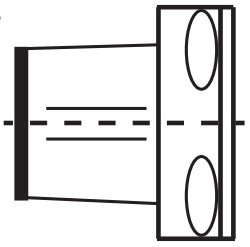
■ DIN 69893-A HSK (Coolant tube sold separately.)

Cat. No.	Stock	BETA No.	Taper Size	L	ℓ	D	kg	MCC	Fig.
BH10-50A-25-055		25	50	55	29	25	0.5	B25	
BH10-50A-32-060		32	50	60	34	32	0.6	B32	
BH10-50A-40-065		40	50	65	39	42	0.7	B40	
BH10-63A-25-055		25	63	55	29	25	0.9	B25	
BH10-63A-32-060		32	63	60	34	32	1.0	B32	
BH10-63A-40-065		40	63	65	23	42	1.1	B40	
BH10-63A-50-070		50	63	70	44	50	1.5	B50	5
BH10-63A-63-080		63	63	80	38	63	1.5	B63	
BH10-100A-40-080		40	100	80	35	42	2.3	B40	
BH10-100A-50-080		50	100	80	35	50	2.5	B50	
BH10-100A-63-080		63	100	80	35	63	2.8	B63	
BH10-100A-80-090		80	100	90	45	80	3.8	B80	
BH10-100A-100-100		100	100	100	55	100	4.0	B100	

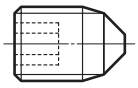
■ ISO-DIN 2080

Cat. No.	Stock	BETA No.	Taper Size	L	ℓ	D	kg	MCC	Fig.
BI10-40-40-035		40	40	35	23	42	0.7	B40	
BI10-40-40-050		40	40	50	38	42	1.1	B40	
BI10-40-63-070		63	40	70	58	63	1.8	B63	3
BI10-50-40-060		40	50	60	45	42	3.0	B40	
BI10-50-63-060		63	50	60	45	63	3.5	B63	
BI10-50-100-100		100	85	100	85	100	6.8	B100	

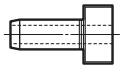
Polygon Shank Holders



■ Spare Parts

Clamp BETA No.	
25	Z00-25-24
32	Z00-32-24
40	Z00-40-24
63	Z00-63-24
80	Z00-80-24
100	Z00-100-24

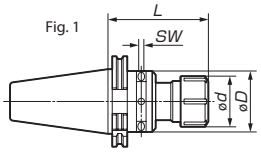
■ Coolant Tubes

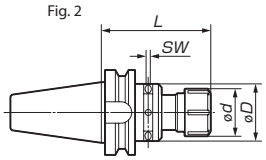
Taper Size	
50	H00-50-01
63	H00-63-01
100	H00-100-01

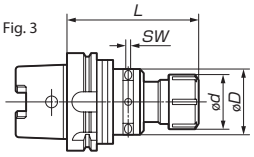
■ Polygon Shank Hydraulic Holders

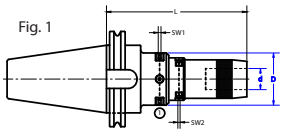
Style	Stock	d	L	kg
PSC4O		ø12	81	0.7
PSC4O		ø20	-	-
PSC4O		ø32	-	-
PSC5O		ø12	85	0.9
PSC5O		ø20	90	1.05
PSC5O		ø32	-	-
PSC63		ø12	87	1.3
PSC63		ø20	97	1.6
PSC63		ø32	110	2.8

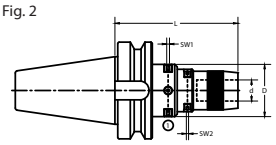
All Polygon Shank Holders available upon request

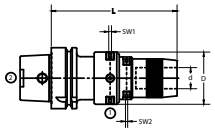










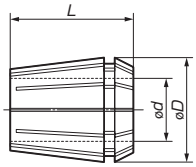


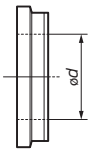
■ Compensation Collet- Chuck

Product Code	◥	Size	Range	d	D	L	SW
DIN69871 AD/B						Fig. 1	
AND60 40A 32 120	40	ER32	3.0 - 20.0	50	76	120	5
AND60 40A 40 135	40	ER40	3.0 - 26.0	63	76	135	5
AND60 50A 32 120	50	ER32	3.0 - 20.0	50	76	120	5
AND60 50A 40 135	50	ER40	3.0 - 26.0	63	76	135	5
MAS-BT/A						Fig. 2	
ANT60 40A 32 120	40	ER32	3.0 - 20.0	50	76	120	5
ANT60 40A 40 135	40	ER40	3.0 - 26.0	63	76	135	5
ANT60 50A 32 120	50	ER32	3.0 - 20.0	50	76	120	5
ANT60 50A 40 135	50	ER40	3.0 - 26.0	63	76	135	5
DIN69893-HSK-A						Fig. 3	
ANT60 63A 32 120	63	ER32	3.0 - 20.0	50	76	120	5
ANT60 63A 40 135	63	ER40	3.0 - 26.0	63	76	135	5
ANT60 100A 32 120	100	ER32	3.0 - 20.0	50	76	120	5
ANT60 100A 40 165	100	ER40	3.0 - 26.0	63	76	135	5

■ Hyrdo- Compensation Chuck

Product Code	◥	d	D	L	SW_1	SW_2
DIN69871 AD/B					Fig. 1	
AND65 40A 12 135	40	12	76	135	5	4
AND65 40A 20 135	40	20	69	135	5	4
AND65 40A 32 180	40	32	88	180	6	6
AND65 50A 12 160	50	12	76	160	5	4
AND65 50A 20 160	50	20	69	160	5	4
AND65 50A 32 180	50	32	88	180	6	6
MAS-BT/A					Fig. 2	
ANT65 40A 12 135	40	12	76	135	5	4
ANT65 40A 20 135	40	20	69	135	5	4
ANT65 40A 32 180	40	32	88	180	6	6
ANT65 50A 12 135	50	12	76	135	5	4
ANT65 50A 20 135	50	20	69	135	5	4
ANT65 50A 32 180	50	32	88	180	6	6
DIN69893-HSK-A					Fig. 3	
ANH65 63A 12 135	63	12	76	135	5	4
ANH65 63A 20 135	63	20	69	135	5	4
ANH65 63A 32 180	63	32	88	180	6	6
ANH65 100A 12 135	100	12	76	135	5	4
ANH65 100A 20 135	100	20	69	135	5	4
ANH65 100A 32 165	100	32	88	165	6	6





■ Collet

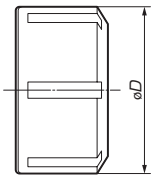
Cat. No.	Size	øD	L
62-25-□□	ER25	26	35
62-32-□□	ER32	33	40
62-40-□□	ER40	41	46

□□□ = ød
Ex. 1: ER25, d=12 ⇨ 62 25 12
These items are in stock in increments of 1 mm:
62-25- □□ from ø12 to ø16 mm
62-32- □□ from ø12 to ø20 mm
62-40- □□ from ø12 to ø26 mm.

■ Seal Disc

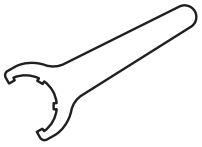
Cat. No.	Size	ød
20.107.41-□□□	ER25	3.0 to 16.0
20.107.51-□□□	ER32	3.0 to 20.0
20.107.61-□□□	ER40	3.0 to 26.0

□□□ = ød
Ex. 1: ER25, d=12 ⇨ 20.107.41 120
These items are in stock in increments of 1 mm:
20.107.41- □□□ from ø12 to ø16 mm
20.107.51- □□□ from ø12 to ø20 mm
20.107.61- □□□ from ø12 to ø26 mm.



■ Collet Cap

Cat. No.	Size	D	ød
20.107.410	ER25	42	M32 x 1.5
20.107.510	ER32	50	M40 x 1.5
20.107.610	ER40	63	M50 x 1.5



■ Tightening Wrench

Cat. No.	Size
00-05-05	ER25
00-05-02	ER32
00-05-03	ER40

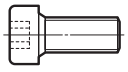
■ Torque Wrench

Wrench Cat. No.	Applicable Holder	Torx Hole	Torque Rating
G00-40-11	SR□ 16 / SR□ 19	T 6	0.9Nm
G00-40-12	SR□ 24 to SR□ 61	T 8	1.5Nm
G00-40-13	SR□ 81 / SR□ 101	T 15	3.5Nm

■ Coolant Tubes

Taper Size	
40	H00-40-01
63	H00-63-01
100	H00-100- 01

■ Spare Parts

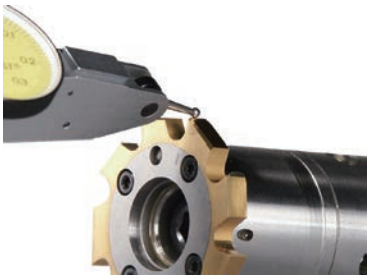


C00-96-16

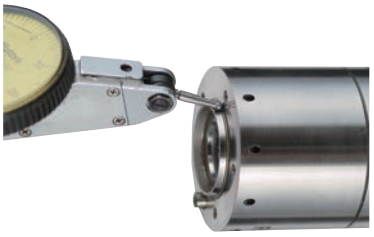
■ SR Type Reamer Usage Instructions (Adjusting runout)

The runout at the cut edge of a reamer should be zero to obtain optimum boring precision. To correct runout in the holder or the machine's spindle, use of holders with a correction mechanism, hydro chucks, and shrink-fitting is recommended. Various methods can be used to measure runout on an SR type reamer. SR type reamers offer good runout repeatability so it is recommended that inserts be replaced without removing the shank holder from the spindle.

(1) High-accurate cutting edge runout measurement method (for measuring the arc land on the insert)
Measuring the lands immediately after the outer diameter of the insert has been chamfered eliminates all attachment errors. This allows for the most accurate runout measurement.



(2) Simplified measurement method (for measuring the short taper of the holder)
The short taper on the holder where the inserts are attached provides the easiest and most accurate measurement before attaching the inserts.



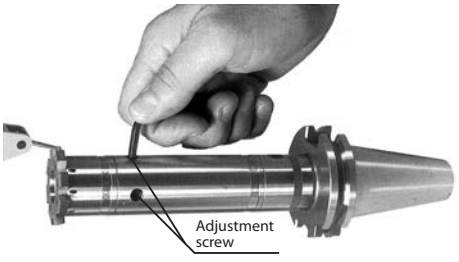
(3) Simplified measurement method (for measuring the outer diameter of the holder)
The high precision machined outer diameter of the shank holder provides a good estimate of the runout measurement.

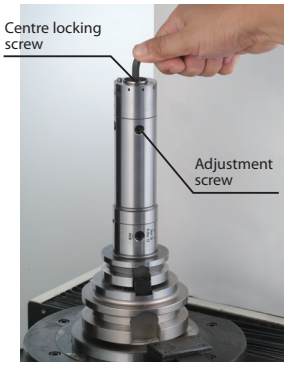
* Runout accuracy is higher in order of (1), (2) and (3).

■ Shank Holders with Correction Mechanism

Shank holders must have a correction mechanism when using reamers of ø35 mm or larger.
(Adjustment procedure)

(1) Tighten the centre locking screw to torque value A in the table below, then attach the insert and measure the runout of the cut edge.
(2) Verify the tooth where runout peaks and adjust with the adjustment screw.
(3) Repeat this adjustment for each tooth as necessary.
(4) Remove the adjusted insert, tighten the centre locking screw to torque value B in the table below, then re-attach the insert.

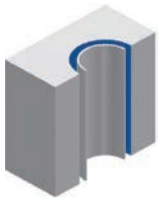
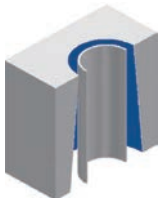
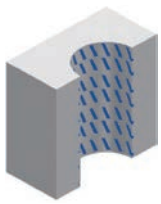
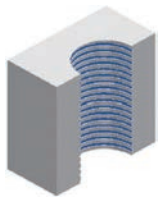


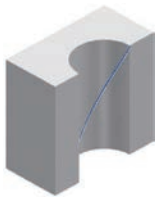
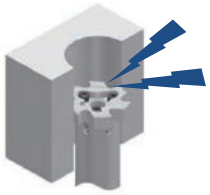


Recommended Tightening Torque for Center Locking Screw (N·m)

Size	A	B
SR044	25	32
SR052	25	32
SR061	40	55
SR081	65	85
SR101	95	120

■ Troubleshooting for Drilling

Failure	Countermeasures
Large Hole Diameter 	-Reduce the run-out as much as possible (use a holder with a diameter correction mechanism). -Decrease the cutting speed. -Increase the feed rate. -Increase the coolant concentration. -Reduce the machining allowance. -Check the cutting edge for damage (the existence of built-up edges). -Change the reamer diameter.
Tapered Hole 	-Reduce the run-out as much as possible (use a holder with a diameter correction mechanism). -Decrease the cutting speed. -Decrease the feed rate. -Adjust the coolant concentration. -Review the pre-machining process. -Review the clamping method of the workpiece. -Compare the hole size between when the workpiece is clamped and unclamped. -Check and correct the direction of chip evacuation.
Chatter Mark on Machined Surface 	-Reduce the run-out as much as possible (use a holder with a diameter correction mechanism). -Change the approach angle of the insert cutting edge. -Review the clamping method of the workpiece. -Decrease the cutting speed. -Increase the feed rate.
Poor Surface Roughness 	-Check the cutting edge for damage. -Reduce the run-out as much as possible (use a holder with a diameter correction mechanism). -Check whether the cutting conditions are within the recommended range. -Change to internal coolant supply. -Increase the coolant concentration.

Failure	Countermeasures
Return Mark 	-Reduce the run-out as much as possible -(use a holder with a diameter correction mechanism). -Check the cutting edge for damage (the existence of built-up edges). -Reduce the machining allowance. -Change to an insert with a sharper cutting edge. -Decrease the return (lifting) feed.
Irregular Cutting Noise 	-Decrease the coolant concentration. -Increase the machining allowance. -Check the cutting edge for damage. -Change the approach angle of the insert cutting edge.
Small Hole Diameter 	-Replace the insert. -Decrease the coolant concentration. -Increase the machining allowance. -Increase the cutting speed. -Decrease the feed rate.

A.L.M.T.
PRODUCTS

Pages 527-538

A.L.M.T. Corp.

Ultra Precision Cutting Tools

Nano/Microforming Tools UPC

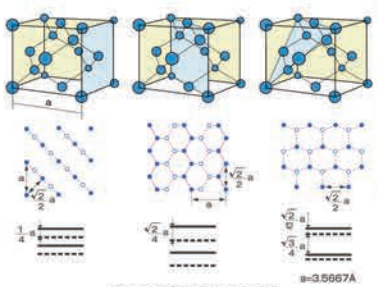
A.L.M.T. Corp., as a leading manufacturer of ultra-precision diamond cutting tools offers a broad range of nano- and micro-forming cutting tools to satisfy market needs.
Our many years of experience and know-how has provided us with a comprehensive understanding of the optimal physical properties of monocrystal diamond. Our state-of-the-art development process yields the highest precision in tool edge measurement. As a result, our diamond cutting tools achieve high-precision microscopic cutting in workpieces with nanometer requirements.

Extremely sharp cutting edge with the advanced UPC

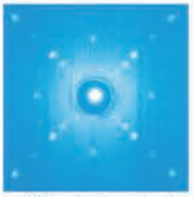
Measuring technologies used for diamond selection

Checking the variation in the distance between carbon atoms in monocrystal diamond assists in determining the optimal crystal orientation

The pursuit of producing nanometer accurate diamond cutting tools begins with the selection of optimal monocrystal diamond. Although it is known that the lattice constant of diamond is 3.5667Å the distance between the crystal planes in monocrystal diamond varies, causing contamination or divisibility. Therefore, it is very important to select the best diamond ore and determine the optimal crystal orientation based on the application.



Diamond lattice model

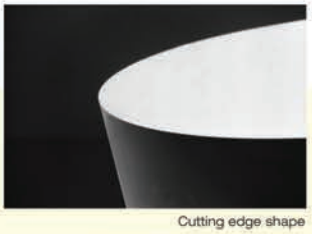


X-Ray photography of monocrystal diamond

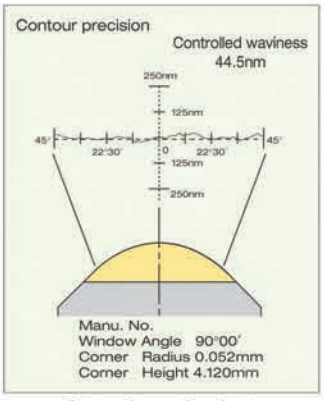
Polishing and measuring technologies

Tool edge polishing technologies used for profiling under nanometer tolerances

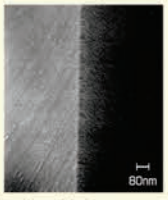
In order to accurately produce nanometer-controlled movement on a workpiece, a cutting tool requires a sharp tool edge capable of producing nanometer-size chips, in addition to high contour precision.
We have achieved this using our unique polishing and measurement technologies.



Cutting edge shape



Contour inspection sheet



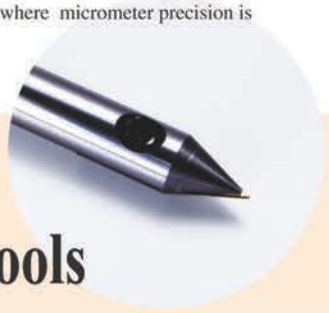
Sharply polished monocrystal diamond ore

Extremely fine chips measured down to nanometer dimensions

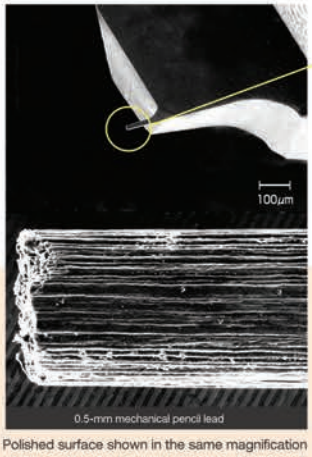
Nano-cutting and micro-cutting technologies

Straightness and surface roughness unobtainable with photolithography or ion-beam method

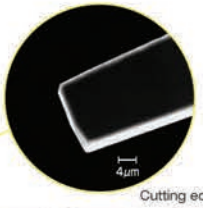
With their extremely sharp cutting edge, the UPC-Nano series developed by A.L.M.T. Corp. achieves excellent surface roughness and straightness, which cannot be obtained using photolithography or ion-beam methods.
They are also effective tools in high aspect-ratio applications where micrometer precision is required.



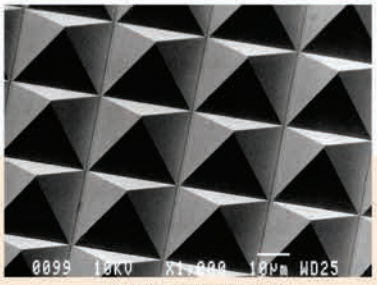
cutting tools



Polished surface shown in the same magnification

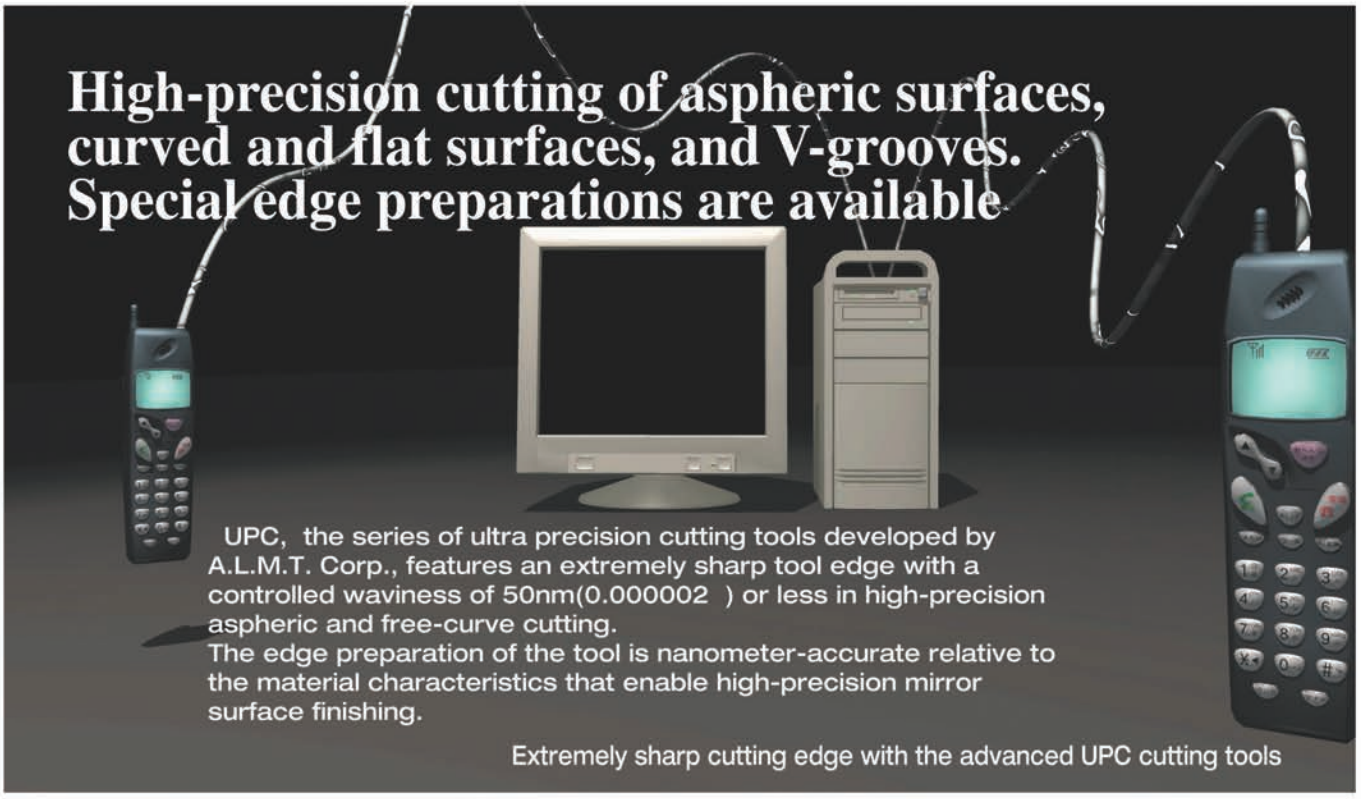


Cutting edge



Molds Surface by microfoming

High-precision cutting of aspheric surfaces, curved and flat surfaces, and V-grooves. Special edge preparations are available



UPC, the series of ultra precision cutting tools developed by A.L.M.T. Corp., features an extremely sharp tool edge with a controlled waviness of 50nm(0.000002) or less in high-precision aspheric and free-curve cutting.
The edge preparation of the tool is nanometer-accurate relative to the material characteristics that enable high-precision mirror surface finishing.

Extremely sharp cutting edge with the advanced UPC cutting tools

1 Feature UPC-R

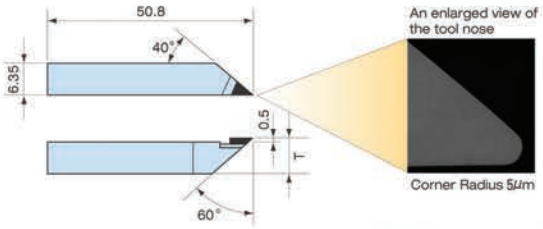
The UPC-R shows extraordinary success in ultra-precision spherical and aspherical cutting applications

Application

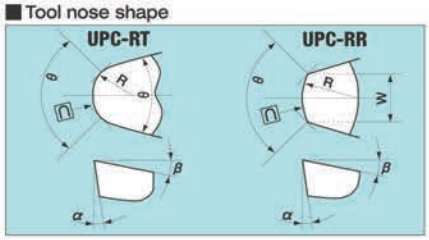
1. CD·DVD pickup lenses molding
2. Molding for optical lenses for cameras
3. Spherical and aspherical reflecting mirrors for laser and X-ray equipment
4. Spherical and aspherical lenses
5. Other precision parts machied with CNC 2-axis lathe

Features

1. A tool edge contour of 0.05μm (50nm / 0.000002") is achieved over a wide working angle of 90°.
2. The cutting edge is precisely finished with minimal waviness. The use of SEM at 2000x magnification for inspection eliminates chipping on the finished tool edge surface.
3. A record of the tool edge contour obtained by our newly developed measuring system (resolution of 5nm) is attached to each tool to guarantee the quality.



■ Tool nose shape



■ Dimensions & Limit Precision

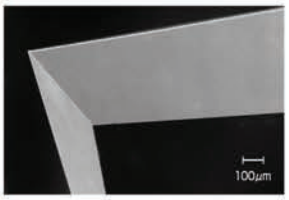
Type		Contour ⊓ θ≤90°	Contour ⊓ θ≤120°	Contour ⊓ θ≤150°	Corner Radius R	Tool Edge Angle θ	Tool Width W	Clearance Angle α	Face Angle β
UPC-RT	Ultraprecision	0.05μm	0.15μm	0.20μm	0.01~3 mm	min15°	—	0°~20°	−30°~10°
	Precision	0.5μm	1.0μm	2.0μm					
UPC-RR	Ultraprecision	0.05μm	0.15μm	0.20μm	0.10~ 200mm	—	0.5~5.0	0°~20°	−30°~10°
	Precision	0.5μm	1.0μm	2.0μm					

2 Feature UPC-F

The UPC-F shows its supremacy in high-efficiency and ultra-precision surface and cylindrical cutting applications.

Application

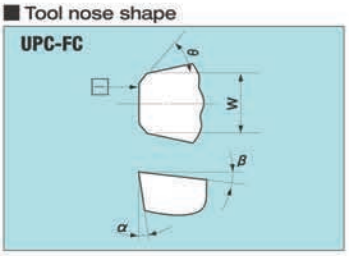
1. laser reflecting mirrors
2. Polygon mirrors
3. Copier sensitive drums
4. Ultra-fine flat or cylindrical surfaces



Features

1. The time required for break-in operation for the initial usage is eliminated or greatly reduced.
2. The edge preparation of the cutting tool is based on the material and the cutting conditions to provide a uniform and high-quality surface finish.

■ Tool nose shape



■ Shape Dimensions

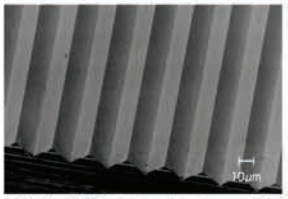
Type	Tool Edge Angle θ	Tool Width W	Clearance Angle α	Face Angle β	Horizontal Face Angle Y	Corner Radius R
UPC-FC	45°~80°	1.0~4.0mm	0°~5°	−5°~0°	0°~15°	—

3 Feature UPC-T

The UPC-T is the optimal tool for fine grooving applications such as Frensnel lens.

Application

1. Molds of LCD display optical waveguide.
2. Frensel lens molding.
3. Other fine grooving applications.

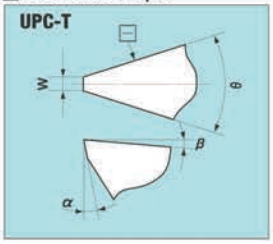


Molds of LCD display optical waveguide

Features

1. The cutting edge is uniform and extremely sharp, without chipping or undulation.
2. The shape of the cutting edge is guaranteed to sub micron tolerances.
3. Tool life is long to optimize crystal orientation.

■ Tool nose shape



■ Shape Dimensions

Type		Tool Edge Angle θ	Leading Edge Width W	Straightness ⏥	Clearance Angle α	Face Angle β
UPC-T	Ultraprecision	min20°	min0.2μm	0.05μm	0°~15°	−5°~10°
	Precision		min2μm	0.1μm		

A.L.M.T. Corp.

Our PCD Reamers Make Efficient and High-speed Cutting Possible

Advantages Gained by Upgrading from a Carbide Reamer to a PCD Reamer

High Efficiency / Reduction of Tool Cost

- Improvement in tool life
- Improvement in machining accuracy
- Reduction of machining time
- Reduction of frequency of tool replacement

Features

1. Multistage machining can be done on one pass by using an integrated profiled step tool.
2. Long tool life with sharp cutting edge made by adopted grinding technology providing excellent sharpness and wear resistance compared to cemented carbide tools.
3. Excellent machining surfaces can be obtained by rapid feed even with cutting speeds at 500 m/min.
4. Stable cutting and sufficient performance when using emulsion type water-soluble coolant.
5. New mechanism that prevents various common machining troubles

Examples of troubles

- Vibration, chattering→Assurance of dynamic balance
- Built-up edge→Surface finishing to prevent built-up edge
- Clogging of tools with cutting chips→Chip breaker process

n from Carbide to PCD Reamer

fficient, accurate and high grade multi-step holes can be machined in a single process

High machining accuracy combined with mass-production at low cost is required for the processing of aluminum alloys for auto parts these days.Our PCD (Poly Crystalline Diamond) cutting tools achieve long tool life and high machining accuracy by constructing sharp cutting edges which use grinding technology applied to PCD with the resulting special feature that tool hardness is effectively more than 10 times that of carbide made tools.Longer life of PCD cutting tools improves productivity, reduces the frequency of tool replacement and machining cost.In addition, machining accuracy and discharge of cutting chips have been improved by cutting edge grinding technology and strengthening the breaker function. We, A.L.M.T. Corp., will respond to all requests from diversified automobile parts manufacturers as a pioneer manufacturer of diamond tools

《Reduction of Tooling Cost and Improvements in Productivity》

● Tool life

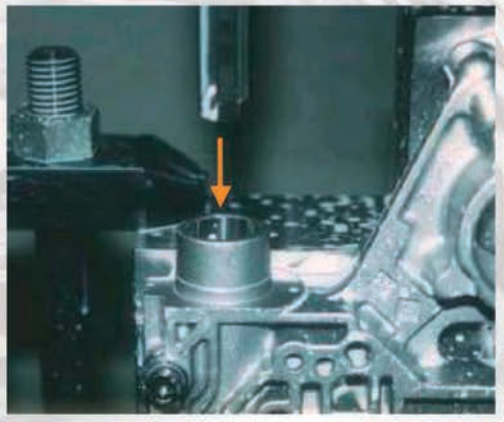
Work material	Carbide	PCD
ADC12 (Contains12%Si)	1	10～20
A390 (Contains18%Si)	1	20～

● Cutting machining time

(Test) Item	Carbide	PCD
Number of rotations S(min⁻¹)	2000	6000
Cutting speed V(m/min)	125	380
Feeding speed F(mm/min)	600	1800
Machining time	3 :	1
Tool size	∅20×4NT(Machining depth 20mm)	

● Number of tool replacement

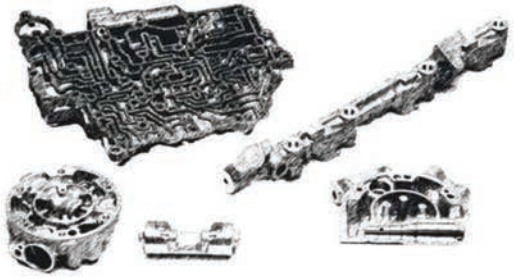
(Test) Item	Carbide	PCD
Number of tool replacement	10 times	once



Purposes **Nonferrous metal (Aluminum alloy)**

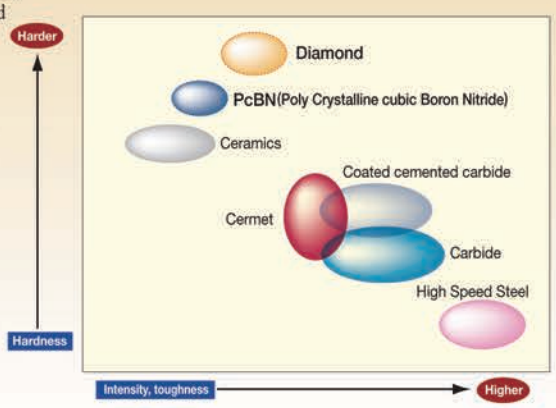
Machined components

- Cylinder head
- Cylinder block
- Transmission/steering components
- Compressor components



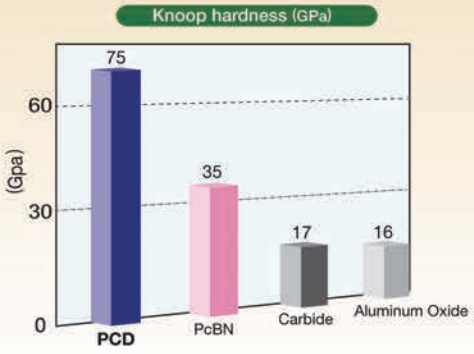
The position of diamonds

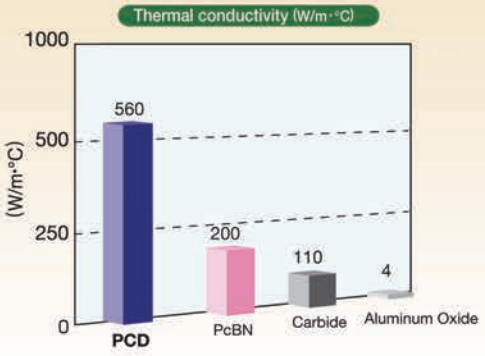
In the field of cutting tools, diamonds with excellent material features are in the limelight as the material that is expected to be applied for fine shape machining as well as various requests and issues in high grade and high efficient machining.



Material features of PCD (Poly Crystalline Diamond)

The features of PCD (Poly Crystalline Diamond) in poly crystalline cutting tool materials are as follows:
1. High hardness is high 2. High thermal conductivity is high 3. Coefficient of thermal expansion is small.
It has excellent thermal conductivity and hardness, that is required for cutting tools, compared to other tool materials.





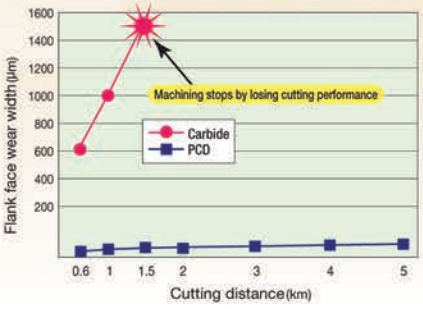
Comparison of cutting performance between PCD (Poly Crystalline Diamond) and carbide tools

Longer life than carbide by a ratio of 10 to 20 times

A390-T6 and ADC-12 that are widely used as a main material for automotive components had many problems such as grade of processing surface and running cost for machining with carbide cutting tools. PCD has cleared various problems, especially machining ADC-12 which is difficult to cut, due to its longer tool life and stable machining accuracy compared to carbide

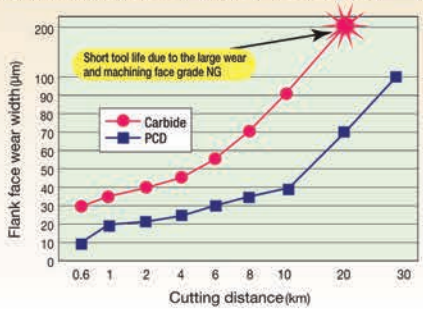
A390-T6 Cutting distance and flank face wear width

Cutting distance(Km)	0.6	1.0	1.5	2.0	3.0	4.0	5.0
PCD flank face wear width(μm)	28	35	50	55	60	70	80
Carbide flank face wear width(μm)	600	1000	1500	Immeasurable			



ADC12Cutting distance and flank face wear width

Cutting distance(Km)	0.6	1.0	2.0	6.0	10.0	20.0	30.0
PCD flank face wear width(μm)	10	20	22	30	40	70	100
Carbide flank face wear width(μm)	30	35	40	55	90	200	—



Data.1

Amazing accuracy
Generated from segmented cutting chips

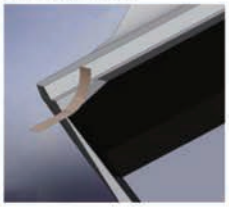
Breaker function has been enhanced as a method to resolve deteriorating productivity due to the cutting chip troubles. We can also suggest [other] precautions and procedures against various cutting chip troubles.

Solving problems

A. Length of cutting chips

❶ **Edge honing specifications**
Bend the flow of cutting chips moderately to shorten the length of cutting chips.

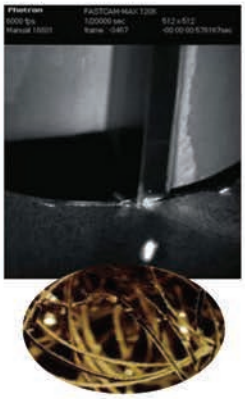
Edge honing specification cutting edge



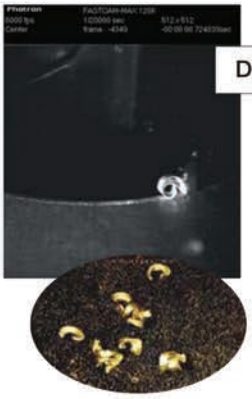
❷ **Breaker specifications**
Curl the cutting chips by the wall surface of the breaker to forcibly shorten the length of cutting chips.

B. Width of cutting chips

❸ **Nick Specifications**
Shorten the width of cutting chips by a recess prepared on the cutting edge.

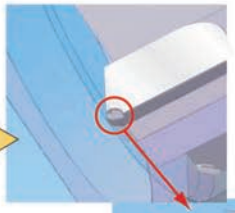


Without breaker

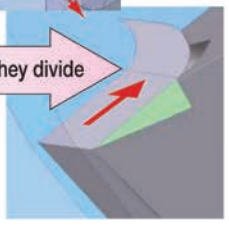


With breaker

Divided cutting chips



Cutting chips curl thickly and they divide



High machining accuracy without white turbidity is achieved by segmentalizing cutting chips

● Cutting resistance and contour accuracy have been improved by grinding technology

Conventional machining

Special grinding machining

A.L.M.T. Corp.

Data.2

Ability of Design and Quality

[Achieved both high efficiency cutting and high machining accuracy]

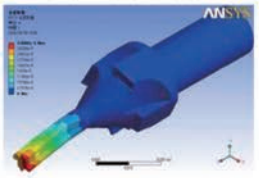
The concentricity and roundness of cutting edges have improved spectacularly by high shank rigidity (carbide) and grinding technology on the cutting edge.
The machining efficiency per cutting edge has improved by cutting down the machining time.

Machining conditions

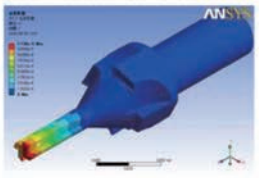
Name of work piece	Cylinder head, valve seat and guide hole
Work material	Aluminum alloy casting AC4B
Machines	Horizontal machining center
Tool size	Ø11-Ø36-L150
Number of rotations (min-1)	3500
Cutting speed (m/min)	395
Feeding rate (mm/rev)	0.3
Depth of cut (mm/diameter)	0.5
Coolant	Emulsion type water-soluble coolant

Deformation volume by CAE analysis

Shank material: Steel



Shank material: Cemented carbide



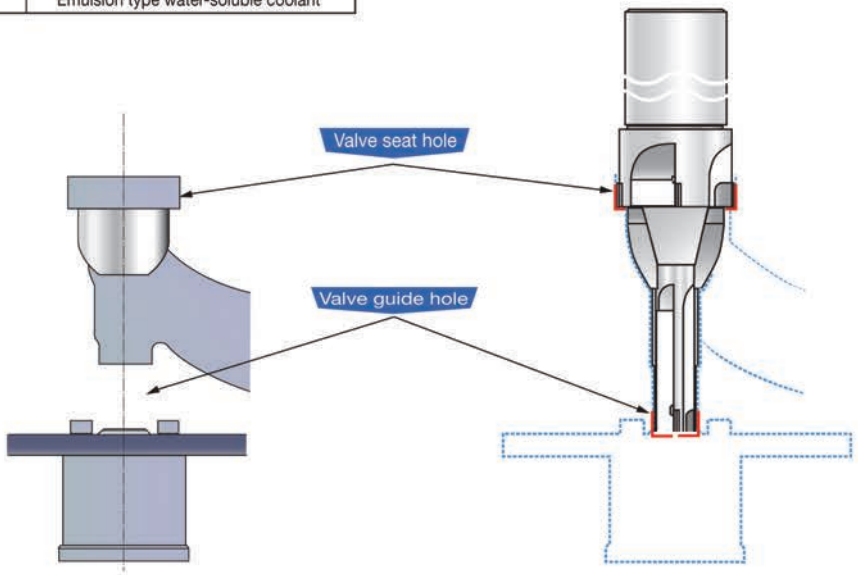
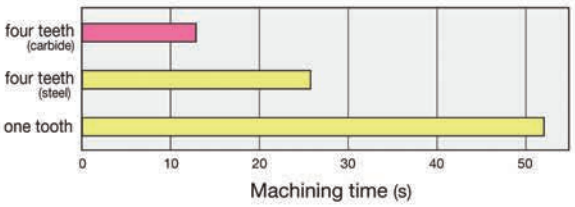


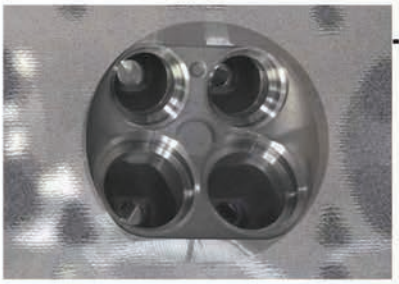
Diagram of work material

Cross section of machining tool

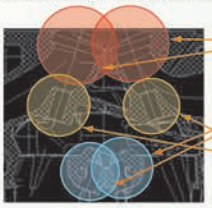
Differences of performance between shank materials

Machining results	one tooth	four teeth (steel)	four teeth (carbide)
Machining time (s)	52	26	13
Circularity (mm)	0.01	0.05	0.03
Coaxiality (mm)	0.01	0.07	0.05





Machining application



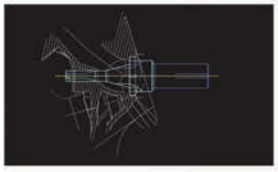
Stage 1 Valve seat and guide hole

Stage 2 HLA(Hydraulic Lash) Adjuster hole finishing

Stage 3 Intake & exhaust valve guide hole finishing

Stage 1 Valve seat and guide hole finishing

The issues such as concentricity and cylindricality are solved by high shank rigidity and high cutting edge accuracy.

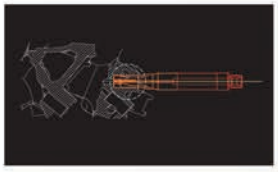


■ Valve seat and guide hole finishing specifications

	Machine : Horizontal machining center	
Machining conditions	Number of rotations (min-1)	6,000
	Feeding rate (mm/rev)	0.48
	Feeding speed (mm/min)	2,880
	Depth of cut (mm/diameter)	0.6
	Coolant	Emulsion type water-soluble coolant

Stage 2 Hydraulic lash adjuster hole finishing

The issues such as removal of cutting chips and cylindricality are solved by the design that responded to thin-walled & blind hole machining portions.



■ HLA (Hydraulic Lash Adjuster) hole finishing specifications

	Machine : Horizontal machining center	
Machining conditions	Number of rotations (min-1)	5,000
	Feeding rate (mm/rev)	0.34
	Feeding speed (mm/min)	1,700
	Depth of cut (mm/diameter)	0.5
	Coolant	Emulsion type water-soluble coolant

Stage 3 Intake & exhaust valve guide hole finishing

Concentricity and cylindricality of cutting edge are controlled highly accurately and the self-guide effect is enhanced in order to respond to long overhang and bending moment by small diameter. Moreover, the discharge amount of cutting chips has improved by the guide hole shape and coolant design. As a result, it can machine 10 times more the number of holes compared to cemented carbide to improve productivity.

■ Intake & exhaust valve guide hole finishing specifications

	Machine : Horizontal machining center	
Machining conditions	Number of rotations (min-1)	3,250
	Feeding rate (mm/rev)	0.1
	Feeding speed (mm/min)	325
	Depth of cut (mm/diameter)	0.1
	Coolant	Emulsion type water-soluble coolant

■ Machining results

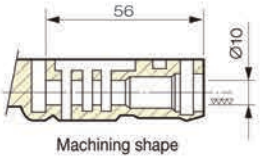
Cutting tool	Tool life (number of machined holes)	Ratio of prices	Ratio of costs	Coaxiality	Inner diameter change volume
Carbide	1,200	1	1	—	—
Our PCD tool	12,000	3	0.8	10μm	3μm/10,000hole

A.L.M.T. Corp.

PCD reamer

Application of PCD reamer machining

Reamer machining of automobile hydraulic regulator valves

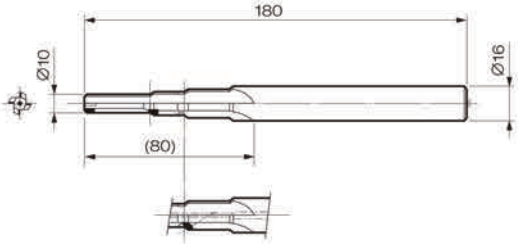


Machining shape

Item	Carbide reamer	PCD reamer
Cutting speed (m/min)	120	120
Feeding speed (mm/rev)	0.2	0.2
Depth of cut (mm/diameter)	0.4	0.4
Coolant	oil-based	water-soluble based
Machining surface roughness (μmRz)	8	3
Circularity	10	5
Running cost	1	0.5

■ Shape

Cutting edge diameter ØD	Maximum number of edges	Other specifications
"3 <= phi < 4"	1tooth	Blade diameter tolerance Standard specifications ØD±0.0025mm High-accurate specifications ØD±0.0015mm (5 or bigger and 25 or below) Along the length : Maximum length 450mm (Standard L/D= from 3 to 5)
"4 <= phi < 6"	3teeth	
"6 <= phi < 8"	4teeth	
"8 <= phi	6teeth	



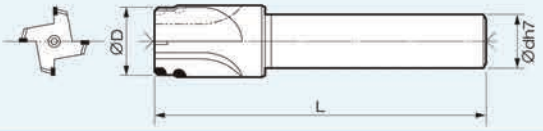
Our products

PCD reamer (Single-step reamer)

Body materials (1) Solid carbide (2) Combination of carbide and steel (3) Hardened steel
Applications : HDD, CD-ROM, rocker-arms, etc.

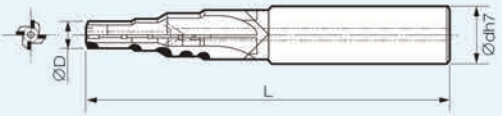
PCD reamer (with chamfering tip)

Body materials (1) Solid carbide (2) Combination of carbide and steel (3) Hardened steel
Applications : Compressor body, ABS actuator, power steering body, etc.



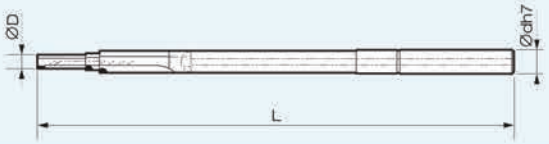
PCD reamer (PCD Profiled step reamer)

Body materials (1) Solid carbide (2) Combination of carbide and steel (3) Hardened steel
Applications : Oil pumps, steering, AT hydraulic control body, etc.



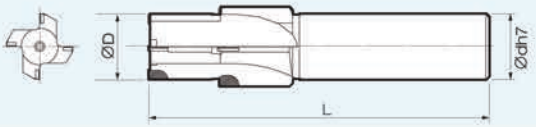
PCD gun reamer (Multiple-step reamer)

Body materials (1) Combination of carbide and steel
Applications : AT hydraulic control body, etc.



PCD reamer (with breakers)

Body materials (1) Combination of carbide and steel
Applications : ABS body, Oil pumps, AT hydraulic control body, etc.



Adapters & Holders

Pages 539-563

AVAILABILITY:
All holders, collets and accessories have a minimum shipment time of 3 working days after receipt of order at Sumitomo.

CNC Holders

CNC Holder line provides options for all industry-standard sizes and congurations for collet chucks, end mill holders, shell mill holders, hi-power milling chucks, and face mill holders.

Each product represents the latest technology, and reects our commitment to quality and innovation. We also support our products with unmatched application expertise and customer service.

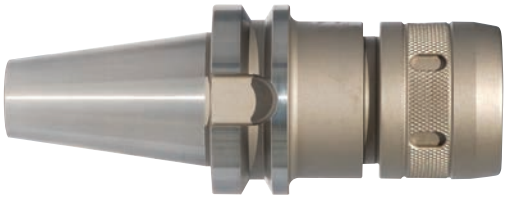
Induction Shrink-Fit System

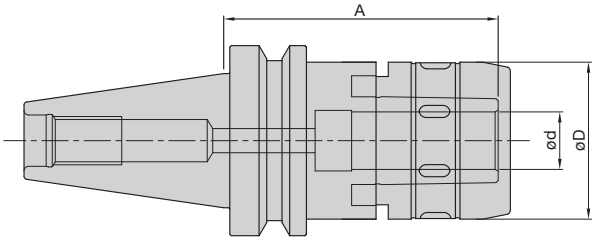
The finest shrink fit holders available. Precise manufacturing and exclusive "counter bore" technology optimize the advantages of using shrink fit tooling. These holders offer the best part finish quality, longer tool life, and higher feed rates and speeds. All of this is accomplished due to micrometer accuracy in runout, high cutting tool rigidity and extremely high clamping forces.

Tightening Fixtures and Retention Knobs

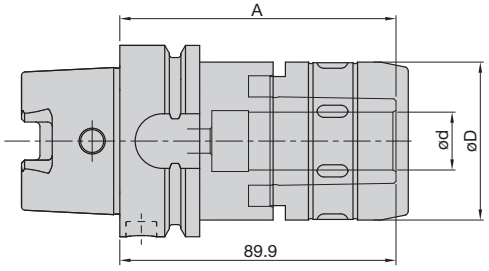
Our tightening fixtures are the best and simplest in the world. You gain immediate access to both the working and taper ends. Less handling just means fewer chances of costly holders being dropped and damaged.

Our retention knobs are manufactured from the finest and most consistent steels required. Accurately machined surfaces and quality threads mean constant productivity and less down-time.



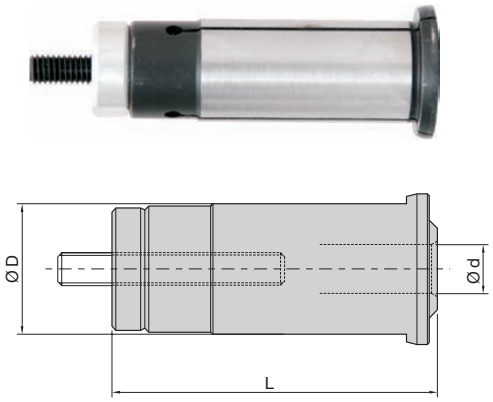


Milling Chucks					
Catalog Number	Dimensions				
	d (mm)	d (inch)	D (mm)	A (mm)	A (inch)
CAT40	**Balanced to G6.3 @ 8,000 RPM**				
SHPMC0.750-3.54-CAT40	19.05	0.75	52	89.9	3.54
SHPMC1.000-3.54-CAT40	25.4	1.00	58	89.9	3.54
SHPMC1.250-4.25-CAT40	31.75	1.25	66	108.0	4.25
SHPMC25-90-CAT40	25	–	58	90	–
SHPMC32-105-CAT40	32	–	66	105	–
CAT50	**Balanced to G6.3 @ 8,000 RPM**				
SHPMC0.750-3.54-CAT50	19.05	0.75	52	89.9	3.54
SHPMC0.750-6.50-CAT50	19.05	0.75	52	165.1	6.50
SHPMC1.000-3.54-CAT50	25.4	1.00	58	89.9	3.54
SHPMC1.000-5.31-CAT50	25.4	1.00	58	134.9	5.31
SHPMC1.250-4.13-CAT50	31.75	1.25	66	104.9	4.13
SHPMC1.250-5.31-CAT50	31.75	1.25	66	134.9	5.31
SHPMC2.000-4.72-CAT50	50.8	2.00	103	119.9	4.72
SHPMC2.000-5.90-CAT50	50.8	2.00	103	149.9	5.90
SHPMC32-105-CAT50	32	–	58	105	–
SHPMC50-135-CAT50	50	–	103	135	–
BT30	**Balanced to G6.3 @ 8,000 RPM**				
SHPMC0.750-3.54-BT30	19.05	0.75	52	89.9	3.54
SHPMC20-90-BT30	20	–	52	90	–
SHPMC25-90-BT30	25	–	58	90	–
SHPMC32-105-BT30	32	–	66	105	–



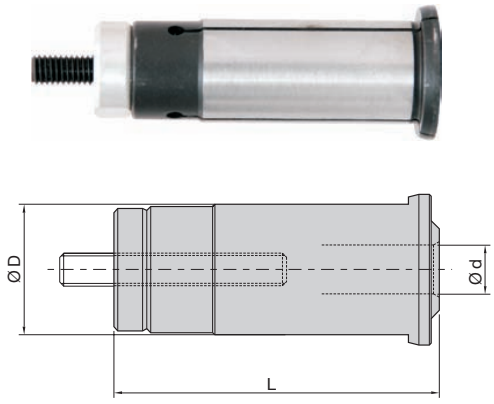
HSK Milling Chucks					
Catalog Number	Dimensions				
	d (mm)	d (inch)	D (mm)	A (mm)	A (inch)
HSK-A63	**Balanced to G6.3 @ 8,000 RPM**				
SHPMC0.750-3.54-HSKA63	19.05	0.75	52	89.9	3.54
SHPMC1.000-4.13-HSKA63	25.4	1.00	58	104.9	4.13
SHPMC1.250-4.72-HSKA63	31.75	1.25	66	119.9	4.72
SHPMC20-90-HSKA63	20	–	52	90	–
SHPMC25-105-HSKA63	25	–	58	105	–
SHPMC32-135-HSKA63	32	–	66	135	–
HSK-A100	**Balanced to G6.3 @ 15,000 RPM**				
SHPMC0.750-3.94-HSKA100	–	0.750	52	–	3.94
SHPMC1.000-4.53-HSKA100	–	1.000	58	–	4.53
SHPMC1.250-5.31-HSKA100	–	1.250	66	–	5.31
SHPMC20-100-HSKA100	20	–	52	100mm	–
SHPMC25-115-HSKA100	25	–	58	115mm	–
SHPMC32-135-HSKA100	32	–	66	135mm	–

Adjustable Straight Collets for Milling Chucks (Metric)



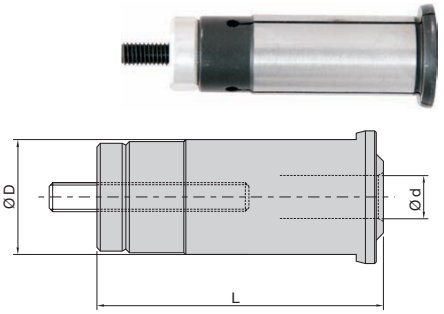
Catalog Number	Dimensions (mm)		
	D	d	L
SSC20-6	20	6	63
SSC20-8	20	8	63
SSC20-10	20	10	63
SSC20-12	20	12	63
SSC20-16	20	16	63
SSC25-6	25	6	73
SSC25-8	25	8	73
SSC25-10	25	10	73
SSC25-12	25	12	73
SSC25-16	25	16	73
SSC25-18	25	18	73
SSC25-20	25	20	73
SSC32-6	32	6	79
SSC32-8	32	8	79
SSC32-10	32	10	79
SSC32-12	32	12	79
SSC32-16	32	16	79
SSC32-18	32	18	79
SSC32-20	32	20	79
SSC32-25	32	25	79

Adjustable Straight Collets for Milling Chucks (Inch)

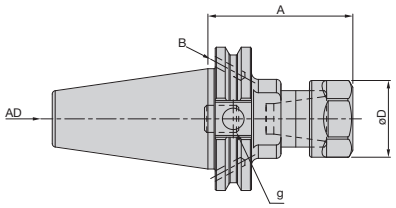


Catalog Number	Dimensions (inch)		
	D	d	L
SSC 0.750-0.250	0.750	0.250	2.48
SSC 0.750-0.312	0.750	0.312	2.48
SSC 0.750-0.375	0.750	0.375	2.48
SSC 0.750-0.437	0.750	0.437	2.48
SSC 0.750-0.500	0.750	0.500	2.48
SSC 0.750-0.562	0.750	0.562	2.48
SSC 0.750-0.625	0.750	0.625	2.48
SSC 1.000-0.250	1.000	0.250	2.87
SSC 1.000-0.312	1.000	0.312	2.87
SSC 1.000-0.375	1.000	0.375	2.87
SSC 1.000-0.437	1.000	0.437	2.87
SSC 1.000-0.500	1.000	0.500	2.87
SSC 1.000-0.562	1.000	0.562	2.87
SSC 1.000-0.625	1.000	0.625	2.87
SSC 1.000-0.750	1.000	0.750	2.87
SSC 1.250-0.250	1.250	0.250	3.11
SSC 1.250-0.312	1.250	0.312	3.11
SSC 1.250-0.375	1.250	0.375	3.11
SSC 1.250-0.437	1.250	0.437	3.11
SSC 1.250-0.500	1.250	0.500	3.11
SSC 1.250-0.562	1.250	0.562	3.11
SSC 1.250-0.625	1.250	0.625	3.11
SSC 1.250-0.750	1.250	0.750	3.11
SSC 1.250-0.875	1.250	0.875	3.11
SSC 1.250-1.000	1.250	1.000	3.11

Adjustable Straight Collets for Milling Chucks (Metric to Inch)

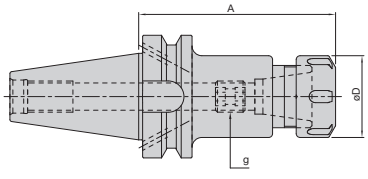


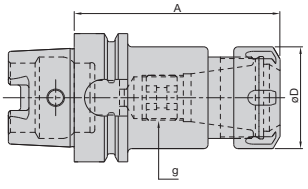
Catalog Number	Dimensions		
	D	d	L
SSC32-0.375	32	0.375	3.11
SSC32-0.500	32	0.500	3.11
SSC32-0.625	32	0.625	3.11
SSC32-0.750	32	0.750	3.11
SSC32-1.000	32	1.000	3.11



ER Collet Chucks - CAT40	Balanced to G6.3 @ 20,000 RPM					
Catalog Number	Dimensions					
	Collet Type	Range (mm)	D (mm)	A (mm)	A (inch)	g
CAT40						
SCCH-ER16-2.50-CAT40	ER16	1–10	28	63.5	2.50	M10
SCCH-ER16-5.00-CAT40	ER16	1–10	28	127.0	5.00	M10
SCCH-ER20-2.50-CAT40	ER20	1–13	34	63.5	2.50	M12
SCCH-ER20-6.00-CAT40	ER20	1–13	34	152.4	6.00	M12
SCCH-ER25-2.50-CAT40	ER25	2–16	42	63.5	2.50	M16
SCCH-ER25-6.00-CAT40	ER25	2–16	42	152.4	6.00	M16
SCCH-ER32-2.75-CAT40	ER32	2–20	50	69.9	2.75	M22x1.5
SCCH-ER32-6.00-CAT40	ER32	2–20	50	152.4	6.00	M22x1.5
SCCH-ER40-3.00-CAT40	ER40	3–26	63	76.2	3.00	M22x1.5
SCCH-ER40-6.00-CAT40	ER40	3–26	63	152.4	6.00	M22x1.5

ER Collet Chucks - CAT50	Balanced to G6.3 @ 20,000 RPM					
Catalog Number	Dimensions					
	Collet Type	Range (mm)	D (mm)	A (mm)	A (inch)	g
CAT50						
SCCH-ER16-2.50-CAT50	ER16	1–10	28	63.5	2.50	M10
SCCH-ER16-4.00-CAT50	ER16	1–10	28	101.6	4.00	M10
SCCH-ER16-6.00-CAT50	ER16	1–10	28	152.4	6.00	M10
SCCH-ER20-2.50-CAT50	ER20	1–13	34	63.5	2.50	M12
SCCH-ER20-4.00-CAT50	ER20	1–13	34	101.6	4.00	M12
SCCH-ER20-6.00-CAT50	ER20	1–13	34	152.4	6.00	M12
SCCH-ER25-2.50-CAT50	ER25	2–16	42	63.5	2.50	M16
SCCH-ER25-4.00-CAT50	ER25	2–16	42	101.6	4.00	M16
SCCH-ER25-6.00-CAT50	ER25	2–16	42	152.4	6.00	M16
SCCH-ER32-2.75-CAT50	ER32	2–20	50	69.9	2.75	M22x1.5
SCCH-ER32-4.00-CAT50	ER32	2–20	50	101.6	4.00	M22x1.5
SCCH-ER32-6.00-CAT50	ER32	2–20	50	152.4	6.00	M22x1.5
SCCH-ER40-3.00-CAT50	ER40	3–26	63	76.2	3.00	M22x1.5
SCCH-ER40-4.00-CAT50	ER40	3–26	63	101.6	4.00	M22x1.5
SCCH-ER40-6.00-CAT50	ER40	3–26	63	152.4	6.00	M22x1.5

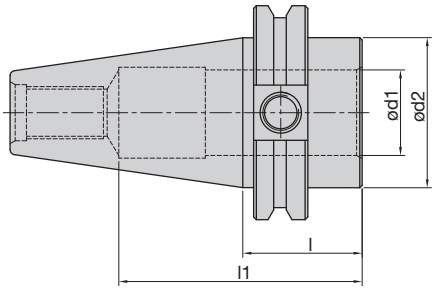


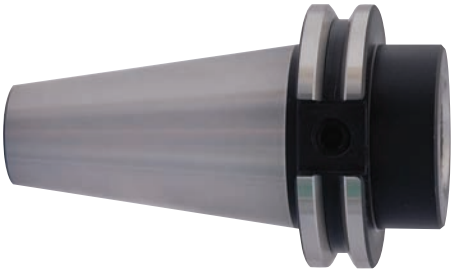


ER Collet Chucks	Balanced to G6.3 @ 20,000 RPM					
Catalog Number	Dimensions					
	Collet Type	Range (mm)	D (mm)	A (mm)	A (inch)	g
BT30						
SCCH-ER16-100-BT30	ER16	1–10	28	100	3.94	M10
SCCH-ER16-150-BT30	ER16	1–10	28	150	5.90	M10
SCCH-ER16-70-BT30	ER16	1–10	28	70	2.76	M10
SCCH-ER20-100-BT30	ER20	1–13	34	100	3.94	M12
SCCH-ER20-70-BT30	ER20	1–13	34	70	2.76	M12
SCCH-ER25-100-BT30	ER25	2–16	42	100	3.94	M12
SCCH-ER25-70-BT30	ER25	2–16	42	70	2.76	M12
SCCH-ER32-100-BT30	ER32	2–20	50	100	3.94	M22x1.5
SCCH-ER32-70-BT30	ER32	2–20	50	70	2.76	M12
SCCH-ER40-100-BT30	ER40	3–26	63	100	3.89	M22x1.5
BT40						
SCCH-ER16-100-BT40	ER16	1–10	28	100	3.94	M10
SCCH-ER16-160-BT40	ER16	1–10	28	160	6.30	M10
SCCH-ER16-70-BT40	ER16	1–10	28	70	2.76	M10
SCCH-ER20-100-BT40	ER20	1–13	34	100	3.94	M12
SCCH-ER20-160-BT40	ER20	1–13	34	160	6.30	M12
SCCH-ER20-70-BT40	ER20	1–13	34	70	2.76	M12
SCCH-ER25-100-BT40	ER25	2–16	42	100	3.94	M16
SCCH-ER25-160-BT40	ER25	2–16	42	160	6.30	M16
SCCH-ER25-70-BT40	ER25	2–16	42	70	2.76	M16
SCCH-ER32-100-BT40	ER32	2–20	50	100	3.94	M22x1.5
SCCH-ER32-160-BT40	ER32	2–20	50	160	6.30	M22x1.5
SCCH-ER32-70-BT40	ER32	2–20	50	70	2.76	M22x1.5
SCCH-ER40-100-BT40	ER40	3–26	63	100	3.94	M22x1.5
SCCH-ER40-160-BT40	ER40	3–26	63	160	6.30	M22x1.5
SCCH-ER40-80-BT40	ER40	3–26	63	80	3.15	M22x1.5

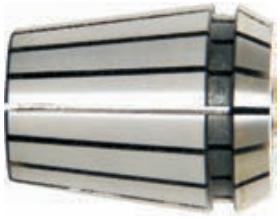
HSK ER Collet Chuck Holders	Balanced to G6.3 @ 20,000 RPM					
Catalog Number	Dimensions					
	Collet Type	Range (mm)	D (mm)	A (mm)	A (inch)	g
HSK-A63						
SCCH-ER16M-100-HSKA63	ER16	1–10	28	100	3.94	M10
SCCH-ER16M-160-HSKA63	ER16	1–10	28	160	6.3	M10
SCCH-ER20-100-HSKA63	ER20	1–13	34	100	3.94	M12
SCCH-ER20M-160-HSKA63	ER20	1–13	34	160	6.3	M12
SCCH-ER25-100-HSKA63	ER25	2–16	42	100	3.94	M16
SCCH-ER25M-160-HSKA63	ER25	2–16	42	160	6.3	M16
SCCH-ER32-100-HSKA63	ER32	2–20	50	100	3.94	M22x1.5
SCCH-ER32-160-HSKA63	ER32	2–20	50	160	6.3	M22x1.5
SCCH-ER40-120-HSKA63	ER40	3–26	63	120	4.72	M22x1.5
SCCH-ER40-160-HSKA63	ER40	3–26	63	160	6.3	M22x1.5
HSK-A100						
SCCH-ER16M-100-HSKA100	ER16M	1–10	22	100	3.94	M10
SCCH-ER20-100-HSKA100	ER20	1–13	34	100	3.94	M12
SCCH-ER25-100-HSKA100	ER25	2–16	42	100	3.94	M16
SCCH-ER32-100-HSKA100	ER32	2–20	50	100	3.94	M22X1.5
SCCH-ER40-120-HSKA100	ER40	3–26	63	120	4.72	M22x1.5
SCCH-ER16M-160-HSKA100	ER16M	1–10	22	160	6.3	M10
SCCH-ER20-160-HSKA100	ER20	1–13	34	160	6.3	M12
SCCH-ER25-160-HSKA100	ER25	2–16	42	160	6.3	M16
SCCH-ER32-160-HSKA100	ER32	2–20	50	160	6.3	M22X1.5
SCCH-ER40-160-HSKA100	ER40	3–26	63	160	6.3	M22x1.5

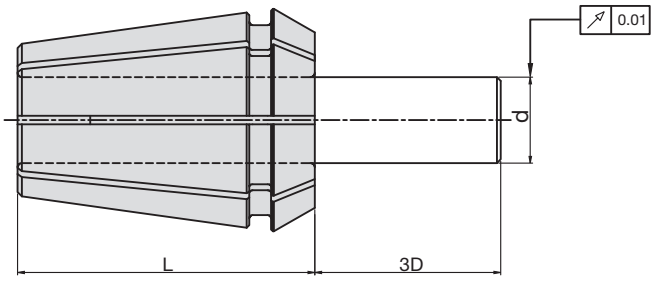
Straight Shank Synchro Chucks





Straight Shank Synchro Chucks					
Catalog Number	Spindle Type	Dimensions			
		d1 (in)	d2(mm)	l1 (mm)	l (in)
SSSC-CT40-1.000	CAT40	1	45	68.5	1.375
SSSC-CT50-1.000	CAT50	1	70	84.5	1.375
SSSC-CT50-1.500	CAT50	1.5	70	84.5	1.375
SSSC-BT40-1.000	BT40	1	45	68.5	1.062
SSSC-BT50-1.000	BT50	1	70	84.5	1.875
SSSC-BT50-1.500	BT50	1.5	70	84.5	1.875





Spring Collets ER16 (Inch)

Catalog Number	Dimensions (inch)		
	D	L	d
ER16-1/16	0.669	1.063	0.043-0.062
ER16-3/32	0.669	1.063	0.054-0.093
ER16-1/8	0.669	1.063	0.086-0.125
ER16-5/32	0.669	1.063	0.117-0.156
ER16-3/16	0.669	1.063	0.148-0.187
ER16-7/32	0.669	1.063	0.179-0.218
ER16-1/4	0.669	1.063	0.211-0.250
ER16-9/32	0.669	1.063	0.242-0.281
ER16-5/16	0.669	1.063	0.273-0.312
ER16-11/32	0.669	1.063	0.304-0.343
ER16-3/8	0.669	1.063	0.336-0.375
ER16-13/32	0.669	1.063	0.367-0.406
ER16 12pc. Collet Set	–	–	–

ER20(Inch)

ER20-1/8	0.827	1.22	0.086-0.125
ER20-3/16	0.827	1.22	0.148-0.187
ER20-1/4	0.827	1.22	0.211-0.250
ER20-5/16	0.827	1.22	0.273-0.312
ER20-3/8	0.827	1.22	0.336-0.375
ER20-7/16	0.827	1.22	0.398-0.437
ER20-1/2	0.827	1.22	0.461-0.500
ER20 7pc. Collet Set	–	–	–

ER25 (Inch)

ER25-1/8	1.024	1.378	0.086-0.125
ER25-3/16	1.024	1.378	0.148-0.187
ER25-1/4	1.024	1.378	0.211-0.250
ER25-5/16	1.024	1.378	0.273-0.312
ER25-3/8	1.024	1.378	0.336-0.375
ER25-7/16	1.024	1.378	0.398-0.437
ER25-1/2	1.024	1.378	0.461-0.500
ER25-9/16	1.024	1.378	0.523-0.562
ER25-5/8	1.024	1.378	0.586-0.625
ER25 9pc. Collet Set	–	–	–

Spring Collets ER 32(Inch)

Catalog Number	Dimensions (inch)		
	D	L	d
ER32-1/8	1.299	1.575	0.086-0.125
ER32-3/16	1.299	1.575	0.148-0.187
ER32-1/4	1.299	1.575	0.211-0.250
ER32-5/16	1.299	1.575	0.273-0.312
ER32-3/8	1.299	1.575	0.336-0.375
ER32-7/16	1.299	1.575	0.398-0.437
ER32-1/2	1.299	1.575	0.461-0.500
ER32-9/16	1.299	1.575	0.523-0.562
ER32-5/8	1.299	1.575	0.586-0.625
ER32-11/16	1.299	1.575	0.648-0.687
ER32-3/4	1.299	1.575	0.711-0.750
ER32 12pc Collet Set	–	–	–

ER40 (Inch)

ER40-1/8	1.614	1.811	0.086-0.125
ER40-3/16	1.614	1.811	0.148-0.187
ER40-1/4	1.614	1.811	0.211-0.250
ER40-5/16	1.614	1.811	0.273-0.312
ER40-3/8	1.614	1.811	0.336-0.375
ER40-7/16	1.614	1.811	0.398-0.437
ER40-1/2	1.614	1.811	0.461-0.500
ER40-9/16	1.614	1.811	0.523-0.562
ER40-5/8	1.614	1.811	0.586-0.625
ER40-11/16	1.614	1.811	0.648-0.687
ER40-3/4	1.614	1.811	0.711-0.750
ER40-7/8	1.614	1.811	0.836-0.875
ER40-1.0	1.614	1.811	0.961-1.000
ER40 14pc. Collet Set	–	–	–

Spring Collets ER16 (*Metric*)

Catalog Number	Dimensions (mm)		
	D	L	d
ER16-1.0	17	27	1.0-0.5
ER16-1.5	17	27	1.5-1.0
ER16-2.0	17	27	2.0-1.5
ER16-2.5	17	27	2.5-2.0
ER16-3.0	17	27	3.0-2.5
ER16-3.5	17	27	3.5-3.0
ER16-4.0	17	27	4.0-3.5
ER16-4.5	17	27	4.5-4.0
ER16-5.0	17	27	5.0-4.5
ER16-5.5	17	27	5.5-5.0
ER16-6.0	17	27	6.0-5.5
ER16-6.5	17	27	6.5-6.0
ER16-7.0	17	27	7.0-6.5
ER16-7.5	17	27	7.5-7.0
ER16-8.0	17	27	8.0-7.5
ER16-8.5	17	27	8.5-8.0
ER16-9.0	17	27	9.0-8.5
ER16-9.5	17	27	9.5-9.0
ER16-10.0	17	27	10.0-9.5
ER16 10pc. Collet Set	–	–	–

ER20 (*Metric*)

ER20-1.0	21	31	1.0-0.5
ER20-2.0	21	31	2.0-1.5
ER20-3.0	21	31	3.0-2.5
ER20-4.0	21	31	4.0-3.5
ER20-5.0	21	31	5.0-4.5
ER20-6.0	21	31	6.0-5.5
ER20-7.0	21	31	7.0-6.5
ER20-8.0	21	31	8.0-7.5
ER20-9.0	21	31	9.0-8.5
ER20-10.0	21	31	10.0-9.5
ER20-11.0	21	31	11.0-10.5
ER20-12.0	21	31	12.0-11.5
ER20-13.0	21	31	13.0-12.5
ER20 12pc. Collet Set	–	–	–

ER25 (*Metric*)

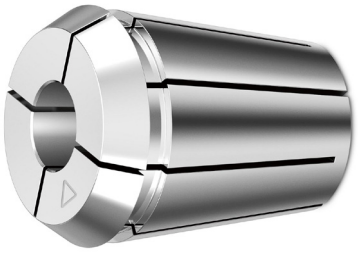
ER25-2.0	26	35	2.0-1.5
ER25-3.0	26	35	3.0-2.5
ER25-4.0	26	35	4.0-3.5
ER25-5.0	26	35	5.0-4.5
ER25-6.0	26	35	6.0-5.5
ER25-7.0	26	35	7.0-6.5
ER25-8.0	26	35	8.0-7.5
ER25-9.0	26	35	9.0-8.5
ER25-10.0	26	35	10.0-9.5
ER25-11.0	26	35	11.0-10.5
ER25-12.0	26	35	12.0-11.5
ER25-13.0	26	35	13.0-12.5
ER25-14.0	26	35	14.0-13.5
ER25-15.0	26	35	15.0-14.5
ER25-16.0	26	35	16.0-15.5
ER25 15pc. Collet Set	–	–	–

Spring Collets ER32 (*Metric*)

Catalog Number	Dimensions (mm)		
	D	L	d
ER32-2.0	33	40	2.0-1.5
ER32-3.0	33	40	3.0-2.5
ER32-4.0	33	40	4.0-3.5
ER32-5.0	33	40	5.0-4.5
ER32-6.0	33	40	6.0-5.5
ER32-7.0	33	40	7.0-6.5
ER32-8.0	33	40	8.0-7.5
ER32-9.0	33	40	9.0-8.5
ER32-10.0	33	40	10.0-9.5
ER32-11.0	33	40	11.0-10.5
ER32-12.0	33	40	12.0-11.5
ER32-13.0	33	40	13.0-12.5
ER32-14.0	33	40	14.0-13.5
ER32-15.0	33	40	15.0-14.5
ER32-16.0	33	40	16.0-15.5
ER32-17.0	33	40	17.0-16.5
ER32-18.0	33	40	18.0-17.5
ER32-19.0	33	40	19.0-18.5
ER32-20.0	33	40	20.0-19.5
ER32 18pc. Collet Set	–	–	–

ER40 (*Metric*)

ER40-3.0	41	46	3.0-2.5
ER40-4.0	41	46	4.0-3.5
ER40-5.0	41	46	5.0-4.5
ER40-6.0	41	46	6.0-5.5
ER40-7.0	41	46	7.0-6.5
ER40-8.0	41	46	8.0-7.5
ER40-9.0	41	46	9.0-8.5
ER40-10.0	41	46	10.0-9.5
ER40-11.0	41	46	11.0-10.5
ER40-12.0	41	46	12.0-11.5
ER40-13.0	41	46	13.0-12.5
ER40-14.0	41	46	14.0-13.5
ER40-15.0	41	46	15.0-14.5
ER40-16.0	41	46	16.0-15.5
ER40-17.0	41	46	17.0-16.5
ER40-18.0	41	46	18.0-17.5
ER40-19.0	41	46	19.0-18.5
ER40-20.0	41	46	20.0-19.5
ER40-21.0	41	46	21.0-20.5
ER40-22.0	41	46	22.0-21.5
ER40-23.0	41	46	23.0-22.5
ER40-24.0	41	46	24.0-23.5
ER40-25.0	41	46	25.0-24.5
ER40-26.0	41	46	26.0-25.5
ER40 23pc. Collet Set	–	–	–

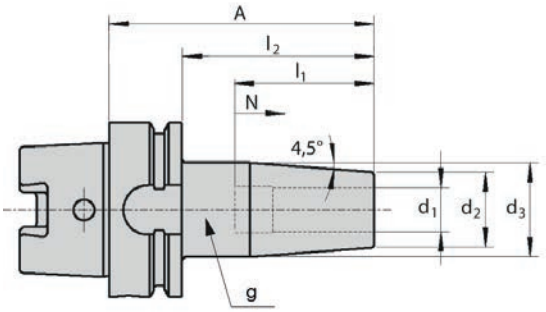


GB Collects - INCH

Dimensions (mm)				Product Code					
Shank d (in)	Square SW (in)	l2 (mm)	Pipe Tap	ER11-GB	ER16-GB	ER20-GB	ER25-GB	ER32-GB	ER40-GB
0.141	0.11	18		ER110141GB	ER160141GB				
0.168	0.131	18			ER160168GB	ER200168GB	ER250168GB	ER320168GB	
0.194	0.152	18			ER160194GB	ER200194GB	ER250194GB	ER320194GB	
0.22	0.165	18			ER160220GB	ER200220GB	ER250220GB	ER320220GB	
0.255	0.191	18			ER160255GB	ER200255GB	ER250255GB	ER320255GB	ER400255GB
0.318	0.238	22			ER160318GB	ER200318GB	ER250318GB	ER320318GB	ER400318GB
0.323	0.242	22				ER200323GB	ER250323GB	ER320323GB	ER400323GB
0.367	0.275	22				ER200367GB	ER250367GB	ER320367GB	ER400367GB
0.381	0.286	22				ER200381GB	ER250381GB	ER320381GB	ER400381GB
0.429	0.322	25					ER250429GB	ER320429GB	ER400429GB
0.437	0.328	25	3				ER250437GB	ER320437GB	ER400437GB
0.48	0.36	25					ER250480GB	ER320480GB	ER400480GB
0.5542	0.406	25						ER320542GB	ER400542GB
0.562	0.421	25	3					ER320562GB	ER400562GB
0.59	0.442	25						ER320590GB	ER400592GB
0.652	0.489	25						ER320652GB	ER400652GB
0.687	0.515	25	3						ER400687GB
0.697	0.523	25							ER400697GB
0.7	0.531	25	3						ER400700GB
0.76	0.57	25							ER400760GB
0.8	0.6	28							ER400800GB

GB Collects - *METRIC*

Dimensions (mm)				Product Code					
Shank d (mm)	Square SW(mm)	l2 (mm)	STD	ER11-GB	ER16-GB	ER20-GB	ER25-GB	ER32-GB	ER40-GB
2.8	2.1	12	DIN	ER11280GB					
3.5	2.7	14	DIN	ER11350GB					
4	3	14	DIN	ER11400GB					
4	3.15/3.2	18	ISO,JIS	ER11450GB	ER16400GB	ER20400GB	ER25400GB	ER32400GB	
4.5	3.4	18	DIN	ER11600GB	ER16450GB	ER20450GB	ER25450GB	ER32450GB	
5	4	18	ISO,JIS		ER16550GB-JIS	ER20550GB-JIS	ER25550GB-JIS	ER32550GB-JIS	
5.5	4.3	18	DIN		ER16550GB	ER20550GB	ER25550GB	ER32550GB	
5.5	4.5	18	JIS		ER16550GB	ER20550GB	ER25550GB	ER32550GB	
6	4.5	18	JIS		ER16600GB	ER20600GB	ER25600GB	ER32600GB	ER40600GB-JIS
6	4.9	18	DIN		ER16600GB-JIS	ER20600GB-JIS	ER25600GB-JIS	ER32600GB-JIS	ER40600GB-DIN
6.2	5	18	JIS		ER16620GB-JIS	ER20620GB-JIS	ER25620GB-JIS	ER32620GB-JIS	ER40620GB
6.3	5	18	ISO,JIS		ER16630GB	ER20630GB	ER25630GB	ER32630GB	ER40630GB
7	5.5	18	DIN, JIS		ER16700GB	ER20700GB	ER25700GB	ER32700GB	ER40700GB
7.1	5.6	18	ISO,JIS		ER16710GB	ER20710GB	ER25710GB	ER32710GB	ER40710GB
8	6.2/6.3	22	DIN,ISO		ER16800GB	ER20800GB	ER25800GB	ER32800GB	ER40800GB
8.5	6.5	22	JIS		ER16850GB-JIS	ER20850GB-JIS	ER25850GB-JIS	ER32850GB-JIS	ER40850GB
9	7.0/7.1	22	DIN,ISO		ER16900GB	ER20900GB	ER25900GB	ER32900GB	ER40900GB
10	8	25	DIN,ISO			ER2010.00GB	ER2510.00GB	ER3210.00GB	ER4010.00GB
10.5	8	25	JIS			ER2010.50GB-JIS	ER2510.50GB-JIS	ER3210.50GB	ER4010.50GB
11	9	25	DIN			ER2011.00GB	ER2511.00GB	ER3211.00GB	ER4011.00GB
1.2	9	25	ISO			ER2011.20GB	ER2511.20GB	ER3211.20GB	ER4011.20GB
12	9	25	DIN				ER2512.00GB	ER3212.00GB	ER4012.00GB
12.5	10	25	ISO,JIS				ER2512.50GB	ER3212.50GB	ER4012.50GB
14	11.0/11.2	25	DIN,JIS,ISO				ER2514.00GB	ER3214.00GB	ER4014.00GB
15	12	25	JIS				ER2515.00GB-JIS	ER3215.00GB	ER4015.00GB
16	12	25	DIN				ER2516.00GB	ER3216.00GB	ER4016.00GB
17	13	25	JIS					ER3217.00GB	ER4017.00GB
18	14.0/14.5	25	DIN,ISO					ER3218.00GB	ER4018.00GB
20	16	28	DIN,ISO					ER3220.00GB	ER4020.00GB
22	18	28	DIN						ER4022.00GB



HSK-A63 | ThermoGrip® Standard - INCH

Catalog Number	Dimensions (inch)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0318-80-HSKA63	0.125	3.15	0.83	1.06	1.42	0.39	M6
ST0476-80-HSKA63	0.187	3.15	0.83	1.06	1.42	0.39	M6
ST0635-80-HSKA63	0.250	3.15	0.83	1.06	1.42	0.39	M5
ST0953-85-HSKA63	0.375	3.34	0.95	1.26	1.65	0.39	M8x1
ST1270-90-HSKA63	0.500	3.54	1.06	1.34	1.85	0.39	M10x1
ST1588-95-HSKA63	0.625	3.74	1.06	1.34	1.97	0.39	M12x1
ST1905-100-HSKA63	0.750	3.94	1.30	1.65	2.05	0.39	M16x1
LONG PROJECTION							
ST0318-120-HSKA63	0.125	4.72	0.83	1.06	1.42	0.39	M6
ST0476-120-HSKA63	0.187	4.72	0.83	1.06	1.42	0.39	M6
ST0635-120-HSKA63	0.250	4.72	0.83	1.06	1.42	0.39	M5
ST0953-120-HSKA63	0.375	4.72	0.95	1.26	1.65	0.39	M8x1
ST1270-120-HSKA63	0.500	4.72	1.06	1.34	1.85	0.39	M10x1
ST1588-120-HSKA63	0.625	4.72	1.06	1.34	1.97	0.39	M12x1
ST2540-120-HSKA63	1.000	4.72	1.73	2.09	2.44	0.39	M16x1
ST3175-120-HSKA63	1.250	4.72	1.73	2.09	2.28	0.39	M16x1
EXTRA LONG PROJECTION							
ST0318-160-HSKA63	0.125	6.30	0.83	1.26	1.42	0.39	M6
ST0476-160-HSKA63	0.187	6.30	0.83	1.26	1.42	0.39	M6
ST0635-160-HSKA63	0.250	6.30	0.83	1.26	1.42	0.39	M5
ST0953-160-HSKA63	0.375	6.30	0.95	1.34	1.65	0.39	M8x1
ST1270-160-HSKA63	0.500	6.30	1.06	1.65	1.85	0.39	M10x1
ST1588-160-HSKA63	0.625	6.30	1.06	1.65	1.97	0.39	M12x1
ST1905-160-HSKA63	0.750	6.30	1.30	2.01	2.05	0.39	M16x1
ST2540-160-HSKA63	1.000	6.30	1.73	2.09	2.44	0.39	M16x1
ST3175-160-HSKA63	1.250	6.30	1.73	2.09	2.28	0.39	M16x1

All holders can be run with internal coolant
Please Order Coolant Tube separately
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

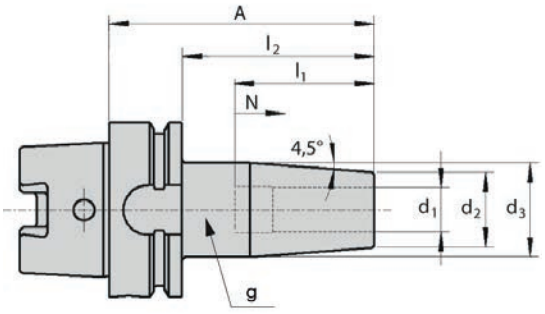
HSK-A63 | ThermoGrip® Standard - *METRIC*

Catalog Number	Dimensions (mm)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0300-80-HSKA63	3	80	15	20	20	5	M6
ST0400-80-HSKA63	4	80	15	20	20	5	M6
ST0500-80-HSKA63	5	80	15	20	25	5	M6
ST0600-80-HSKA63	6	80	21	27	36	10	M5
ST0800-80-HSKA63	8	80	21	27	36	10	M6
ST1000-85-HSKA63	10	85	24	32	42	10	M8x1
ST1200-90-HSKA63	12	90	24	32	47	10	M10x1
ST1400-90-HSKA63	14	90	27	34	47	10	M10x1
ST1600-95-HSKA63	16	95	27	34	50	10	M12x1
ST1800-95-HSKA63	18	95	33	42	50	10	M12x1
ST2000-100-HSKA63	20	100	33	42	52	10	M16x1
ST2500-115-HSKA63	25	115	44	53	58	10	M16x1
LONG PROJECTION							
ST0600-120-HSKA63	6	120	21	27	36	10	M5
ST0800-120-HSKA63	8	120	21	27	36	10	M6
ST1000-120-HSKA63	10	120	24	32	42	10	M8x1
ST1200-120-HSKA63	12	120	24	32	47	10	M10x1
ST1400-120-HSKA63	14	120	27	34	47	10	M10x1
ST1600-120-HSKA63	16	120	27	34	50	10	M12x1
ST1800-120-HSKA63	18	120	33	42	50	10	M12x1
ST2000-120-HSKA63	20	120	33	42	52	10	M16x1
ST3200-120-HSKA63	32	120	44	53	58	10	M16x1
EXTRA LONG PROJECTION							
ST0600-160-HSKA63	6	160	21	32	36	10	M5
ST0800-160-HSKA63	8	160	21	32	36	10	M6
ST1000-160-HSKA63	10	160	24	34	42	10	M8x1
ST1200-160-HSKA63	12	160	24	34	47	10	M10x1
ST1400-160-HSKA63	14	160	27	42	47	10	M10x1
ST1600-160-HSKA63	16	160	27	42	50	10	M12x1
ST1800-160-HSKA63	18	160	33	51	50	10	M12x1
ST2000-160-HSKA63	20	160	33	51	52	10	M16x1
ST2500-160-HSKA63	25	160	44	53	58	10	M16x1
ST3200-160-HSKA63	32	160	44	53	62	10	M16x1

All holders can be run with internal coolant
Please Order Coolant Tube Catalog separately
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

Shrink-Fit System

HSK-A100 | ThermoGrip® Standard



HSK-A100 | ThermoGrip® Standard-INCH

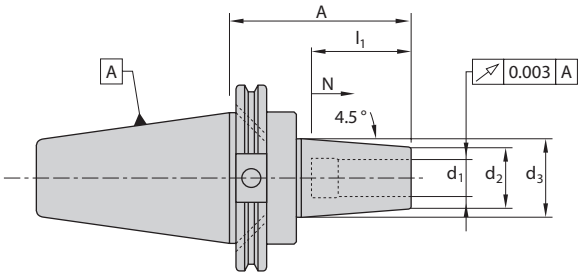
Catalog Number	Dimensions (inch)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0635-85-HSKA100	0.250	3.35	0.83	1.06	1.42	0.39	M5
ST0953-90-HSKA100	0.375	3.54	0.94	1.26	1.65	0.39	M8X1
ST1270-95-HSKA100	0.500	3.74	1.06	1.34	1.85	0.39	M10X1
ST1588-95-HSKA100	0.625	3.94	1.06	1.34	1.97	0.39	M12X1
ST1905-105-HSKA100	0.750	4.13	1.30	1.65	2.05	0.39	M16X1
LONG PROJECTION							
ST0635-120-HSKA100	0.250	4.72	0.83	1.06	1.42	0.39	M5
ST0953-120-HSKA100	0.375	4.72	0.94	1.26	1.65	0.39	M8X1
ST1270-120-HSKA100	0.500	4.72	1.06	1.34	1.85	0.39	M10X1
ST1588-120-HSKA100	0.625	4.72	1.06	1.34	1.97	0.39	M12X1
ST1905-120-HSKA100	0.750	4.72	1.30	1.65	2.05	0.39	M16X1
ST2540-120-HSKA100	1.000	4.72	1.73	2.09	2.44	0.39	M16X1
ST3175-120-HSKA100	1.250	4.72	1.73	2.09	2.44	0.39	M16X1
EXTRA LONG PROJECTION							
ST0635-160-HSKA100	0.250	6.30	0.83	1.26	1.42	0.39	M5
ST0953-160-HSKA100	0.375	6.30	0.94	1.34	1.65	0.39	M8X1
ST1270-160-HSKA100	0.500	6.30	1.06	1.65	1.85	0.39	M10X1
ST1588-160-HSKA100	0.625	6.30	1.06	1.65	1.97	0.39	M12X1
ST1905-160-HSKA100	0.750	6.30	1.30	2.01	2.05	0.39	M16X1
ST2540-160-HSKA100	1.000	6.30	1.73	2.36	2.44	0.39	M16X1

All holders can be run with internal coolant
Please Order Coolant Tube separately
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

HSK-A100 | ThermoGrip® Standard-*METRIC*

Catalog Number	Dimensions (mm)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0600-85-HSKA100	6	85	21	27	36	10	M5
ST0800-85-HSKA100	8	85	21	27	36	10	M6
ST1000-90-HSKA100	10	90	24	32	42	10	M8x1
ST1200-95-HSKA100	12	95	24	32	47	10	M10x1
ST1400-95-HSKA100	14	95	27	34	50	10	M10x1
ST1600-100-HSKA100	16	100	27	34	50	10	M12x1
ST1800-100-HSKA100	18	100	33	42	50	10	M12x1
ST2000-105-HSKA100	20	105	33	42	52	10	M16x1
ST2500-115-HSKA100	25	115	44	53	58	10	M16x1
LONG PROJECTION							
ST0600-120-HSKA100	6	120	21	27	36	10	M5
ST0800-120-HSKA100	8	120	21	27	36	10	M6
ST1000-120-HSKA100	10	120	24	32	42	10	M8x1
ST1200-120-HSKA100	12	120	24	32	47	10	M10x1
ST1400-120-HSKA100	14	120	27	34	50	10	M10x1
ST1600-120-HSKA100	16	120	27	34	50	10	M12x1
ST1800-120-HSKA100	18	120	33	42	50	10	M12x1
ST2000-120-HSKA100	20	120	33	42	52	10	M16x1
ST2500-120-HSKA100	25	120	44	53	58	10	M16x1
ST3200-120-HSKA100	32	120	44	53	62	10	M16x1
EXTRA LONG PROJECTION							
ST0600-160-HSKA100	6	160	21	32	36	10	M5
ST0800-160-HSKA100	8	160	21	32	36	10	M6
ST1000-160-HSKA100	10	160	24	34	42	10	M8x1
ST1200-160-HSKA100	12	160	24	34	47	10	M10x1
ST1400-160-HSKA100	14	160	27	42	47	10	M10x1
ST1600-160-HSKA100	16	160	27	42	50	10	M12x1
ST1800-160-HSKA100	18	160	33	51	52	10	M12x1
ST2000-160-HSKA100	20	160	33	51	52	10	M16x1
ST2500-160-HSKA100	25	160	44	53	58	10	M16x1
ST3200-160-HSKA100	32	160	44	53	62	10	M16x1

All holders can be run with internal coolant
Please Order Coolant Tube separately
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



CAT40 | ThermoGrip® Standard-INCH

Catalog Number	Dimensions (inch)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0318-95-CAT40	0.125	3.74	0.59	0.79	0.79	0.20	M6
ST0476-95-CAT40	0.187	3.74	0.59	0.79	0.79	0.20	M6
ST0635-95-CAT40	0.250	3.74	0.83	1.06	1.42	0.39	M5
ST0953-95-CAT40	0.375	3.74	0.95	1.26	1.65	0.39	M8x1
ST1270-95-CAT40	0.500	3.74	1.06	1.34	1.85	0.39	M10x1
ST1588-95-CAT40	0.625	3.74	1.06	1.34	1.97	0.39	M12x1
ST1905-95-CAT40	0.750	3.74	1.30	1.65	2.05	0.39	M16x1
ST2540-100-CAT40	1.000	3.94	1.73	2.09	2.44	0.39	M16x1
ST3175-100-CAT40	1.250	3.94	1.73	2.09	2.44	0.39	M16x1
LONG PROJECTION							
ST0318-120-CAT40	0.125	4.73	0.59	0.79	0.79	0.20	M6
ST0476-120-CAT40	0.187	4.73	0.59	0.79	0.79	0.20	M6
ST0635-120-CAT40	0.250	4.73	0.83	1.06	1.42	0.39	M5
ST0953-120-CAT40	0.375	4.73	0.95	1.26	1.65	0.39	M8x1
ST1270-120-CAT40	0.500	4.73	1.06	1.34	1.85	0.39	M10x1
ST1588-120-CAT40	0.625	4.73	1.06	1.34	1.97	0.39	M12x1
ST1905-120-CAT40	0.750	4.73	1.30	1.65	2.05	0.39	M16x1
ST2540-120-CAT40	1.000	4.73	1.73	2.09	2.44	0.39	M16x1
ST3175-120-CAT40	1.25	4.73	1.73	2.09	2.44	0.39	M16x1
EXTRA LONG PROJECTION							
ST0318-160-CAT40	0.125	6.30	0.59	0.79	0.79	0.20	M6
ST0476-160-CAT40	0.187	6.30	0.59	0.79	0.79	0.20	M6
ST0635-160-CAT40	0.250	6.30	0.83	1.26	1.42	0.39	M5
ST0953-160-CAT40	0.375	6.30	0.95	1.34	1.65	0.39	M8x1
ST1270-160-CAT40	0.500	6.30	1.06	1.65	1.85	0.39	M10x1
ST1588-160-CAT40	0.625	6.30	1.06	1.65	1.97	0.39	M12x1
ST1905-160-CAT40	0.750	6.30	1.30	1.75	2.05	0.39	M16x1
ST2540-160-CAT40	1.000	6.30	1.73	2.09	2.44	0.39	M16x1
ST3175-160-CAT40	1.250	6.30	1.73	2.09	2.44	0.39	M16x1

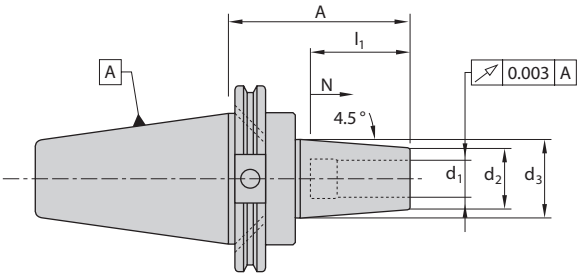
CAT40 | ThermoGrip® Standard- *METRIC*

Catalog Number	Dimensions (mm)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0300-95-CAT40	3	95	15	20	20	5	M6
ST0400-95-CAT40	4	95	15	20	20	5	M6
ST0500-95-CAT40	5	95	15	20	25	5	M6
ST0600-95-CAT40	6	95	21	27	36	10	M5
ST0800-95-CAT40	8	95	21	27	36	10	M6
ST1000-95-CAT40	10	95	24	32	42	10	M8x1
ST1200-95-CAT40	12	95	24	32	47	10	M10x1
ST1400-95-CAT40	14	95	27	34	47	10	M10x1
ST1600-95-CAT40	16	95	27	34	50	10	M12x1
ST1800-95-CAT40	18	95	33	42	50	10	M12x1
ST2000-95-CAT40	20	95	33	42	52	10	M16x1
ST2500-100-CAT40	25	100	44	53	58	10	M16x1
ST3200-100-CAT40	32	100	44	53	62	10	M16x1
LONG PROJECTION							
ST0600-120-CAT40	6	120	21	27	36	10	M5
ST0800-120-CAT40	8	120	21	27	36	10	M6
ST1000-120-CAT40	10	120	24	32	42	10	M8x1
ST1200-120-CAT40	12	120	24	32	47	10	M10x1
ST1400-120-CAT40	14	120	27	34	47	10	M10x1
ST1600-120-CAT40	16	120	27	34	50	10	M12x1
ST1800-120-CAT40	18	120	33	42	50	10	M12x1
ST2000-120-CAT40	20	120	33	42	52	10	M16x1
ST2500-120-CAT40	25	120	44	53	58	10	M16x1
ST3200-120-CAT40	32	120	44	53	62	10	M16x1
EXTRA LONG PROJECTION							
ST0600-160-CAT40	6	160	21	32	36	10	M5
ST0800-160-CAT40	8	160	21	32	36	10	M6
ST1000-160-CAT40	10	160	24	34	42	10	M8x1
ST1200-160-CAT40	12	160	24	34	47	10	M10x1
ST1400-160-CAT40	14	160	27	42	47	10	M10x1
ST1600-160-CAT40	16	160	27	42	50	10	M12x1
ST1800-160-CAT40	18	160	33	44	50	10	M12x1
ST2000-160-CAT40	20	160	44	53	52	10	M16x1
ST2500-160-CAT40	25	160	44	53	58	10	M16x1
ST3200-160-CAT40	32	160	44	53	62	10	M16x1

NOTE: All Holders Have 5-8-11 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option Standard
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

Shrink-Fit System

CAT50 | ThermoGrip® Standard



CAT50 | ThermoGrip® Standard-INCH

Catalog Number	Dimensions (inch)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0635-95-CAT50	0.250	3.74	0.83	1.06	1.42	0.39	M5
ST0953-95-CAT50	0.375	3.74	0.95	1.26	1.65	0.39	M8x1
ST1270-95-CAT50	0.500	3.74	1.06	1.34	1.85	0.39	M10x1
ST1588-95-CAT50	0.625	3.74	1.06	1.34	1.97	0.39	M12x1
ST1905-95-CAT50	0.750	3.74	1.30	1.65	2.05	0.39	M16x1
ST2540-105-CAT50	1.000	4.13	1.73	2.09	2.44	0.39	M16x1
ST3175-105-CAT50	1.250	4.13	1.73	2.09	2.44	0.39	M16x1
EXTRA LONG PROJECTION							
ST0635-160-CAT50	0.250	6.30	0.83	1.26	1.42	0.39	M5
ST0953-160-CAT50	0.375	6.30	0.95	1.34	1.65	0.39	M8x1
ST1270-160-CAT50	0.500	6.30	1.06	1.65	1.85	0.39	M10x1
ST1588-160-CAT50	0.625	6.30	1.06	1.65	1.97	0.39	M12x1
ST1905-160-CAT50	0.750	6.30	1.30	2.01	2.05	0.39	M16x1
ST2540-160-CAT50	1.000	6.30	1.73	2.36	2.44	0.39	M16x1
ST3175-160-CAT50	1.250	6.30	1.73	2.36	2.44	0.39	M16x1

NOTE: All Holders Have 1-8 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option-Standard
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

CAT50 | ThermoGrip® Standard-*METRIC*

Catalog Number	Dimensions (mm)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0600-95-CAT50	6	95	21	27	36	10	M5
ST0800-95-CAT50	8	95	21	27	36	10	M6
ST1000-95-CAT50	10	95	24	32	42	10	M8x1
ST1200-95-CAT50	12	95	24	32	47	10	M10x1
ST1400-95-CAT50	14	95	27	34	47	10	M10x1
ST1600-95-CAT50	16	95	27	34	50	10	M12x1
ST1800-95-CAT50	18	95	33	42	50	10	M12x1
ST2000-95-CAT50	20	95	33	42	52	10	M16x1
ST2500-105-CAT50	25	105	44	53	58	10	M16x1
ST3200-105-CAT50	32	105	44	53	62	10	M16x1
EXTRA LONG PROJECTION							
ST0600-160-CAT50	6	160	21	32	36	10	M5
ST0800-160-CAT50	8	160	21	32	36	10	M6
ST1000-160-CAT50	10	160	24	34	42	10	M8x1
ST1200-160-CAT50	12	160	24	34	47	10	M10x1
ST1400-160-CAT50	14	160	27	42	47	10	M10x1
ST1600-160-CAT50	16	160	27	42	50	10	M12x1
ST1800-160-CAT50	18	160	33	51	50	10	M12x1
ST2000-160-CAT50	20	160	33	51	52	10	M16x1
ST2500-160-CAT50	25	160	44	60	58	10	M16x1
ST3200-160-CAT50	32	160	44	60	62	10	M16x1

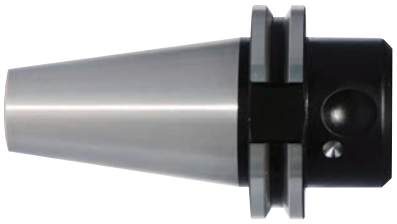
NOTE: All Holders Have 1-8 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option-Standard
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

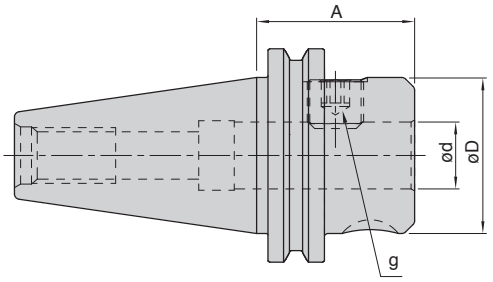
This processor controlled ISG3400TWK unit is simple to use. All that needs to be done is to select the tool diameter range. After the induction coil is positioned around the tool holder, push the start button and the coil heats the tool holder sufficiently. When heat cycle is completed, move the coil upward away from tool. Raise the cooling sleeve and press the cooling button, allowing the tool to cool in seconds.

ISG3400TWK: It is universal shrinking unit for the professional use of shrinking technology. With its unique coil changing system, the power transfer adjusted to different clamping chucks is guaranteed within a short period of time. Compared to other systems, this makes it possible to clamp the smallest diameter tools. This allows for a constant preparation of a high number of tools. Guaranteed.

ThermoGrip® Machine: ISG3400TWK-WS			
Catalog No.	ISG3400TWK	**Max Tool Length**	400mm 15.75″
Dimensions D x W x H	800mm x 560mm x 950mm 31.5″ x 22″ x 38″	**Max Cooling Length**	160mm 6.3″
Clamping Range SC	6-32mm 1/8″-1-1/4″	**Cooling Type**	Liquid/ emulsion
Clamping Range HSS	6-32mm 1/4″-1-1/4″	**Cooling Time**	20 Seconds
Coil	Quick Change	**Geometry Independent Cooling**	Yes
Electric Current Supply	3x480V-16A	**Max Machine Interface**	HSK 100 CAT50
Power kW	11 kW	**Required Accessories**	setting pot
Weight	115 lbs	**Optional Accessories**	setting pot

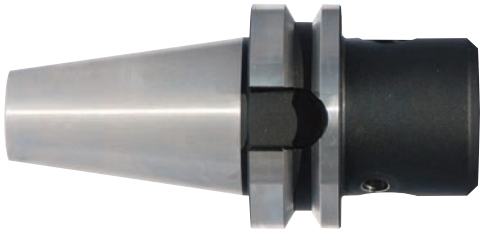
Endmill Holders

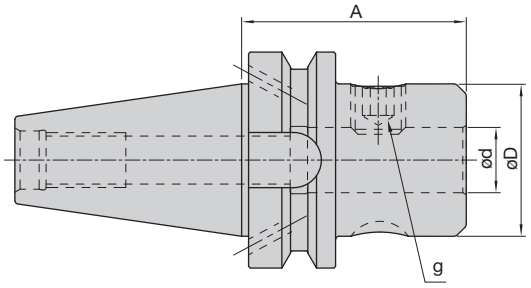




CAT40	Balanced to G6.3 @ 8,000 RPM			
Catalog Number	Dimensions			
	d (inch)	D (mm)	A (inch)	g
SSEH-0.125-1.38-CAT40	0.125	17.5	1.38	6-32 UNC
SSEH-0.125-4.50-CAT40	0.125	17.5	4.50	6-32 UNC
SSEH-0.187-1.38-CAT40	0.187	17.5	1.38	8-32 UNC
SSEH-0.187-2.50-CAT40	0.187	17.5	2.50	8-32 UNC
SSEH-0.187-4.50-CAT40	0.187	17.5	4.50	8-32 UNC
SSEH-0.250-1.38-CAT40	0.250	19.8	1.38	1-4-28 UNF
SSEH-0.250-2.50-CAT40	0.250	19.8	2.50	1-4-28 UNF
SSEH-0.250-4.50-CAT40	0.250	19.8	4.50	1-4-28 UNF
SSEH-0.312-1.38-CAT40	0.312	25.4	1.38	5-16-24 UNF
SSEH-0.312-2.50-CAT40	0.312	25.4	2.50	5-16-24 UNF
SSEH-0.312-4.50-CAT40	0.312	25.4	4.50	5-16-24 UNF
SSEH-0.375-1.38-CAT40	0.375	25.4	1.38	3-8-24 UNF
SSEH-0.375-2.50-CAT40	0.375	25.4	2.50	3-8-24 UNF
SSEH-0.375-4.50-CAT40	0.375	25.4	4.50	3-8-24 UNF
SSEH-0.375-6.50-CAT40	0.375	25.4	6.50	3-8-24 UNF
SSEH-0.437-1.75-CAT40	0.437	35.1	1.75	7-16-20 UNF
SSEH-0.437-4.50-CAT40	0.437	35.1	4.50	7-16-20 UNF
SSEH-0.500-1.75-CAT40	0.500	35.1	1.75	7-16-20 UNF
SSEH-0.500-2.62-CAT40	0.500	35.1	2.62	7-16-20 UNF
SSEH-0.500-4.62-CAT40	0.500	35.1	4.62	7-16-20 UNF
SSEH-0.500-6.62-CAT40	0.500	35.1	6.62	7-16-20 UNF
SSEH-0.625-1.75-CAT40	0.625	38.1	1.75	1-2-20 UNF
SSEH-0.625-3.75-CAT40	0.625	38.1	3.75	1-2-20 UNF
SSEH-0.625-5.75-CAT40	0.625	38.1	5.75	1-2-20 UNF
SSEH-0.750-1.75-CAT40	0.750	44.5	1.75	5-8-18 UNF
SSEH-0.750-3.75-CAT40	0.750	44.5	3.75	5-8-18 UNF
SSEH-0.750-5.75-CAT40	0.750	44.5	5.75	5-8-18 UNF
SSEH-0.875-1.75-CAT40	0.875	50.8	1.75	5-8-18 UNF
SSEH-0.875-4.00-CAT40	0.875	50.8	4.00	5-8-18 UNF
SSEH-0.875-6.00-CAT40	0.875	50.8	6.00	5-8-18 UNF
SSEH-1.000-1.75-CAT40	1.000	50.8	1.75	3-4-16 UNF
SSEH-1.000-4.00-CAT40	1.000	50.8	4.00	3-4-16 UNF
SSEH-1.000-6.00-CAT40	1.000	50.8	6.00	3-4-16 UNF
SSEH-1.250-2.00-CAT40	1.250	63.5	2.00	3-4-16 UNF
SSEH-1.250-4.25-CAT40	1.250	63.5	4.25	3-4-16 UNF
SSEH-1.250-6.25-CAT40	1.250	63.5	6.25	3-4-16 UNF
SSEH-1.500-4.62-CAT40	1.500	69.9	4.62	3-4-16 UNF
SSEH-1.500-6.62-CAT40	1.500	69.9	6.62	3-4-16 UNF

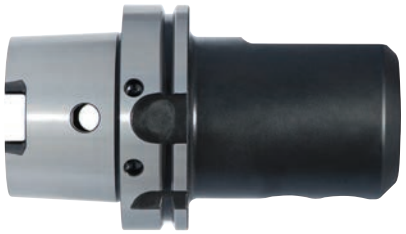
CAT50	Balanced to G6.3 @ 8,000 RPM			
Catalog Number	Dimensions			
	d (inch)	D (mm)	A (inch)	g
SSEH-0.187-2.50-CAT50	0.187	17.5	2.50	8-32 UNC
SSEH-0.187-4.50-CAT50	0.187	17.5	4.50	8-32 UNC
SSEH-0.187-6.50-CAT50	0.187	17.5	6.50	8-32 UNC
SSEH-0.250-2.50-CAT50	0.250	19.8	2.50	1-4-28 UNF
SSEH-0.250-4.50-CAT50	0.250	19.8	4.50	1-4-28 UNF
SSEH-0.250-6.50-CAT50	0.250	19.8	6.50	1-4-28 UNF
SSEH-0.312-2.50-CAT50	0.312	25.4	2.50	5-16-24 UNF
SSEH-0.312-4.50-CAT50	0.312	25.4	4.50	5-16-24 UNF
SSEH-0.312-6.50-CAT50	0.312	25.4	6.50	5-16-24 UNF
SSEH-0.375-2.50-CAT50	0.375	25.4	2.50	3-8-24 UNF
SSEH-0.375-4.50-CAT50	0.375	25.4	4.50	3-8-24 UNF
SSEH-0.375-6.50-CAT50	0.375	25.4	6.50	3-8-24 UNF
SSEH-0.375-8.50-CAT50	0.375	25.4	8.50	3-8-24 UNF
SSEH-0.437-2.50-CAT50	0.437	35.1	2.50	7-16-20 UNF
SSEH-0.500-2.62-CAT50	0.500	35.1	2.62	7-16-20 UNF
SSEH-0.500-4.62-CAT50	0.500	35.1	4.62	7-16-20 UNF
SSEH-0.500-6.62-CAT50	0.500	35.1	6.62	7-16-20 UNF
SSEH-0.500-8.50-CAT50	0.500	35.1	8.50	7-16-20 UNF
SSEH-0.625-3.75-CAT50	0.625	38.1	3.75	1-2-20 UNF
SSEH-0.625-5.75-CAT50	0.625	38.1	5.75	1-2-20 UNF
SSEH-0.625-7.75-CAT50	0.625	38.1	7.75	1-2-20 UNF
SSEH-0.750-3.75-CAT50	0.750	44.5	3.75	5-8-18 UNF
SSEH-0.750-5.75-CAT50	0.750	44.5	5.75	5-8-18 UNF
SSEH-0.750-7.75-CAT50	0.750	44.5	7.75	5-8-18 UNF
SSEH-0.750-10.00-CAT50	0.750	44.5	10.00	5-8-18 UNF
SSEH-0.875-3.75-CAT50	0.875	50.8	3.75	5-8-18 UNF
SSEH-0.875-5.75-CAT50	0.875	50.8	5.75	5-8-18 UNF
SSEH-0.875-7.75-CAT50	0.875	50.8	7.75	5-8-18 UNF
SSEH-1.000-4.00-CAT50	1.000	50.8	4.00	3-4-16 UNF
SSEH-1.000-6.00-CAT50	1.000	50.8	6.00	3-4-16 UNF
SSEH-1.000-8.00-CAT50	1.000	50.8	8.00	3-4-16 UNF
SSEH-1.000-10.00-CAT50	1.000	50.8	10.00	3-4-16 UNF
SSEH-1.250-4.00-CAT50	1.250	63.5	4.00	3-4-16 UNF
SSEH-1.250-6.00-CAT50	1.250	63.5	6.00	3-4-16 UNF
SSEH-1.250-8.00-CAT50	1.250	63.5	8.00	3-4-16 UNF
SSEH-1.250-10.00-CAT50	1.250	63.5	10.00	3-4-16 UNF
SSEH-1.500-4.00-CAT50	1.500	69.9	4.00	3-4-16 UNF
SSEH-1.500-6.00-CAT50	1.500	69.9	6.00	3-4-16 UNF
SSEH-1.500-8.00-CAT50	1.500	69.9	8.00	3-4-16 UNF
SSEH-2.000-5.62-CAT50	2.000	95.3	5.62	1-14 UNS
SSEH-2.000-9.62-CAT50	2.000	95.3	9.62	1-14 UNS

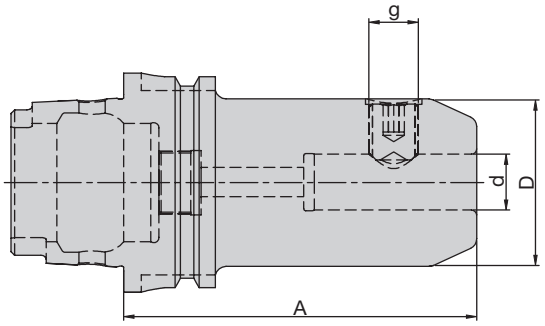




BT30	Balanced to G6.3 @ 8,000 RPM			
Catalog Number	Dimensions			
	d (inch)	D (mm)	A (inch)	g
SSEH-0.125-2.36-BT30	0.125	17.5	2.36	6-32 UNC
SSEH-0.188-2.36-BT30	0.187	17.5	2.36	8-32 UNC
SSEH-0.250-2.36-BT30	0.250	19.8	2.36	1-4-28 UNF
SSEH-0.312-2.36-BT30	0.312	25.4	2.36	5-16-24 UNF
SSEH-0.375-2.36-BT30	0.375	25.4	2.36	3-8-24 UNF
SSEH-0.500-2.36-BT30	0.500	35.1	2.36	7-16-20 UNF
SSEH-0.625-2.36-BT30	0.625	38.1	2.36	1-2-20 UNF
SSEH-0.750-2.36-BT30	0.750	44.5	2.36	5-8-18 UNF

BT40	Balanced to G6.3 @ 8,000 RPM			
Catalog Number	Dimensions			
	d (inch)	D (mm)	A (inch)	g
SSEH-0.250-2.55-BT40	0.250	19.8	2.55	1-4-28 UNF
SSEH-0.312-2.55-BT40	0.312	25.4	2.55	5-16-24 UNF
SSEH-0.375-2.55-BT40	0.375	25.4	2.55	3-8-24 UNF
SSEH-0.500-2.55-BT40	0.500	35.1	2.55	7-16-20 UNF
SSEH-0.500-4.00-BT40	0.500	35.1	4.00	7-16-20 UNF
SSEH-0.625-2.55-BT40	0.625	38.1	2.55	1-2-20 UNF
SSEH-0.750-2.55-BT40	0.750	44.5	2.55	5-8-18 UNF
SSEH-0.875-3.35-BT40	0.875	50.8	3.35	5-8-18 UNF
SSEH-1.000-3.74-BT40	1.000	50.8	3.74	3-4-16 UNF
SSEH-1.000-5.00-BT40	1.000	50.8	5.00	3-4-16 UNF
SSEH-1.250-3.35-BT40	1.250	63.5	3.35	3-4-16 UNF

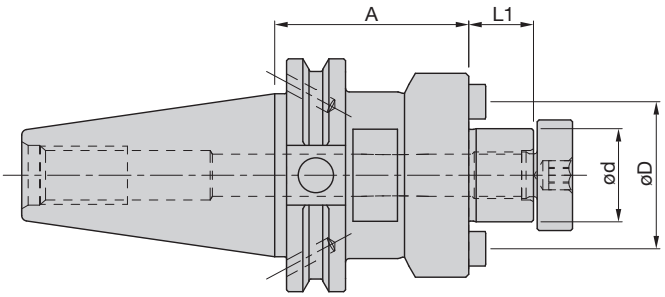




HSK-A63 End Mill Holder Balanced to G6.3 @ 20,000 RPM				
Catalog Number Holders with Weldon Notch DIN1835-B	Dimensions			
	d (inch)	D (inch)	A (inch)	g
SSEH-0.250"-3.94"/HSK-A63	0.250	1.00	3.94	1/4-28UNF
SSEH-0.375"-3.94"/HSK-A63	0.375	1.10	3.94	3/8-24UNF
SSEH-0.500"-3.94"/HSK-A63	0.500	1.65	3.94	7/16-20UNF
SSEH-0.625"-3.94"/HSK-A63	0.625	1.89	3.94	1/2-20UNF
SSEH-0.750"-3.94"/HSK-A63	0.750	2.05	3.94	5/8-18UNF
SSEH-1.00"-4.33"/HSK-A63	1.000	2.60	4.33	3/4-16UNF
SSEH-1.250"-4.33"/HSK-A63	1.250	2.83	4.33	3/4-16UNF

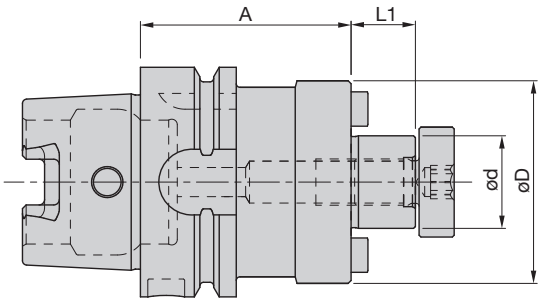
HSK-A100 End Mill Holders Balanced to G6.3 @ 20,000 RPM				
Catalog Number Holders with Weldon Notch DIN1835-B	Dimensions			
	d (inch)	D (inch)	A (inch)	g
SSEH-0.250"-3.15"/HSK-A100	0.250	0.78	3.15"	1/4-28UNF-8
SSEH-0.250"-6.30"/HSK-A100	0.250	0.78	6.30"	1/4-28UNF-8
SSEH-0.312"-3.15"/HSK-A100	0.312	1.00	3.15"	5/16-24UNF-10
SSEH-0.312"-6.30"/HSK-A100	0.312	1.00	6.30"	5/16-24UNF-10
SSEH-0.375"-3.15"/HSK-A100	0.375	1.00	3.15"	3/8-24UNF-9
SSEH-0.375"-6.30"/HSK-A100	0.375	1.00	6.30"	3/8-24UNF-9
SSEH-0.500"-3.15"/HSK-A100	0.500	1.38	3.15"	7/16-20UNF-12
SSEH-0.500"-6.30"/HSK-A100	0.500	1.38	6.30"	7/16-20UNF-12
SSEH-0.625"-3.94"/HSK-A100	0.625	1.50	3.94"	1/2-20UNF-14
SSEH-0.625"-6.30"/HSK-A100	0.625	1.50	6.30"	1/2-20UNF-14
SSEH-0.750"-3.94"/HSK-A100	0.750	1.75	3.94"	5/8-18UNF-14
SSEH-0.750"-6.30"/HSK-A100	0.750	1.75	6.30"	5/8-18UNF-14
SSEH-1.000"-3.94"/HSK-A100	1.000	2.00	3.94"	3/4-16UNF-14
SSEH-1.000"-6.30"/HSK-A100	1.000	2.00	6.30"	3/4-16UNF-14
SSEH-1.250"-3.94"/HSK-A100	1.250	2.50	3.94"	3/4-16UNF-14
SSEH-1.250"-6.30"/HSK-A100	1.250	2.50	6.30"	3/4-16UNF-14

Shell Mill Holders



Shell Mill Holders — Balanced to G6.3 @ 8,000 RPM							
Catalog Number	Dimensions						
	d (mm)	d (inch)	D (mm)	A (mm)	A (inch)	L_1 (mm)	D_1 (mm)
CAT40							
SSMH-0.500-1.38-CAT40	12.7	0.50	36.6	35.1	1.38	14.2	25.4
SSMH-0.500-3.50-CAT40	12.7	0.50	36.6	88.9	3.50	14.2	25.4
SSMH-0.750-1.38-CAT40	19.1	0.75	44.4	35.1	1.38	17.5	28.7
SSMH-0.750-3.50-CAT40	19.1	0.75	44.4	88.9	3.50	17.5	28.7
SSMH-0.750-6.00-CAT40	19.1	0.75	44.4	152.4	6.00	17.5	28.7
SSMH-1.000-1.75-CAT40	25.4	1.00	55.6	44.5	1.75	17.5	40.1
SSMH-1.000-2.06-CAT40	25.4	1.00	55.6	52.3	2.06	17.5	40.1
SSMH-1.000-4.00-CAT40	25.4	1.00	55.6	101.6	4.00	17.5	40.1
SSMH-1.000-6.00-CAT40	25.4	1.00	55.6	152.4	6.00	17.5	40.1
SSMH-1.250-2.12-CAT40	31.8	1.25	69.9	53.8	2.12	17.5	50.3
SSMH-1.250-4.00-CAT40	31.8	1.25	69.9	101.6	4.00	17.5	50.3
SSMH-1.500-2.41-CAT40	38.1	1.50	85.9	61.2	2.41	23.9	60.7
SSMH-1.500-4.00-CAT40	38.1	1.50	85.9	101.6	4.00	23.9	60.7
CAT50							
SSMH-0.500-1.50-CAT50	12.7	0.50	36.6	38.1	1.50	14.2	25.4
SSMH-0.500-3.50-CAT50	12.7	0.50	36.6	88.9	3.50	14.2	25.4
SSMH-0.500-5.50-CAT50	12.7	0.50	36.6	139.7	5.50	14.2	25.4
SSMH-0.750-1.50-CAT50	19.1	0.75	44.5	38.1	1.50	17.5	28.7
SSMH-0.750-3.50-CAT50	19.1	0.75	44.5	88.9	3.50	17.5	28.7
SSMH-0.750-5.50-CAT50	19.1	0.75	44.5	139.7	5.50	17.5	28.7
SSMH-0.750-7.00-CAT50	19.1	0.75	44.5	177.8	7.00	17.5	28.7
SSMH-0.750-9.00-CAT50	19.1	0.75	44.5	228.6	9.00	17.5	28.7
SSMH-1.000-10.00-CAT50	25.4	1.00	55.6	254.0	10.00	17.5	40.1
SSMH-1.000-2.00-CAT50	25.4	1.00	55.6	50.8	2.00	17.5	40.1
SSMH-1.000-4.00-CAT50	25.4	1.00	55.6	101.6	4.00	17.5	40.1
SSMH-1.000-6.00-CAT50	25.4	1.00	55.6	152.4	6.00	17.5	40.1
SSMH-1.000-8.00-CAT50	25.4	1.00	55.6	203.2	8.00	17.5	40.1
SSMH-1.250-1.50-CAT50	31.8	1.25	69.9	38.1	1.50	17.5	50.3
SSMH-1.250-3.50-CAT50	31.8	1.25	69.9	88.9	3.50	17.5	50.3
SSMH-1.250-5.50-CAT50	31.8	1.25	69.9	139.7	5.50	17.5	50.3
SSMH-1.250-7.00-CAT50	31.8	1.25	69.9	177.8	7.00	17.5	50.3
SSMH-1.250-9.00-CAT50	31.8	1.25	69.9	228.6	9.00	17.5	50.3
SSMH-1.500-2.40-CAT50	38.1	1.50	85.9	61.0	2.40	23.9	60.7
SSMH-1.500-4.00-CAT50	38.1	1.50	85.9	101.6	4.00	23.9	60.7
SSMH-1.500-6.00-CAT50	38.1	1.50	85.9	152.4	6.00	23.9	60.7
SSMH-1.500-8.00-CAT50	38.1	1.50	85.9	203.2	8.00	23.9	60.7
SSMH-2.000-2.40-CAT50	50.8	2.00	123.9	61.0	2.40	23.9	77.2
SSMH-2.000-4.00-CAT50	50.8	2.00	123.9	101.6	4.00	23.9	77.2
SSMH-2.000-6.00-CAT50	50.8	2.00	123.9	152.4	6.00	23.9	77.2
SSMH-2.000-8.00-CAT50	50.8	2.00	123.9	203.2	8.00	23.9	77.2
SSMH-2.500-2.40-CAT50	63.5	2.50	123.9	61.0	2.40	28.5	92.2
SSMH-2.500-4.00-CAT50	63.5	2.50	123.9	101.6	4.00	28.5	92.2

Shell Mill Holders — Balanced to G6.3 @ 8,000 RPM							
Catalog Number	Dimensions						
	d (mm)	d (inch)	D (mm)	A (mm)	A (inch)	L_1 (mm)	D_1 (mm)
BT30							
SSMH-0.500-1.18-BT30	12.7	0.50	36.6	30.0	1.18	14.2	25.4
SSMH-0.750-1.18-BT30	19.1	0.75	44.5	30.0	1.18	17.5	28.7
SSMH-1.000-1.77-BT30	25.4	1.00	55.6	45.0	1.77	17.5	40.1
SSMH-16-40-BT30	16	–	38	40	–	17	–
SSMH-22-40-BT30	22	–	48	40	–	19	–
SSMH-27-40-BT30	27	–	58	40	–	21	–
BT40							
SSMH-0.500-4.00-BT40	12.7	0.50	36.6	101.6	4.00	14.2	25.4
SSMH-0.750-1.77-BT40	19.1	0.75	44.5	45.0	1.77	17.5	28.7
SSMH-0.750-4.00-BT40	19.1	0.75	44.5	101.6	4.00	17.5	28.7
SSMH-0.750-6.00-BT40	19.1	0.75	44.5	152.4	6.00	17.5	28.7
SSMH-1.000-1.77-BT40	25.4	1.00	55.6	45.0	1.77	17.5	40.1
SSMH-1.000-4.00-BT40	25.4	1.00	55.6	101.6	4.00	17.5	40.1
SSMH-1.000-6.00-BT40	25.4	1.00	55.6	152.4	6.00	17.5	40.1
SSMH-1.250-2.36-BT40	31.8	1.25	69.9	59.9	2.36	17.5	50.3
SSMH-1.250-5.00-BT40	31.8	1.25	69.9	127.0	5.00	17.5	50.3
SSMH-1.500-2.36-BT40	38.1	1.50	85.9	59.9	2.36	23.9	60.7
SSMH-1.500-5.00-BT40	38.1	1.50	85.9	127.0	5.00	23.9	60.7
SSMH-16-100-BT40	16	–	38	100	–	17	–
SSMH-16-40-BT40	16	–	38	40	–	17	–
SSMH-22-100-BT40	22	–	48	100	–	19	–
SSMH-22-160-BT40	22	–	48	160	–	19	–
SSMH-22-40-BT40	22	–	48	40	–	19	–
SSMH-27-100-BT40	27	–	58	100	–	21	–
SSMH-27-160-BT40	27	–	58	160	–	21	–
SSMH-27-40-BT40	27	–	58	40	–	21	–
SSMH-32-100-BT40	32	–	78	100	–	24	–
SSMH-32-50-BT40	32	–	78	50	–	24	–
SSMH-40-100-BT40	40	–	88	100	–	27	–
SSMH-40-50-BT40	40	–	88	50	–	27	–



Shell Mill Holders				Balanced to G2.5 @ 15,000 RPM		
Catalog Number	Dimensions					
	d (mm)	d (inch)	D (mm)	A (mm)	A (inch)	L_1 (mm)
HSK63						
SSMH-0.500-2.00-HSKA63	12.7	0.50	36.6	50.8	2.00	14.2
SSMH-0.750-2.00-HSKA63	19.1	0.75	44.5	50.8	2.00	17.5
SSMH-1.000-2.25-HSKA63	25.4	1.00	55.6	57.2	2.25	17.5
SSMH-1.250-2.25-HSKA63	31.8	1.25	69.9	57.2	2.25	17.5
SSMH-1.500-2.25-HSKA63	38.1	1.50	58.9	57.2	2.25	23.9
SSMH-16-100-HSKA63	16	–	38	100	3.94	17
SSMH-16-50-HSKA63	16	–	38	50	1.97	17
SSMH-22-100-HSKA63	22	–	48	100	3.94	19
SSMH-22-50-HSKA63	22	–	48	50	1.97	19
SSMH-27-100-HSKA63	27	–	58	100	3.94	21
SSMH-27-60-HSKA63	27	–	58	60	2.36	21
SSMH-32-100-HSKA63	32	–	78	100	3.94	24
SSMH-32-60-HSKA63	32	–	78	60	2.36	24
SSMH-40-100-HSKA63	40	–	88	100	3.94	27
SSMH-40-60-HSKA63	40	–	88	60	2.36	27

Clamping Nut – ER to DIN 6499 – Balanced

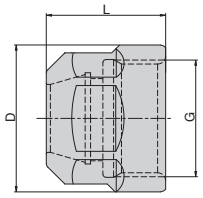


Fig. 1

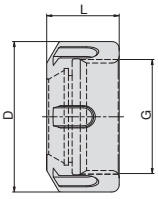
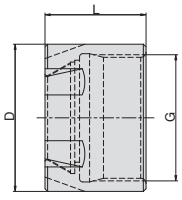


Fig. 2

Catalog Number	Dimensions				Fig
	Size	D	L	G	
ER16-DIN6499	1-10	28.0	17.5	M22x1.5	1
ER20-DIN6499	1-13	34.0	19.0	M25x1.5	1
ER25-DIN6499	2-16	42.0	20.0	M32x1.5	2
ER32-DIN6499	2-20	50.0	22.5	M40x1.5	2
ER40-DIN6499	3-26	63.0	25.5	M50x1.5	2

Clamping Nut – "Mini" ER



Catalog Number	Dimensions				Fig
	Size	D	L	G	
ER11M	1-7	16.0	11.3	M13x0.75	-
ER16M	1-10	22.0	17.0	M19x1.0	-
ER20M	1-13	28.0	19.0	M24x1.0	-
ER25M	2-16	35.0	20.0	M30x1.0	-

Clamping Nut – ER for Sealing Discs

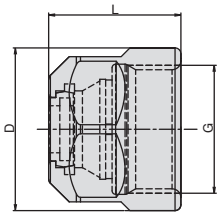


Fig. 1

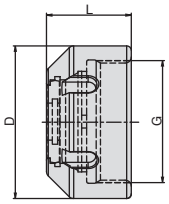


Fig. 2

Catalog Number	Dimensions				Fig
	Size	D	L	G	
ER16-IC	1-10	28.0	22.5	M22x1.5	1
ER20-IC	1-13	34.0	24.0	M25x1.5	1
ER25-IC	2-16	42.0	25.0	M32x1.5	2
ER32-IC	2-20	50.0	27.5	M40x1.5	2
ER40-IC	3-26	63.0	30.5	M50x1.5	2

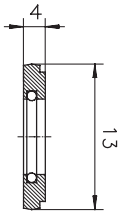


Fig
SD ER 16

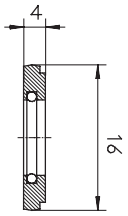


Fig
SD ER 20

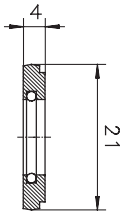


Fig
SD ER 25

Sealing Discs for ER-IC Clamping Nuts		
Catalog Number	Dimensions	
	Sealing Capacity (mm)	Sealing Capacity (inch)
Sealing Discs for ER16-IC Clamping Nuts (Inch & Metric)		
SD-ER16-3.0-2.5mm	3.0-2.5	0.1181"-0.0984"
SD-ER16-3.5-3.0mm	3.5-3.0	0.1378"-0.1181"
SD-ER16-4.0-3.5mm	4.0-3.5	0.1575"-0.1378"
SD-ER16-4.5-4.0mm	4.5-4.0	0.1772"-0.1575"
SD-ER16-5.0-4.5mm	5.0-4.5	0.1969"-0.1772"
SD-ER16-5.5-5.0mm	5.5-5.0	0.2165"-0.1969"
SD-ER16-6.0-5.5mm	6.0-5.5	0.2362"-0.2160"
SD-ER16-6.5-6.0mm	6.5-6.0	0.2559"-0.2362"
SD-ER16-7.0-6.5mm	7.0-6.5	0.2756"-0.2559"
SD-ER16-7.5-7.0mm	7.5-7.0	0.2953"-0.2756"
SD-ER16-8.0-7.5mm	8.0-7.5	0.3150"-0.2953"
SD-ER16-8.5-8.0mm	8.5-8.0	0.3347"-0.3150"
SD-ER16-9.0-8.5mm	9.0-8.5	0.3543"-0.3347"
SD-ER16-9.5-9.0mm	9.5-9.0	0.3740"-0.3543"
SD-ER16-10.0-9.5mm	10.0-9.5	0.3937"-0.3740"
Sealing Discs for ER20-IC Clamping Nuts (Inch & Metric)		
SD-ER20-3.0-2.5mm	3.0-2.5	0.1181"-0.0984"
SD-ER20-3.5-3.0mm	3.5-3.0	0.1378"-0.1181"
SD-ER20-4.0-3.5mm	4.0-3.5	0.1575"-0.1378"
SD-ER20-4.5-4.0mm	4.5-4.0	0.1772"-0.1575"
SD-ER20-5.0-4.5mm	5.0-4.5	0.1969"-0.1772"
SD-ER20-5.5-5.0mm	5.5-5.0	0.2165"-0.1969"
SD-ER20-6.0-5.5mm	6.0-5.5	0.2362"-0.2160"
SD-ER20-6.5-6.0mm	6.5-6.0	0.2559"-0.2362"
SD-ER20-7.0-6.5mm	7.0-6.5	0.2756"-0.2559"
SD-ER20-7.5-7.0mm	7.5-7.0	0.2953"-0.2756"
SD-ER20-8.0-7.5mm	8.0-7.5	0.3150"-0.2953"
SD-ER20-8.5-8.0mm	8.5-8.0	0.3347"-0.3150"
SD-ER20-9.0-8.5mm	9.0-8.5	0.3543"-0.3347"
SD-ER20-9.5-8.0mm	9.5-9.0	0.3740"-0.3543"
SD-ER20-10.0-9.5mm	10.0-9.5	0.3937"-0.3740"
SD-ER20-10.5-10mm	10.5-10.0	0.4134"-0.3937"
SD-ER20-11.0-10.5mm	11.0-10.5	0.4330"-0.4134"
SD-ER20-11.5-11.0mm	11.5-11.0	0.4528"-0.4330"
SD-ER20-12.0-11.5mm	12.0-11.5	0.4724"-0.4528"
SD-ER20-12.5-12.0mm	12.5-12.0	0.4921"-0.4724"
SD-ER20-13.0-12.5mm	13.0-12.5	0.5118"-0.4921"
Sealing Discs for ER25-IC Clamping Nuts (Inch & Metric)		
SD-ER25-3.0-2.5mm	3.0-2.5	0.1181"-0.0984"
SD-ER25-3.5-3.0mm	3.5-3.0	0.1378"-0.1181"
SD-ER25-4.0-3.5mm	4.0-3.5	0.1575"-0.1378"
SD-ER25-4.5-4.0mm	4.5-4.0	0.1772"-0.1575"
SD-ER25-5.0-4.5mm	5.0-4.5	0.1969"-0.1772"
SD-ER25-5.5-5.0mm	5.5-5.0	0.2165"-0.1969"
SD-ER25-6.0-5.5mm	6.0-5.5	0.2362"-0.2160"
SD-ER25-6.5-6.0mm	6.5-6.0	0.2559"-0.2362"
SD-ER25-7.0-6.5mm	7.0-6.5	0.2756"-0.2559"
SD-ER25-7.5-7.0mm	7.5-7.0	0.2953"-0.2756"
SD-ER25-8.0-7.5mm	8.0-7.5	0.3150"-0.2953"
SD-ER25-8.5-8.0mm	8.5-8.0	0.3347"-0.3150"
SD-ER25-9.0-8.5mm	9.0-8.5	0.3543"-0.3347"
SD-ER25-9.5-9.0mm	9.5-9.0	0.3740"-0.3543"
SD-ER25-10.0-9.5mm	10.0-9.5	0.3937"-0.3740"
SD-ER25-10.5-10.0mm	10.5-10.0	0.4134"-0.3937"
SD-ER25-11.0-10.5mm	11.0-10.5	0.4330"-0.4134"
SD-ER25-11.5-11.0mm	11.5-11.0	0.4528"-0.4330"
SD-ER25-12.0-11.5mm	12.0-11.5	0.4724"-0.4528"
SD-ER25-12.5-12.0mm	12.5-12.0	0.4921"-0.4724"
SD-ER25-13.0-12.5mm	13.0-12.5	0.5118"-0.4921"
SD-ER25-13.5-13.0mm	13.5-13.0	0.5315"-0.5118"
SD-ER25-14.0-13.5mm	14.0-13.5	0.5512"-0.5315"
SD-ER25-14.5-14.0mm	14.5-14.0	0.5709"-0.5512"
SD-ER25-15.0-14.5mm	15.0-14.5	0.5905"-0.5709"
SD-ER25-15.5-15.0mm	15.5-15.0	0.6102"-0.5905"
SD-ER25-16.0-15.5mm	16.0-15.5	0.6300"-0.6102"

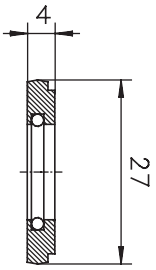


Fig
SD ER 32

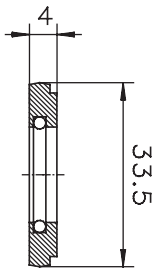
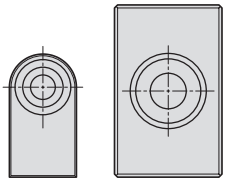


Fig
SD ER 40

Sealing Discs for ER-IC Clamping Nuts		
Catalog Number	Dimensions	
	Sealing Capacity (mm)	Sealing Capacity (inch)
Sealing Discs for ER32-IC Clamping Nuts (Inch & Metric)		
SD-ER32-3.0-2.5mm	3.0-2.5	0.1181"-0.0984"
SD-ER32-3.5-3.0mm	3.5-3.0	0.1378"-0.1181"
SD-ER32-4.0-3.5mm	4.0-3.5	0.1575"-0.1378"
SD-ER32-4.5-4.0mm	4.5-4.0	0.1772"-0.1575"
SD-ER32-5.0-4.5mm	5.0-4.5	0.1969"-0.1772"
SD-ER32-5.5-5.0mm	5.5-5.0	0.2165"-0.1969"
SD-ER32-6.0-5.5mm	6.0-5.5	0.2362"-0.2160"
SD-ER32-6.5-6.0mm	6.5-6.0	0.2559"-0.2362"
SD-ER32-7.0-6.5mm	7.0-6.5	0.2756"-0.2559"
SD-ER32-7.5-7.0mm	7.5-7.0	0.2953"-0.2756"
SD-ER32-8.0-7.5mm	8.0-7.5	0.3150"-0.2953"
SD-ER32-8.5-8.0mm	8.5-8.0	0.3347"-0.3150"
SD-ER32-9.0-8.5mm	9.0-8.5	0.3543"-0.3347"
SD-ER32-9.5-9.0mm	9.5-9.0	0.3740"-0.3543"
SD-ER32-10.0-9.5mm	10.0-9.5	0.3937"-0.3740"
SD-ER32-10.5-10.0mm	10.5-10.0	0.4134"-0.3937"
SD-ER32-11.0-10.5mm	11.0-10.5	0.4330"-0.4134"
SD-ER32-11.5-11.0mm	11.5-11.0	0.4528"-0.4330"
SD-ER32-12.0-11.5mm	12.0-11.5	0.4724"-0.4528"
SD-ER32-12.5-12.0mm	12.5-12.0	0.4921"-0.4724"
SD-ER32-13.0-12.5mm	13.0-12.5	0.5118"-0.4921"
SD-ER32-13.5-13.0mm	13.5-13.0	0.5315"-0.5118"
SD-ER32-14.0-13.5mm	14.0-13.5	0.5512"-0.5315"
SD-ER32-14.5-14.0mm	14.5-14.0	0.5709"-0.5512"
SD-ER32-15.0-14.5mm	15.0-14.5	0.5905"-0.5709"
SD-ER32-15.5-15.0mm	15.5-15.0	0.6102"-0.5905"
SD-ER32-16.0-15.5mm	16.0-15.5	0.6300"-0.6102"
SD-ER32-16.5-16.0mm	16.5-16.0	0.6496"-0.6300"
SD-ER32-17.0-16.5mm	17.0-16.5	0.6693"-0.6496"
SD-ER32-19.0-18.5mm	19.0-18.5	0.7480"-0.7284"
SD-ER32-19.5-19.0mm	19.5-19.0	0.7677"-0.7480"
SD-ER32-20.0-19.5mm	20.0-19.5	0.7874"-0.7677"

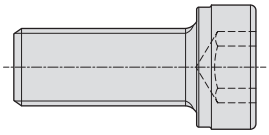
Sealing Discs for ER-IC Clamping Nuts		
Catalog Number	Dimensions	
	Sealing Capacity (mm)	Sealing Capacity (inch)
Sealing Discs for ER40-IC Clamping Nuts (Inch & Metric)		
SD-ER40-3.0-2.5mm	3.0-2.5	0.1181"-0.0984"
SD-ER40-3.5-3.0mm	3.5-3.0	0.1378"-0.1181"
SD-ER40-4.0-3.5mm	4.0-3.5	0.1575"-0.1378"
SD-ER40-4.5-4.0mm	4.5-4.0	0.1772"-0.1575"
SD-ER40-5.0-4.5mm	5.0-4.5	0.1969"-0.1772"
SD-ER40-5.5-5.0mm	5.5-5.0	0.2165"-0.1969"
SD-ER40-6.0-5.5mm	6.0-5.5	0.2362"-0.2160"
SD-ER40-6.5-6.0mm	6.5-6.0	0.2559"-0.2362"
SD-ER40-7.0-6.5mm	7.0-6.5	0.2756"-0.2559"
SD-ER40-7.5-7.0mm	7.5-7.0	0.2953"-0.2756"
SD-ER40-8.0-7.5mm	8.0-7.5	0.3150"-0.2953"
SD-ER40-8.5-8.0mm	8.5-8.0	0.3347"-0.3150"
SD-ER40-9.0-8.5mm	9.0-8.5	0.3543"-0.3347"
SD-ER40-9.5-9.0mm	9.5-9.0	0.3740"-0.3543"
SD-ER40-10.0-9.5mm	10.0-9.5	0.3937"-0.3740"
SD-ER40-10.5-10.0mm	10.5-10.0	0.4134"-0.3937"
SD-ER40-11.0-10.5mm	11.0-10.5	0.4330"-0.4134"
SD-ER40-11.5-11.0mm	11.5-11.0	0.4528"-0.4330"
SD-ER40-12.0-11.5mm	12.0-11.5	0.4724"-0.4528"
SD-ER40-12.5-12.0mm	12.5-12.0	0.4921"-0.4724"
SD-ER40-13.0-12.5mm	13.0-12.5	0.5118"-0.4921"
SD-ER40-13.5-13.0mm	13.5-13.0	0.5315"-0.5118"
SD-ER40-14.0-13.5mm	14.0-13.5	0.5512"-0.5315"
SD-ER40-14.5-14.0mm	14.5-14.0	0.5709"-0.5512"
SD-ER40-15.0-14.5mm	15.0-14.5	0.5905"-0.5709"
SD-ER40-15.5-15.0mm	15.5-15.0	0.6102"-0.5905"
SD-ER40-16.0-15.5mm	16.0-15.5	0.6300"-0.6102"
SD-ER40-16.5-16.0mm	16.5-16.0	0.6496"-0.6300"
SD-ER40-17.0-16.5mm	17.0-16.5	0.6693"-0.6496"
SD-ER40-17.5-17.0mm	17.5-17.0	0.6890"-0.6693"
SD-ER40-18.0-17.5mm	18.0-17.5	0.7087"-0.6890"
SD-ER40-18.5-18.0mm	18.5-18.0	0.7284"-0.7087"
SD-ER40-19.0-18.5mm	19.0-18.5	0.7480"-0.7284"
SD-ER40-19.5-19.0mm	19.5-19.0	0.7677"-0.7480"
SD-ER40-20.0-19.5mm	20.0-19.5	0.7874"-0.7677"
SD-ER40-20.5-20.0mm	20.5-20.0	0.8070"-0.7874"
SD-ER40-21.0-20.5mm	21.0-20.5	0.8267"-0.8070"
SD-ER40-21.5-21.0mm	21.5-21.0	0.8464"-0.8267"
SD-ER40-22.0-21.5mm	22.0-21.5	0.8661"-0.8464"
SD-ER40-22.5-22.0mm	22.5-22.0	0.8857"-0.8661"
SD-ER40-23.0-22.5mm	23.0-22.5	0.9055"-0.8857"
SD-ER40-23.5-23.0mm	23.5-23.0	0.9251"-0.9055'
SD-ER40-24.0-23.5mm	24.0-23.5	0.9448"-0.9251"
SD-ER40-24.5-24.0mm	24.5-24.0	0.9645"-0.9448"
SD-ER40-25.0-24.5mm	25.0-24.5	0.9842"-0.9645"
SD-ER40-25.5-25.0mm	25.5-25.0	1.0039"-0.9842"
SD-ER40-26.0-25.5mm	26.0-25.5	1.0236"-1.0039"

Drive Key for Inch Shell Mill Holders



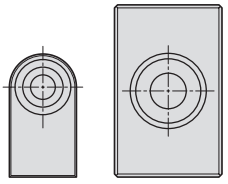
Catalog Number	For Size (inch)
SM64750	0.500"
SM64751	0.750"
SM64752	1.000"
SM64753	1.250"
SM64754	1.500"
SM64755	2.000"
SM64756	2.500"

Locking Screw for Inch Shell Mill Holders



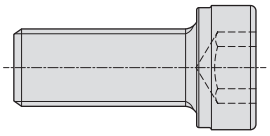
Catalog Number	For Size (inch)
SM64830	0.500"
SM64831	0.750"
SM64832	1.000"
SM64833	1.250"
SM64834	1.500"
SM64835	2.000"
SM64836	2.500"

Drive Key for Metric Shell Mill Holders



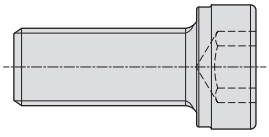
Catalog Number	For Size (mm)
SM16-8x8x14	16
SM22-10x10x17	22
SM27-12x14x20	27
SM32-14x14x22	32
SM40-15.9x16x21	40
SM60-25.4x25x31	60

Locking Screw for Metric Shell Mill Holders Drive Keys



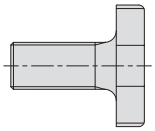
Catalog Number	For Size (mm)
M 3 x 8-DIN 912	16
M 4 X 8-DIN 912	22
M 4 X 14-DIN 912	27
M 5 X 13-DIN 912	32
M 6 X 16-DIN 912	40
M 12 X 25-DIN 912	60

Locking Screw for Metric Shell Mill Holders (Small Counterbore)



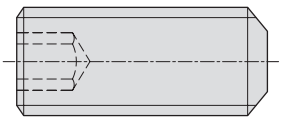
Catalog Number	For Size (mm)
M 8 x 20 DIN 912	16
M 10 x 30 DIN 912	22
M 12 x 35 DIN 912	27
M 16 x 40 DIN 912	32

Locking Screw for Metric Shell Mill Holders (Large Counterbore)



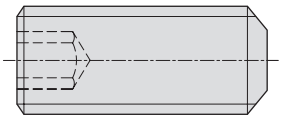
Catalog Number	For Size (mm)
M 8 x 16-DIN 6367	16
M 10 x 22-DIN 6367	22
M 12 x 27-DIN 6367	27
M 16 x 32-DIN 6367	32
M 20 x 40-DIN 6367	40

Locking Screw for End Mill Holders



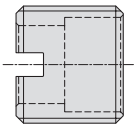
Catalog Number	For Size (inch)
6-32UNSC8	0.125"
8-32UNSC7	0.187"
1/4-28UNF-8	0.250"
5/16-24UNF-10	0.312"
3/8-24UNF-9	0.375"
7/16-20UNF-13	0.437"
7/16-20UNF-12	0.500"
1/2-20UNF-14	0.625"
5/8-18UNF-14	0.750" & 0.875"
3/4-16UNF-14	1.000"
3/4-16UNF-16	1.250" & 1.500"
1-14UNS-23	2.000"

Adjusting Screw Threaded Stud DIN 913 for End Mill Holders



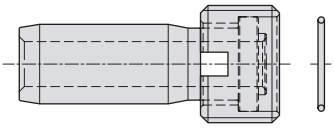
Catalog Number	For Size
M5x5 DIN913	CAT40/50
M5x6 DIN913	BT40
M6x10 DIN913	BT50

Adjusting Screw for ER Collet Chuck Holders



Catalog Number	For Size
M10 x 15-001	ER16
M12 x 15-001	ER20
M16 x 15-001	ER25
M22 x 1.5 x 15-001	ER32 & 40

Coolant Tube for HSK Holders



Catalog Number	For Size
CTHSK 32-10	HSK 32
CTHSK 40-12	HSK 40
CTHSK 50-16	HSK 50
CTHSK 63-18	HSK 63
CTHSK 80-20	HSK 80
CTHSK 100-24	HSK 100

Wrenches for Milling Chucks

Catalog Number	Size (metric & inch)
SC-20	20 & 0.75"
SC-25	25 & 1.000"
SC-32	32 & 1.250"
SC-1.5"	1.5"
SC-2.0"	2.0"

Wrenches for ER Collect Holders

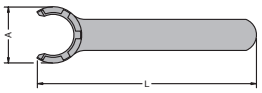


Fig. A

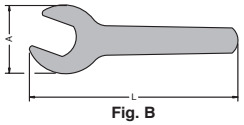


Fig. B

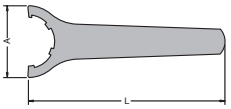


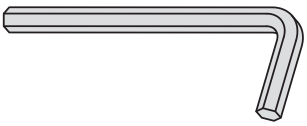
Fig. C

Catalog Number	For Clamping Nut	Dimensions			Fig
		A	L	G	
S-E11M	E11M	16.8	90.0	-	A
S-E16M	E16M	22.5	110.0	-	A
S-E20M	E20M	29.0	120.0	-	A
S-E25M	E25M	36.0	130.0	-	A
S-GS-SW25	ER16-DIN6499	42.0	140.0	-	B
S-E20	ER20-DIN6499	54.0	168.0	-	B
S-E25	ER25-DIN6499	65.0	210.0	-	C
S-E32	ER32-DIN6499	75.0	250.0	-	C
S-E40	ER40-DIN6499	90.0	290.0	-	C

Wrench for Shell Mill Holders Inch Locking Screws

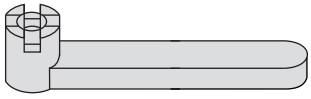
Catalog Number	For Size (inch)
SM 3/16" hex key	0.500
SM 1/4" hex key	0.750
SM 5/16" hex key	1.000 & 1.250
SM 3/8" hex key	1.500
SM 1/2" hex key	2.000 & 2.500

Wrench for Shell Mill Holders Metric Locking Screws (Small Counterbore)



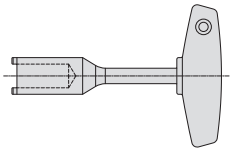
Catalog Number	For Size (mm)
SM6 hex key	16
SM8 hex key	22
SM10 hex key	27
SM14 hex key	32
SM17 hex key	40

Wrench for Shell Mill Holders Metric Locking Screws (Large Counterbore)

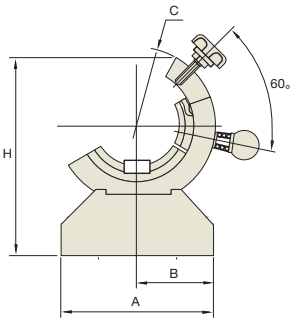


Catalog Number	For Size (mm)
SM-16 DIN 6368	16
SM-22 DIN 6368	22
SM-27 DIN 6368	27
SM-32 DIN 6368	32
SM-40 DIN 6368	40

Wrench for HSK Coolant Tubes



Catalog Number	For Size
S-HSK 32-8.5x115	HSK 32
S-HSK 40-10.5x115	HSK 40
S-HSK 50-14.5x115	HSK 50
S-HSK 63-16.5x136	HSK 63
S-HSK 80-18.5x136	HSK 80
S-HSK 100-22x136	HSK 100



Tool Clamp

- No surface damage such as abrasion and scratch around taper shank closely associated with tool runout
- Easy to assemble and disassemble pull stud bolt
- Convenient and safe when using coolant tube wrench with milling chuck or ER collet chuck

Taper No.	Catalog Number	Dimensions (mm)				Weight (kg)
		A	B	C	H	
BT30	STCP30	125	65	108	135	3.0
BT40	STCP40	160	80	138	180	7.6
BT50	STCP50	180	90	165	205	8.6
SK30	STSK30	125	65	108	135	3.0
SK40	STSK40	160	80	138	180	7.6
SK50	STSK50	180	90	165	205	8.6

Retention Knobs

Catalog Number	Machine Taper	Common Machines
SRKC50-STD	C50	HURCO W/COOLANT
SRKC40-MZC	C40	MAZAK W/COOLANT
SRKC40S-4500	C40	HAAS
SRKC40-STD	C40	FADAL W/COOLANT
SRKC50-4500H	C50	OKK W/COOLANT
SRKC40-1500-ISO	C40	DAEWOO
SRKC40S-4500	C40	HAAS W/COOLANT
SRKC40-1500H	C40	MAKINO W/COOLANT
SRKC50-4500	C50	OKK
SRKC40-STD	C40	FADAL
SRKC40S-9000	C40	MORI-SEKI
SRKC40-4500	C40	OKUMA
SRKC50-MZ	C50	MAZAK W/ O-RING
SRKC50-STD	C50	MAZAK
SRKC50-TOY	C50	TOYOTA W/O-RING

Spindle Cleaners – Professional Series

These easy to use wipers clean your spindles assuring that toolholder tapers make continuous positive contact for repeatable on-center performance. The wiper can also be used for cleaning the bores of collet chucks and Morse Taper holders.

Catalog Number	Description
ISO30	30-Taper Spindle Clean equipped with cleaning blades
ISO40	40-Taper Spindle Clean equipped with cleaning blades
ISO50	50-Taper Spindle Clean equipped with cleaning blades

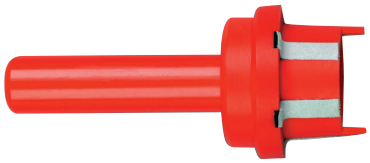
Taper Cleaners for HSK Tool Tapers

For cleaning HSK tool tapers. Plastic body with leather inserts.

Catalog Number	HSK Form A/C/E
76.208.040	40
76.208.050	50
76.208.063	63

For cleaning HSK tool tapers. Plastic body with leather inserts.

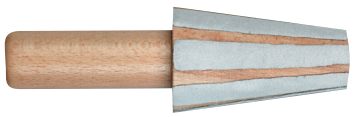
Taper Cleaners for HSK Spindles



For cleaning HSK spindle tapers. Plastic body with leather inserts.

Catalog Number	HSK Form A/C
76.205.032	32
76.205.040	40
76.205.050	50
76.205.063	63
76.205.080	80
76.205.100	100

Taper Cleaners for 7/24 Spindle Tapers (Steep Taper)



For cleaning 7/24 (Steep Taper) spindle tapers. Plastic body with leather inserts.

Catalog Number	CAT Size
76.200.030	30
76.200.040	40
76.200.050	50

SUMITOMO

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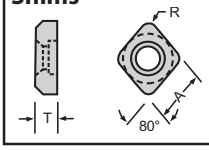
www.sumicarbide.com

Technical Information & Hardware

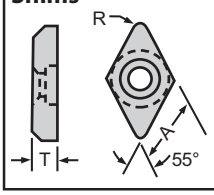
Pages 565-620

80° Diamond Shims



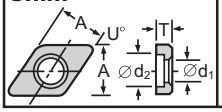
Sumitomo Cat. No.	A Insert I.C.	T	R
ICSN322	.500	.1875	.031
ICSN433	.500	.1875	.047
ICSN533	.625	.1875	.047
ICSN633	.750	.1875	.047

55° Diamond Shims



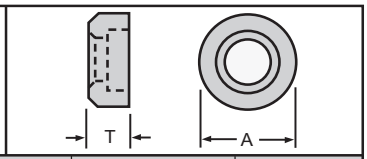
Sumitomo Cat. No.	A Insert I.C.	T	R
IDSN322	.375	.125	.031
IDSN433	.500	.1875	.047
IDSN443	.500	.250	.047
IDSN533	.625	.1875	.047

55°Diamond Shim



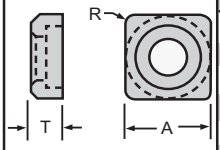
Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	0°
SDW423	12.65	3.18	6.2	8.0	–	55

Round Shims



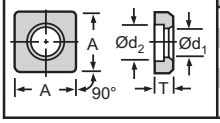
Sumitomo Cat. No.	A Insert I.C.	T	R
IRSN43	.500	.1875	–
IRSN44	.500	.250	–

Square Shims



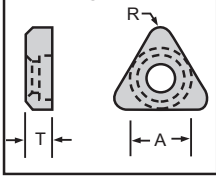
Sumitomo Cat. No.	A Insert I.C.	T	R
ISSN433	.500	.1875	.047
ISSN443	.500	.250	.047
ISSN533	.625	.1875	.047
ISSN543	.625	.250	.047
ISSN633	.750	.1875	.047
ISSN643	.750	.250	.047

Square Shims



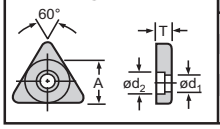
Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	–
SSW423	12.65	3.18	6.2	8	–	–
SSW433	12.65	4.76	6.2	8		
SSW534	15.85	4.76	7.8	9.7		
SSW635	19	4.76	9	11.5	–	–

Triangle Shims



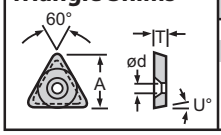
Sumitomo Cat. No.	A Insert I.C.	T	R
ITSN323	.375	.125	.047
ITSN333	.375	.1875	.047
ITSN423	.500	.125	.047
ITSN432	.500	.1875	.031
ITSN433	.500	.1875	.047
ITSN534	.625	.1875	.0625

Triangle Shims



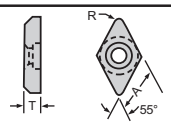
Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	–
STW323	9.5	3.18	4.7	6.5	–	–
STW333	9.5	4.76	4.7	6.5	–	–
STW434	12.65	4.76	6.2	8	–	–
STW534	15.85	4.76	7.8	9.7	–	–

Triangle Shims



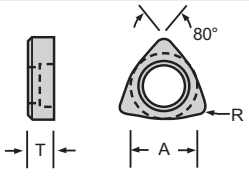
Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	u°
STPD322	8.4	3.18	3.4	–	–	6
STPD422	11.0	3.18	3.4	–	–	6

35° Diamond Shims



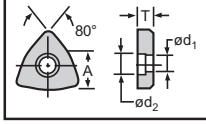
Sumitomo Cat. No.	A Insert I.C.	T	R
IVSN322	.375	.125	.031
IVSN432	.500	.1875	.031
IVSN433	.500	.1875	.047

Trigon Shims



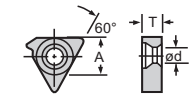
Sumitomo Cat. No.	A Insert I.C.	T	R
IWSN322	.375	.125	.031
IWSN433	.500	.1875	.1875

Trigon Shim



Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	–
SWW433	12.65	4.76	6.2	8	–	–
SWW544	15.85	5.15	7.8	9.7	–	–

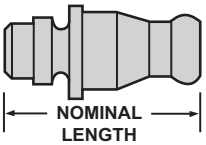
Threading Shim



Sumitomo Cat. No.	Size (mm)					
	A	T	d	–	–	–
LSTE31-0	9.5	2.7	5.2	–	–	–

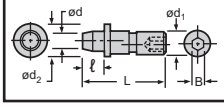
Lock Pins Negative Rake

(Top & Bottom Lock)



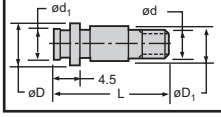
Sumitomo Cat. No.	Insert I.C.	Nominal Length	Hex Wrench	Use With Seat
BWP-46	.500	.578	.094	Yes
NL-23	.250	.328	.0625	No
NL-33	.375	.344	.078	No
NL-33L	.375	.406	.078	No
NL-34	.375	.453	.078	Yes
NL-34L	.375	.516	.078	Yes
NL-44	.500	.516	.094	No
NL-46	.500	.672	.094	Yes
NL-46L	.500	.734	.094	Yes
NL-58	.625	.859	.125	Yes
NL-68	.750	.859	.141	Yes

Cam Pin



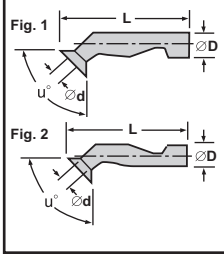
Sumitomo Cat. No.	Size (mm)					
	d	d_1	d_2	L	ℓ	B
CPB33	3.4	4.1	5.5	17	3.4	2.5
CPB43	4.5	5.5	7	19	5	3
CPB43S	4.5	5.5	7	16	5	3
CPB44T	4.5	5.5	7	22	5	3

Cam Pin



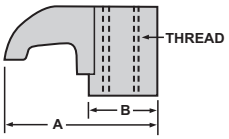
Sumitomo Cat. No.	Size (mm)					
	d	Pitch	L	D	D_1	d_1
MP416	M5	0.8	14	7.5	6	5
MP420	M5	0.8	20	7.5	6	5
MP531	M6	1.0	19.7	9.5	7	6.26
MP534	M6	1.0	26.1	9.5	7	6.76

Clamp Stud



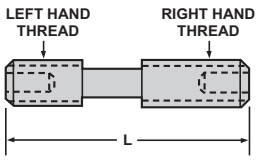
Sumitomo Cat. No.	Size (mm)				
	d	D	L	u°	Shape
SR104B	3	3.4	21	60	Fig. 1
SW43B	4	4.9	27.5	90	Fig. 2
SW42L	4	4.9	22	90	Fig. 2
SW43	4	4.9	27.5	90	Fig. 2
SW53L	4.8	5.9	28.3	90	Fig. 2
SW53R	4.8	5.9	28.3	90	Fig. 2
SW54	4.8	5.9	35.5	90	Fig. 2
SW54B	4.8	5.9	35.5	90	Fig. 2
SW64L	5.5	6.9	33.8	90	Fig. 2
SW64R	5.5	6.9	33.8	90	Fig. 2
SW65	5.5	6.9	44.5	90	Fig. 2
SW65B	5.5	6.9	44.5	90	Fig. 2

Finger Clamp



Sumitomo Cat. No.	A	Thread	B
CL19	.550	10-32	.310
CL6	.580	10-32	.310
CL7	.640	10-32	.310
CL20	.730	1/4-28	.375
CL9	.750	5/16-24	.430
CL12	.880	5/16-24	.430
CL30	1.000	5/16-24	.430

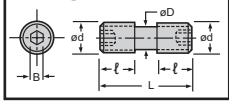
Differential Clamp Screws



Inch

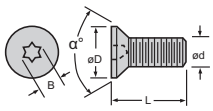
Catalog Number	Thread	L	Wrench Size
XNS35	10-32	.59	3/32
XNS36	10-32	.75	3/32
XNS47	1/4-28	.81	1/8
XNS48	1/4-28	1.00	1/8
XNS58	5/16-24	1.00	5/32
XNS59	5/16-24	1.125	5/32
XNS510	5/16-24	1.25	5/32

Differential Clamp Screw



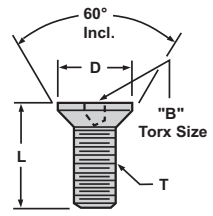
Sumitomo Cat. No.	Size (mm)					
	d	pitch	L	ℓ	D	B
WB613	M6	1.0	13	5	4.5	3
WB616	M6	1.0	16	6	4.5	3
WB820	M8	1.25	22	8.5	6.2	T27
WB8F20	M8	1.0	20	8.5	6.2	4
WB8F30	M8	1.0	3.0	11.5	6.2	4

Torx Insert Screws



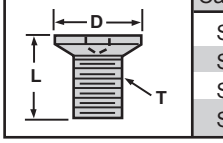
Sumitomo Cat. No.	Size (mm) d	Pitch	L	D	B	α°
BFTX0204	M2	0.4	4.3	2.7	T6	60
BFTX0204A	M2	0.4	4.3	2.7	T6	90
BFTX02205	M2.2	0.45	4.5	3	T6	60
BFTX02506N	M2.5	0.45	5.5	3.45	T8	60
BFTX02507	M2.5	0.45	6.5	3.45	T8	60
BFTX0305A	M3	0.5	5.3	4.3	T10	90
BFTX0306A	M3	0.5	5.8	4.3	T10	90
BFTX0307A	M3	0.5	6.8	4.3	T10	90
BFTX03508	M3.5	0.6	8	5.1	T10	52
BFTX0407A	M4	0.7	7.3	5.6	T15	90
BFTX0409N	M4	0.7	9	5.6	T15	60
BFTX0410A	M4	0.7	10.3	5.6	T15	90
BFTX0509A	M5	0.8	9.3	6.9	T20	90

Torx Insert Screws



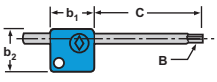
Sumitomo Cat. No.	D	T	L	B
ST21.5	.130	M2.5x.45	.217	T-8
ST32.5	.213	M4x.7	.315	T-15

Shim Screws



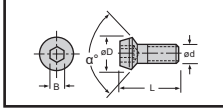
Sumitomo Cat. No.	Insert I.C.	D	L	H	T
S34	.375	.24	.31	.078	10-32
S46	.500	.30	.50	.094	1/4-28
S58	.625	.40	.62	.125	5/16-24
S68	.750	.46	.62	.140	3/8-24

Torx Wrench



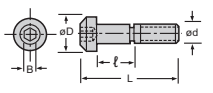
Sumitomo Cat. No.	Size (mm) B	C	b_1	b_2
TRX06	T6	34.5	15	15
TRX08	T8	34.5	19	19
TRX10	T10	42.5	22	22
TRX15	T15	45	22	27
TRX20	T20	49.0	22	30

Flat Button Head Screw



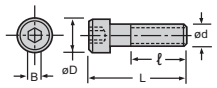
Sumitomo Cat. No.	Size (mm) d	Pitch	L	D	B	α°
BHF0203T	M2	0.4	4	3	1.5	90
BHF0203B	M2	0.4	5.5	3.5	1.5	90
BHF0306R	M3	0.5	6.5	4.4	2	90
BHF0308R	M3	0.5	8	4.4	2	90

Hex Low Head Cap Screw



Sumitomo Cat. No.	Size (mm) d	Pitch	L	ℓ	D	B
BHA0625	M6	1.0	30	11.3	10.5	4
BHA0834	M8	1.25	34.2	12.7	12	5

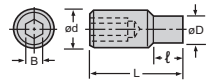
Cap Screw



Sumitomo Cat. No.	Size (mm) d	Pitch	L	ℓ	D	B
BX0414	M4	0.7	14	Full	7	3
BX0512	M5	0.8	12	Full	8.5	4
BX0615	M6	1.0	15	Full	10	5
BX0618	M6	1.0	18	18	10	5
BX0622	M6	1.0	22	18	10	

5

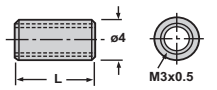
Set Screw



Sumitomo Cat. No.	Size (mm) d	Pitch	L	ℓ	D	B
BTD0520	M5	0.8	10	3	3.5	2.5
BTD0607						
BTD0609	M6	1.0	9	2	4	3
BTD0615	M6	1.0	15	5	4	3
BTD0812	M8	1.25	12	2	5	4
BTD0820	M8	1.25	20	6	5	4
BTD0825	M8	1.25	25	8.5	5	

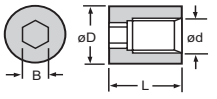
4

Nut



Sumitomo Cat. No.	Size (mm) L	–	–	–	–	–
BNBW2	2	–	–	–	–	–
BNBW4	5	–	–	–	–	–
BNBW7	8	–	–	–	–	–

Nut



Sumitomo Cat. No.	Size (mm) d	L	D	B	–	–
CPM43N	M5	8.5	7	3	–	–
CPM43S	M5	6	7	3	–	–
CPM54N	M6	9	9	4		

Calculating Power Requirement

$$P_c = \frac{v_c \times f \times a_p \times k_c}{60 \times 10^3 \times \eta}$$

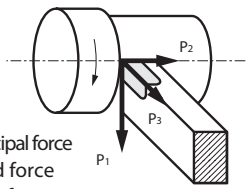
$$H = \frac{P_c}{0.75}$$

P_c : Net power requirement (KW)
v_c : Cutting speed (m/min)
f : Feed rate (mm/rev)
a_p : Depth of cut (mm)
k_c : Specific cutting force (MPa)
H : Required horsepower (HP)
η : Machine efficiency (0.70 to 0.85)

D RoughValue of Kc

Aluminium: 800MPa
General Steel: 2,500 to 3,000MPa
Cast Iron: 1,500MPa

Cutting Force



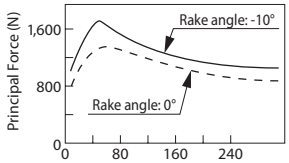
P_1: Principal force
P_2: Feed force
P_3: Back force

D Calculating Cutting Force

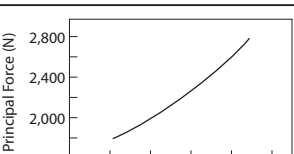
$$P = \frac{K_c \times q}{1{,}000}$$

P : Cutting force (kN)
k_c : Specific cutting force (MPa)
q : Chip area (mm^2)

n Relation Between Cutting Speed and Cutting Force



Relation Between Rake Angle and Cutting Force



Calculating Cutting Speed

(1) Calculating rotation speed from cutting speed

$$n = \frac{1{,}000 \times v_c}{\pi \times D_m}$$

n : Spindle speed (min^{-1})
v_c : Cutting speed (m/min)
D_m : Diameter of work piece (mm)
π : ≒ 3.14

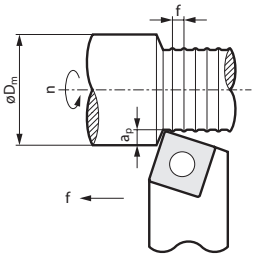
(Ex.) v_c=150m/min, D_m=100mm

$$n = \frac{1{,}000 \times 150}{3.14 \times 100} = 478\ (min^{-1})$$

(2) Calculating cutting speed from rotational speed

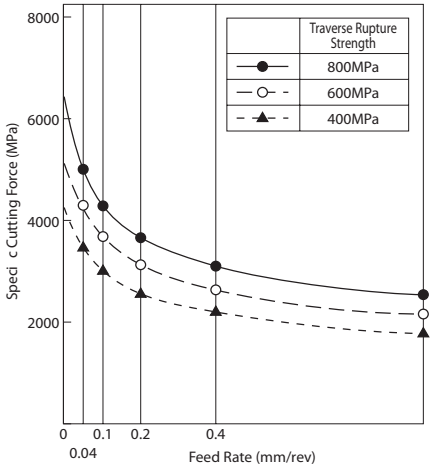
$$v_c = \frac{\pi \times D_m \times n}{1{,}000}$$

Refer to the above table



· n : Spindle speed (min^{-1})
· v_c : Cutting speed (m/min)
· f : Feed rate (mm/rev)
· a_p : Depth of cut (mm)
· D_m : Diameter of work piece (mm)

Relation Between Feed Rate and Specific Cutting Force (For Carbon Steel)

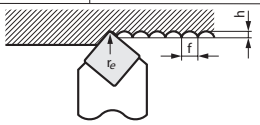


When feed rate decreases, speci c cutting force increases.

Theoretical Surface Finish

$$h = \frac{f^2}{8 \times r_\varepsilon} \times 10^3$$

h : Theoretical surface roughness (μm)
f : Feed rate (mm/rev)
r_ε : Nose radius (mm)



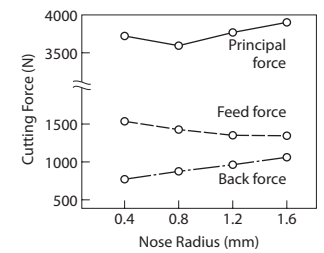
Actual Surface Roughness

Steel:
Theoretical surface finish x 1.5 to 3
Cast iron:
Theoretical surface finish x 3 to 5

Ways to Improve Surface Finish

(1) Use an insert with a larger nose radius.
(2) Optimise the cutting speed and feed rate so that built-up edge does not occur.
(3) Select an appropriate insert grade.
(4) Use wiper insert

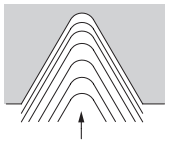
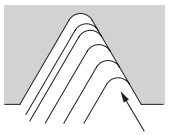
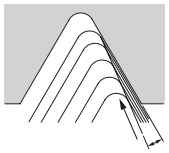
Relation Between Nose Radius and Cutting Force



Large nose radius increases back force.

Work : SCM440(38HS)
Inserts : TNGA2204 SS
Holder : PTGNR2525-43
Cutting Conditions : v_c=100m/min
a_p=4mm
f=0.45mm/rev

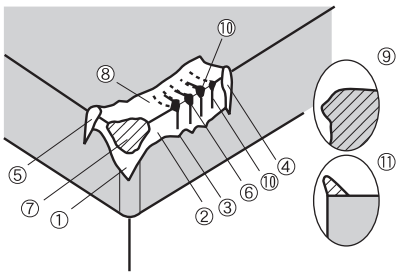
Threading

Machining Method	Characteristics
Radian Infeed 	· Most common threading technique, used mainly for small pitch threads. · Easy to change cutting conditions such as depth of cut, etc. · Wears evenly due to equal cut edge on right and left sides, which also translates into a long contact point and thus a tendency to chatter. · Difficult to control chip evacuation.
Flank Infeed 	· Effective for large pitch threads and blemish-prone work material surfaces. · Chips evacuate from one side for good chip control. · Heavy flank wear on right side.
Corrected Flank Infeed 	· Effective for large pitch threads and blemish-prone work material surfaces. · Chips evacuate from one side for good chip control. · Reduces flank wear on right side.
Alternating Flank Infeed 	· Effective for large pitch threads and blemish-prone work material surfaces. · Wears evenly on right and left cut edges. · Tendency for chip clogging due to alternating left and right flow.

Troubleshooting for Threading

Failure		Cause	Countermeasures
Cutting Edge Failure	Excessive Cutting Edge Wear	· Tool material	· Select a more wear-resistant grade
		· Cutting condition	· Decrease the cutting speed · Optimise coolant flow · Review number of passes
	Uneven Wear on Right and Left Sides	· Insert attachment	· Optimise lead angle · Attach insert correctly
		· Cutting condition	· Change to alternating flank infeed
	Cutting Edge Chipping	· Cutting condition	· If caused by a built-up edge, increase cutting speed
	Cutting Edge Fracture	· Packing of chips	· Check coolant supply (excessive coolant to cutting edge)
		· Insert attachment	· Check insert and/or work material clamping method
Shape, Poor Accuracy	Poor Surface Roughness	· Cutting condition	· Increase cutting speed
		· Tool material (wear)	· Select a more wear-resistant grade
		· Incorrect lead angle	· Optimise lead angle
	Poor Thread Shape	· Insert attachment	· Inspect insert attachment
		· Thread depth small	· Check cutting depth

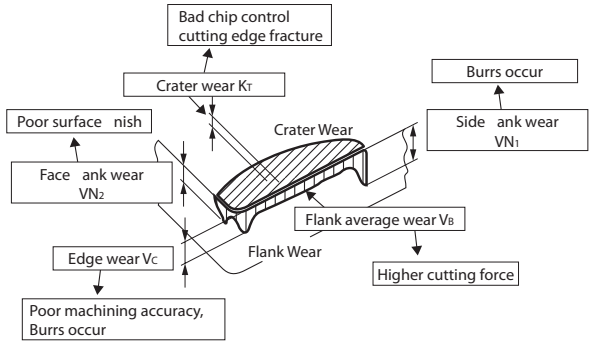
Forms of Tool Failures

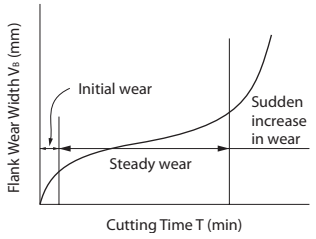
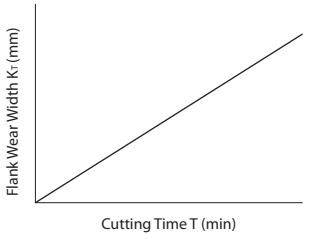


Cat.	No.	Name of Failure	Cause of Failure
Resulting from Mechanical Causes	(1) to (5)	Flank Wear	Due to the scratching effect of hard grains contained in the work material.
	(6)	Chipping	Fine breakages caused by high cutting loads or chattering.
	(7)	Fracture	Due to the impact of an excessive mechanical force acting on the cutting edge.
Resulting from Chemical Reactions	(8)	Crater Wear	Swaft chips removing tool material as it flow over the top face at high temperatures.
	(9)	Plastic Deformation	Cutting edge is depressed due to softening at high temperatures.
	(10)	Thermal Crack	Fatigue from rapid, repeated heating and cooling cycles during machining.
	(11)	Built-up Edge	Work material is pressure welded on the top face of the cutting edge.

Tool Wear

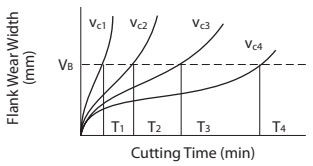
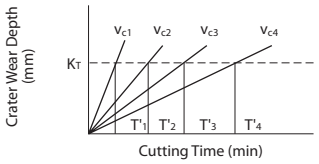
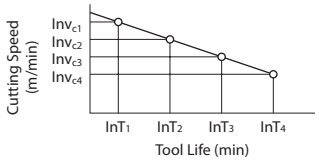
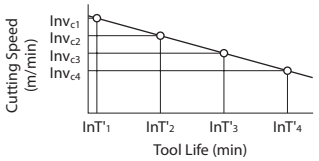
Forms of Tool Wear



Flank Wear	Crater Wear
	
· Wear is rapid initially, then it proceeds more gradually in proportion with cutting time until a certain limit, beyond which it increases rapidly again.	· Crater wear is more progressive with no sudden breakdown pattern.

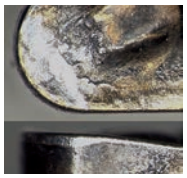
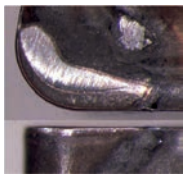
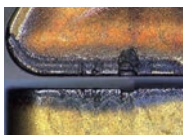
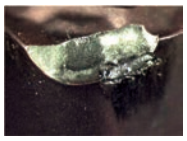
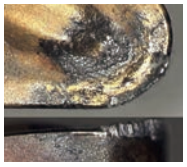
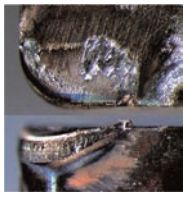
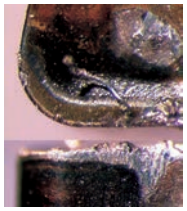
Tool Life (V-T)

This double logarithm graph shows the relative tool life of the specified wear over a range of cutting speeds on the X-axis, and the cutting speed along the Y-axis.

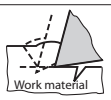
	Flank Wear	Crater Wear
Tool Wear		
Tool Life		

TROUBLESHOOTING FOR TURNING

Troubleshooting for Turning

	Failure	Cause	Countermeasures
Tool Edge Failure	Flank Wear 	· Grade lacks wear resistance. · Rake angle is too small. · Cutting speed is too fast. · Feed rate is far too slow.	· Select a wear-resistant grade. P30 → P20 → P10 K20 → K10 → K01 · Use an insert with a larger rake angle. · Decrease the cutting speed · Increase feed rates.
	Crater Wear 	· Grade lacks crater resistance. · Rake angle is too small. · Cutting speed is too fast. · Feed rate is too fast. · Depth of cut is too large.	· Select a crater-resistant grade. · Select a grade with a smooth coating. · Use an insert with a larger rake angle. · Select an appropriate chipbreaker. · Decrease the cutting speed · Reduce feed rates and depth of cut.
	Chipping 	· Grade lacks toughness. · Insert falls off due to chip build-up. · Cutting edge lacks toughness. · Feed rate is too fast. · Depth of cut is too large.	· Select a tougher grade. P10 → P20 → P30 K01 → K10 → K20 · Select a more adhesion-resistant grade. Coated carbide or cermet grades. · Increase amount of honing on cutting edge. · Reduce rake angle. · Reduce feed rates and depth of cut.
	Fracture 	· Grade lacks toughness. · Cutting edge lacks toughness. · Holder lacks toughness. · Feed rate is too fast. · Depth of cut is too large.	· Select a tougher grade. P10 → P20 → P30 K01 → K10 → K20 · Select a chipbreaker with a strong cutting edge. · Select a holder with a larger approach angle. · Select a holder with a larger shank size. · Reduce feed rates and depth of cut.
	Built-up Edge 	· Inappropriate grade selection. · Dull cutting edge. · Cutting speed is too slow. · Feed rate is too slow.	· Select a grade with less affinity to the work material. Coated carbide or cermet grades. · Select a grade with a smooth coating. · Use an insert with a larger rake angle. · Reduce amount of honing. · Increase cutting speeds. · Increase feed rates.
	Plastic Deformation 	· Grade lacks thermal resistance. · Rake angle is too small. · Cutting speed is too fast. · Feed rate is too fast. · Depth of cut is too large. · Not enough cutting fluid.	· Select a thermal-resistant grade. · Use an insert with a larger rake angle. · Decrease the cutting speed · Reduce feed rates and depth of cut. · Supply appropriate amount of coolant.
	Notch Wear 	· Grade lacks wear resistance. · Rake angle is too small. · Cutting speed is too fast. · Feed rate is too fast. · Depth of cut is fixed.	· Select a wear-resistant grade. P30 → P20 → P10 K20 → K10 → K01 · Select a grade with a smooth coating. · Use an insert with a larger rake angle. · Decrease the cutting speed · Reduce feed rate. · Alter depth of cut to shift the notch location.

Type of Chip Generation

	Spiralling	Shearing	Tearing	Cracking
Shape				
Condition	Continuous chips with good surface finish.	Chip is sheared and separated by the shear angle.	Chips appear to be torn from the surface.	Chips crack before reaching the cutting point.
Application	Steel, Stainless steel	Steel, Stainless steel (Low speed)	Steel, Cast iron (very low speed, very small feed rate)	Cast iron, Carbon
Influence Factor	Easy ← Work deformation → Difficult Large ← Rake angle → Small Small ← D.O.C. → Large Fast ← Cutting speed → Slow			

Type of Chip Control

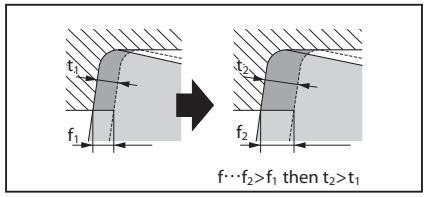
	Depth	A	B	C	D	E
Chip Types	Large					
	Small					
Evaluation	NC Lathe (For Automation)	H	H	S	S	J
	General Lathe (For Safety)	H	S	S	S–J	H

Good: C type, D type

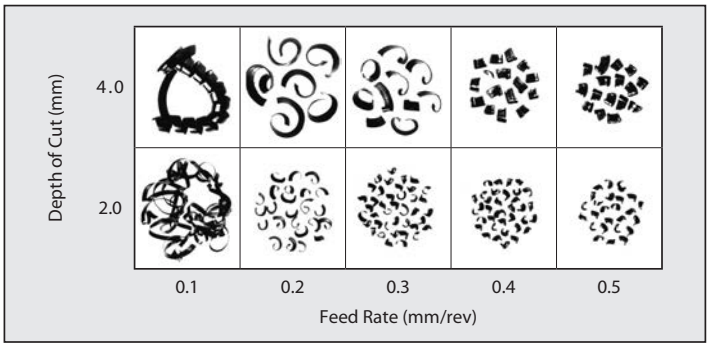
Poor
- A type: Twines around the tool or workpiece, damages the machined surface and affects safety.
- B type: Causes problems in the automatic chip conveyor and chipping occurs easily.
- E type: Causes spraying of chips, poor machined surface due to chattering, chipping, large cutting force and high temperatures.

Factor of Improvement Chip Control

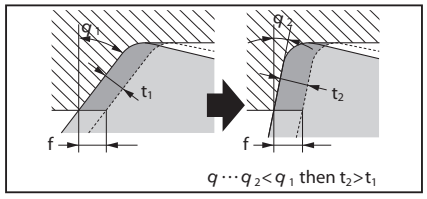
(1) Increase Feed Rate (*f* mm/rev)



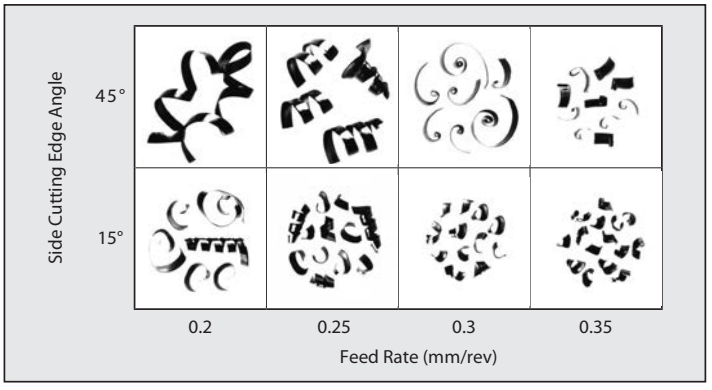
When feed rate increases, chips become thick and chip control improves.



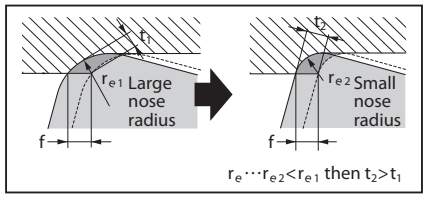
(2) Decrease Side Cutting Edge (*θ*)



Even if feed rate is the same, smaller side cutting edge angle makes chips thick and chip control improves.

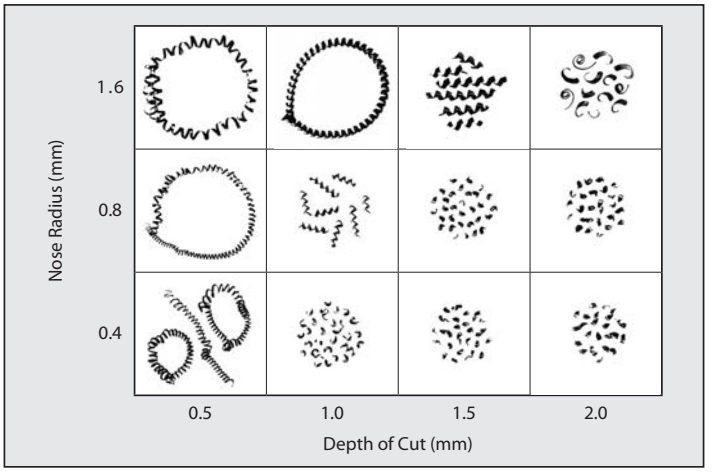


(3) Decrease Nose Radius (r_ε)

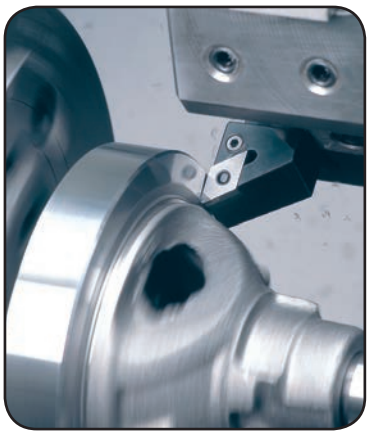


Even if feed rate is the same, a smaller nose radius makes chip thick and chip control improves.

* Cutting force increases in proportion with the length of the contact surface. Therefore, a larger nose radius increases back force which induces chattering. With the same feed rate, a smaller nose radius produces a rougher surface finish.



SumiBoron PCBN Grades



Sumitomo Electric is a world leader in the development of polycrystaline diamond and PCBN cutting tool materials and their applications. For you, this means increased productivity, better surface finish, the ability to hold closer tolerances, and longer tool life. Sumitomo offers products in sizes and grades available nowhere else.

In general, polycrystaline cutting tools are recommended for machining materials that are too hard or abrasive for conventional cutting tools such as tungsten carbide, cermets, or ceramics. Cubic boron nitride is used for ferrous materials and diamond for nonferrous and nonmetal applications.

In 1977, Sumitomo successfully developed its own revolutionary CBN sintered material - SumiBoron. Manufactured under ultra-high temperature and pressure sintering of a mixture of cubic boron nitride and a special ceramic binder material. Compared to conventional tooling materials, SumiBoron exhibits higher hardness and exceptional heat resistance, allowing it machining capabilities previously accomplished only by grinding. SumiBoron also achieves excellent efficiency and longer tool life in high speed machining of cast irons.

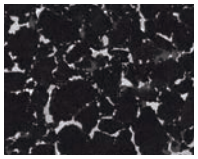
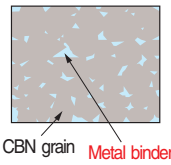
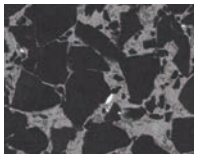
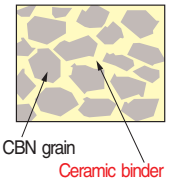
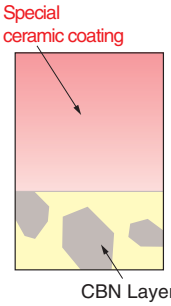
■ CBN CLASSIFICATIONS

PCBN is generally classified into two groups based on its material microstructure. PCBN particles of the first type are bonded together directly. The percentage of PCBN in this type is very high, resulting in an extremely hard substrate.

SumiBoron, representative of the second type of PCBN materials, consists of PCBN particles bonded together with a ceramic binder. The bonding strength is very high, making the substrate very wear resistant and tough.

A third type of PCBN features enhancements of ceramic based coatings to new Sumitomo PCBN grades. They offer increased wear resistance as well as the ability to achieve higher speeds and superior surface finishes in a multitude of hardened steel applications.

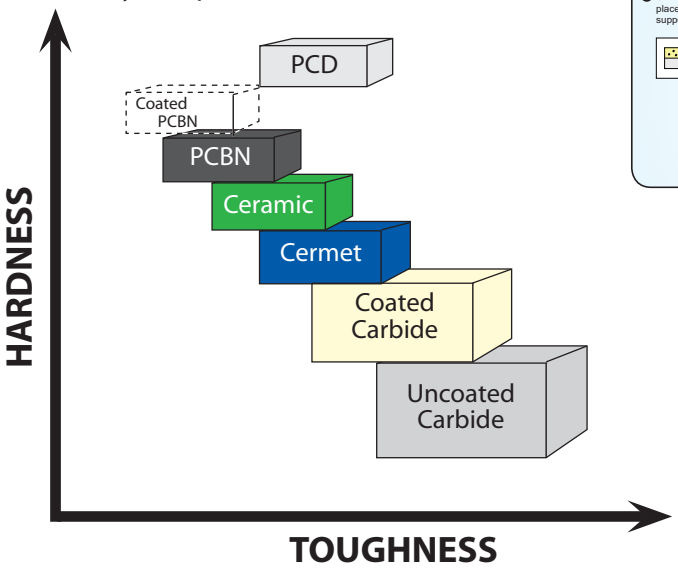
■ **Classifications / Applications**

	Classifications	Structure	Diagram	Grade	Work Material
A)	Mainly CBN grains fused together			BN700 BN7000 BN7500 BNS800	K Cast Iron (FC) Sintered Alloy S Exotic Alloys Sintered Alloy K Cast Iron (FC) S Exotic Alloys
B)	Mainly CBN grains held together with a binder			BN1000 BN2000 BN350 BNX10 BNX20 BNX25 BN500	H Hardened Steel K Cast Iron (FC/FCD)
C)	Sintered CBN body with special ceramic coating			New BNC2010 New BNC2020 BNC300 BNC100 BNC160 BNC200 BNC500	H Hardened Steel K Cast Iron (FCD)

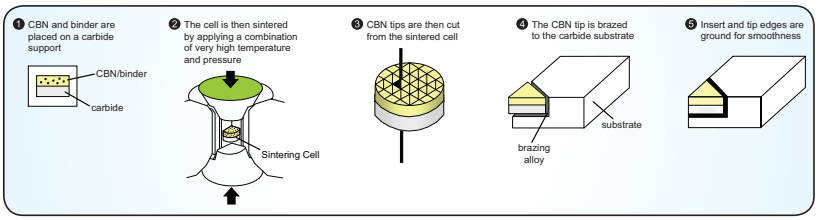
SUMIBORON PCBN GRADES

■ Coated Grades for Turning

- How they compare to other insert materials



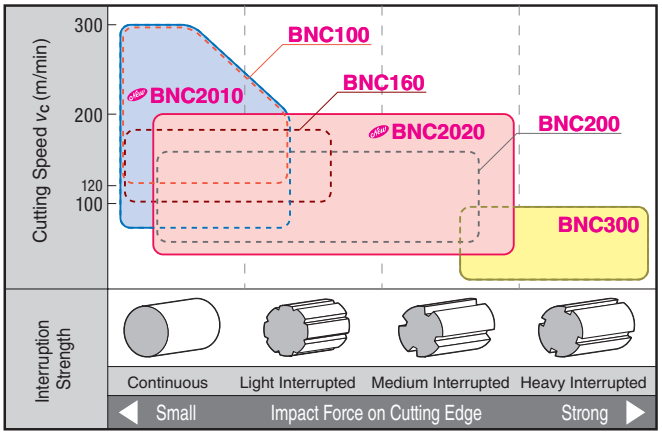
■ MANUFACTURING PROCESS of PcBN



■ Application Range

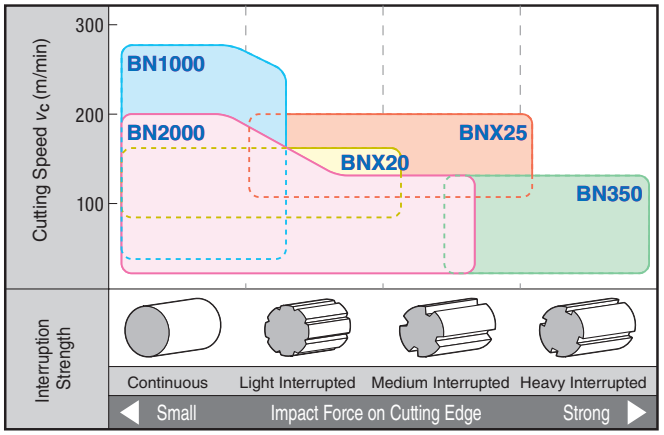
● Induction Hardened Steel (S45C / S55C etc.), Carburized steel

Coated SUMIBORON



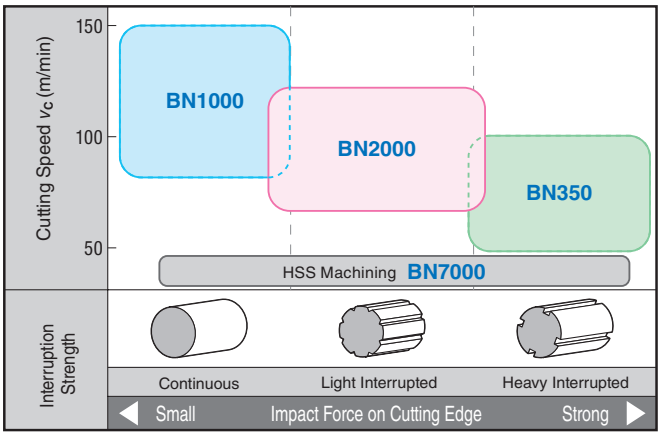
● Induction Hardened Steel (S45C / S55C etc.), Carburized steel

Uncoated SUMIBORON



● Die Steel (SKD11 / SKD61 etc.), HSS

Uncoated SUMIBORON

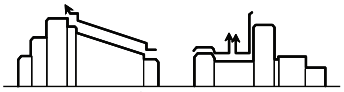
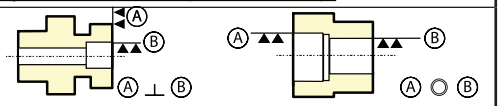


■ Recommended Cutting Conditions

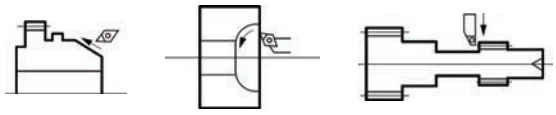
	Grade	Cutting Speed v_c(m/min) 50 100(120) 150(170) 200(220) 250 300	f (mm/rev)	a_p (mm)
Coated	BNC2010		0.03 to 0.25	0.03 to 0.35
	BNC2020		0.03 to 0.40	0.03 to 0.50
	BNC300		0.03 to 0.20	0.03 to 0.30
	BNC100		0.03 to 0.20	0.03 to 0.30
	BNC160		0.03 to 0.20	0.03 to 0.35
	BNC200		0.05 to 0.35	0.05 to 0.50
Uncoated	BN1000		0.03 to 0.15	0.03 to 0.20
	BN2000		0.03 to 0.20	0.03 to 0.30
	BN350		0.03 to 0.20	0.03 to 0.30
	BNX10		0.03 to 0.15	0.03 to 0.20
	BNX20		0.03 to 0.30	0.03 to 0.50
	BNX25		0.03 to 0.30	0.03 to 0.50

■ Machining of Hardened Steel versus Grinding

- ***REDUCTION IN EQUIPMENT COST*** - Lathes are generally two to three times less expensive than grinding machines.
- ***INCREASE PRODUCTION CAPACITY*** - Automation of turning machine centers means more parts in less time.
- ***SAVE TIME*** - By turning, parts with complicated shapes can be machined in one process.
- ***IMPROVED QUALITY*** - Turning improves part perpendicularity and concentricity because multiple operations can be performed without re-chucking.
- ***REDUCED SET-UP TIME*** - Only simple NC program changes are needed to machine parts of different sizes.
- ***REDUCTION OF INDUSTRIAL WASTE*** - Turning eliminates the expense and environmental problems associated with grinding sludge.

	Benefit	Details
Cost	Facility investment is low	• Cheaper machines • Improved efficiency w/less machining required
	Profile finishing in one set-up	
Quality	Improved precision	
Waste Reduction	Less industrial waste	Sludge management vs. chip management (recyclable)

Machining Versatility With CBN

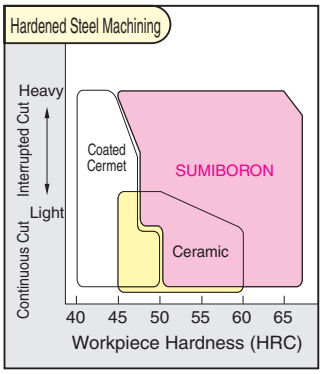


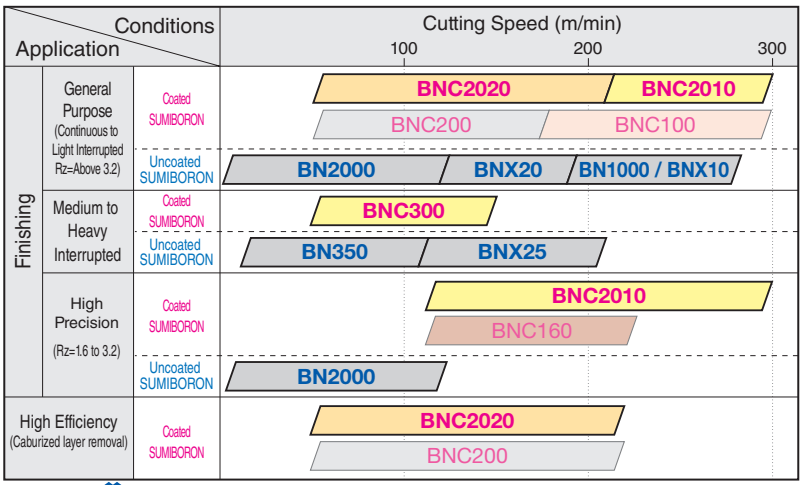
Taper Turning | Internal (Profile) Boring | Grooving/Profiling

■ Recommended Grade

	Grade	Binder	Carbon Content (%)	Grain Size (μm)	Hardness (GPa)	TRS (GPa)	Main Coating Components	Coating Thickness (μm)	Characteristics
Coated	New BNC2010	TiCN	50 to 55	2	30 to 32	1.10 to 1.20	TiCN multi-layered	1.5	Improved wear resistant coating and substrate achieve excellent and stable surface roughness.
Coated	New BNC2020	TiN	70 to 75	5	34 to 36	1.20 to 1.30	TiAlN multi-layered	1.5	Provides long tool life in general and high-efficiency cutting thanks to tough substrate coated with a highly wear-resistant, highly adhesive layer.
Coated	BNC300	TiN	60 to 65	1	33 to 35	1.15 to 1.25	TiAlN	1	Suitable for finishing work materials with both continuous and interrupted cutting.
Coated	BNC100	TiN	40 to 45	1	29 to 32	1.05 to 1.15	TiAlN/TiCN	2	Suitable for high-speed finishing thanks to highly wear-resistant coating.
Coated	BNC160	TiN	60 to 65	3	31 to 33	1.10 to 1.20	TiAlN/TiCN	2	Achieves stable, high-precision finishing of hardened steel.
Coated	BNC200	TiN	65 to 70	4	33 to 35	1.15 to 1.25	TiAlN	2	Provides long tool life thanks to tough substrate and highly wear-resistant coating.
Uncoated	BN1000	TiCN	40 to 45	1	27 to 31	0.90 to 1.00	—	—	Achieves ultimate wear and fracture resistance. Suitable for high-speed cutting.
Uncoated	BN2000	TiN	50 to 55	2	31 to 34	1.05 to 1.15	—	—	General-purpose grade for hardened steel machining with high degree of fracture and wear resistance.
Uncoated	BNX20	TiN	55 to 60	3	31 to 33	0.95 to 1.10	—	—	Achieves excellent crater wear resistance. Suitable for high-efficiency cutting under high temperature conditions.
Uncoated	BN350	TiN	60 to 65	1	33 to 35	1.20 to 1.30	—	—	Achieves ultimate cutting edge strength. Suitable for heavy interrupted cutting.
Uncoated	BNX10	TiCN	40 to 45	3	27 to 31	0.80 to 0.90	—	—	Excellent wear resistance. Suitable for continuous high-speed cutting.
Uncoated	BNX25	TiN	65 to 70	4	29 to 31	1.00 to 1.10	—	—	Exhibits superior fracture resistance in high speed cutting. Suitable for high-speed interrupted cutting of hardened steel.

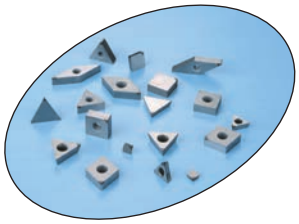
■ Application Range





SUMIBORON PCBN GRADES

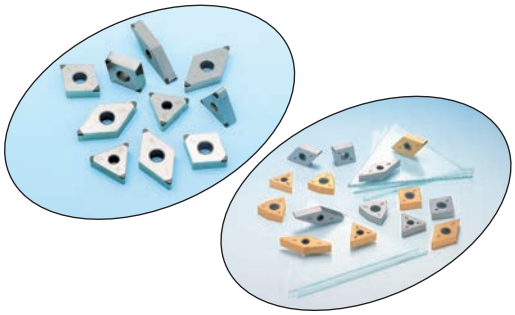
One-use Insert NC Type/ NU Type/NS Type



■ CHARACTERISTICS

- Affordable version of the once expensive sintered CBN material, at its optimal size.
- One-use type eliminates regrinding thus making tool management simple.
- Reduce required storage space with 10 piece packaging.

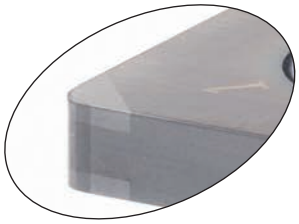
Multi-cornered, One-use Insert



■ CHARACTERISTICS

- Insert with several brazed SUMIBORON one-use corners. Price per edge is more reasonable compared to normal single cornered, one use type insert.
- Coated SUMIBORON is available as a double-faced insert. Diamond shaped inserts have 4 cutting edges and triangle shaped inserts have 6 cutting edges, etc.
- Multi-cornered, one-use type has G-class specification with ground side faces. In addition, all edges are numbered for easy cutting edge management.

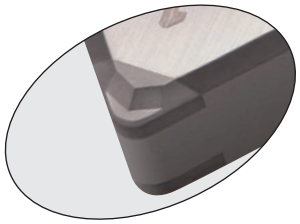
One-use Wiper Insert



■ CHARACTERISTICS

- SUMIBORON one-use insert with wiper edge is for hardened steel machining.
- Standard wiper, W features excellent surface roughness comparable to grinding.
- Multi-cornered, one-use type has G-class specification with ground side faces. In addition, all edges are numbered for easy cutting edge management.
- Radial wipers, WG & WH improves surface roughness and finish repeatability.

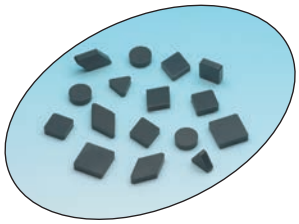
One-use insert with chipbreaker SV, LV, FV Type



■ CHARACTERISTICS

- SUMIBORON One-use insert with chipbreaker, especially for caburized layer removal.
- Breaker included on the CBN edge, chipbreaking effect can be maintained throughout.
- Unique breaker design can be applied to both hardened and non-hardened parts with effective chip control.

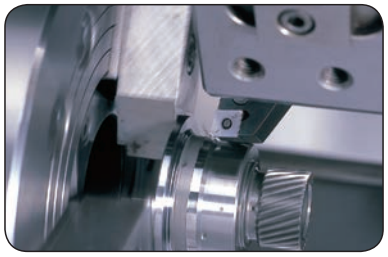
Solid SUMIBORON

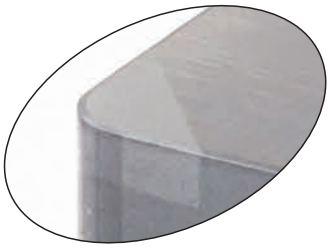


■ CHARACTERISTICS

- 100% solid CBN structure. With no brazed portion, this grade is excellent for the roughing of cast iron at large depth of cut.

SumiBoron One-use Wiper Inserts

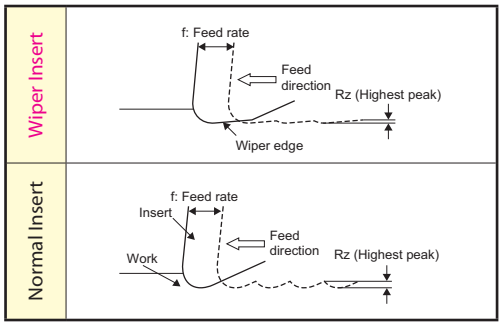




■ Characteristics

- SUMIBORON one-use insert with wiper flat for Hardened Steel machining.
- Excellent surface finish similar to grinding
- Improved efficiency with higher speeds and feeds
- Lineup includes WG type for low-feed cutting and WH type for high-feed cutting.

■ Purpose of Wiper Edge



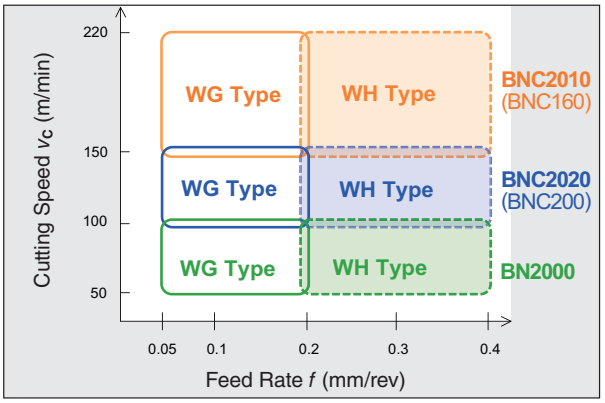
■ Surface Roughness of Wiper Insert

	Wiper Insert (WG Type/WH Type)		Standard Insert (No Wiper)	
	Low feed cutting (f = 0.10)	High feed cutting (f = 0.30)	Low feed cutting (f = 0.10)	High feed cutting (f = 0.30)
Surface Roughness Profile	 WG Type	 WH Type		
Surface Roughness Rz (Highest peak)	0.63 µm	1.39 µm	1.98 µm	9.20 µm

The wiper flat offers good surface finish and improved efficiency.

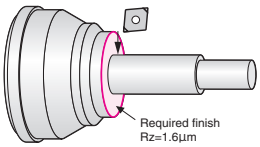
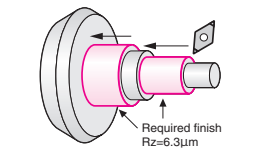
■ Recommended Cutting Conditions (Surface Roughness Standard: 1.6s to 3.2s)

- For optimum effectiveness, use wiper inserts for continuous cutting. For copy turning, inserts with nose-radius are recommended.
- Chattering and undulation may occur, please use work material and machines with high rigidity.



WG Type: Recommended feed rate of f = 0.20 or lower (Surface Finish Rz = 1.6 to 3.2 µm)
WH Type: Recommended feed rate of f = 0.20 or higher (Surface Finish Rz = 1.6 to 3.2 µm)
Lineup includes five grades (BN2000, BNC2010, BNC2020, BNC200, BNC160) to suit different cutting speeds.

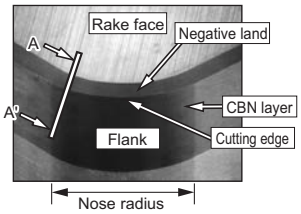
■ Application Example

Condition	Work 1. Part Name 2. Grade	Tool Insert	Cutting Conditions v_c = Cutting Speed (m/min) f = Feed Rate (mm/rev) a_p = Depth of cut (mm)	Results
CVJ Outer Race Facing 	1. CVJ Outer Race 2. Carburized steel 58 to 62HRC	4NC-CNGA120412WH (BNC2010)	v_c = 150m/min f = 0.20mm/rev a_p = 0.2mm Dry	BNC2010 (WH Type) 700 pcs Comp. (No wiper) 400 pcs
Shaft Ext. Turning 	1. Shaft 2. Carburized steel 58 to 62HRC	4NC-DNGA150408WG((BNC2010)	v_c = 140m/min f = 0.20mm/rev a_p = 0.15mm Dry	BNC2010 (WG Type) 500 pcs Comp. (No wiper) 350 pcs

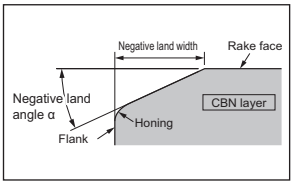
SUMIBORON Insert and Edge Treatment

All SUMIBORON inserts are enhanced with the optimum cutting edge preparation for the various grades and geometries (shown on the right). This is to avoid cutting edge fracture caused by the heavy loads generated during the machining of high hardness materials such as Hardened Steel.
As the pioneer of CBN tools "SUMIBORON," this vast selection of grades and edge treatment combinations is our trump card for Hardened Steel machining.

Close-up of cutting edge



Section A-A'



■ SUMIBORON Insert Cutting Edge Specification List

Series	Work Material	Grade	Negative/Positive	Standard				Low Resistance Type L					Strong Edge Type H				
				Identification Code	R	W	Honing	Notation	Identification Code	R	W	Honing	Notation	Identification Code	R	W	Honing
Uncoated SUMIBORON	Hardened Steel	BNX10	Negative/Positive	T01225	25°	0.12	No	-	-	-	-	-	-	-	-	-	-
		BNX20	Negative/Positive	S01225	25°	0.12	Yes	LT	T01215*	15°	0.12	No	-	-	-	-	-
		BNX25	Negative/Positive	S01725	25°	0.17	Yes	-	-	-	-	-	-	-	-	-	-
		BN1000	Negative/Positive	S01225	25°	0.12	Yes	-	-	-	-	-	-	-	-	-	-
		BN250	Negative	S01225	25°	0.12	Yes	LT	T01215	15°	0.12	No	-	-	-	-	-
			Positive	S01235	35°	0.12	Yes	LS	S01225	25°	0.12	Yes					
		BN2000	Negative/Positive	S01225	25°	0.12	Yes	LT	T01215	15°	0.12	No	HS	S01235	35°	0.12	Yes
		BN350	Negative	T01225	25°	0.12	No	-	-	-	-	-	HT	T01235	35°	0.12	No
			Positive	T01235	35°	0.12	No						-	-	-	-	-
	Cast Iron Exotic Alloy	BN500	Negative/Positive	T01215	15°	0.12	No	-	-	-	-	-	-	-	-	-	-
		BN700	Negative/Positive	T01215	15°	0.12	No	LF	Sharp edge	0°	0	No	HS	S01225	25°	0.12	Yes
		BN7000	Negative/Positive	T01215	15°	0.12	No	LF	Sharp edge	0°	0	No	HS	S01225	25°	0.12	Yes
		BN7500	Negative/Positive	T01215	15°	0.12	No	LF	Sharp edge	0°	0	No	HS	S00525	25°	0.05	Yes
								LE	Sharp edge	0°	0	Yes					
								LS	S00715	15°	0.07	Yes					
		BNS800	Negative	T02020	20°	0.20	No	LF	Sharp edge	0°	0	No	-	-	-	-	-
Coated SUMIBORON	Hardened Steel	BNC2010	Negative/Positive	S01225	25°	0.12	Yes	LE	Hone Only	0°	0	Yes	HS	S01730	30°	0.17	Yes
		BNC2020	Negative/Positive	S01225	25°	0.12	Yes	LT	T00515	15°	0.05	No	HS	S02735	35°	0.27	Yes
													ES	S00535	35°	0.05	Yes
		BNC100	Negative/Positive	S01225	25°	0.12	Yes	LS	S01715	15°	0.17	Yes	-	-	-	-	-
		BNC160	Negative/Positive	S01225	25°	0.12	Yes	LS	S01020	20°	0.10	Yes	HS	S01730	30°	0.17	Yes
		BNC200	Negative/Positive	S01225	25°	0.12	Yes	LS	S01015	15°	0.10	Yes	HS	S01735	35°	0.17	Yes
		BNC300	Negative/Positive	S01225	25°	0.12	Yes	LS	S00515	15°	0.05	Yes	HS	S01735	35°	0.17	Yes
	Cast Iron	BNC500	Negative/Positive	S01215	15°	0.12	Yes	-	-	-	-	-	HS	S01225	25°	0.12	Yes

* BNX20 Identification code will be T00715 for inserts with inscribed circle of less than φ4.76.

■ Cutting Edge Treatment of Inserts with Wipers/Chipbreakers

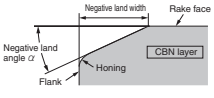
Series	Work Material	Grade	Other Types					
			Notation	Identification Code	α	W	Honing	Type
SUMIBORON	Hardened Steel	BN2000	WG	S01215	15°	0.12	Yes	Wiper
			WH	S01215	15°	0.12	Yes	Wiper
			N-FV	—	0°	0	Yes	With breaker
			N-LV	S00535	35°	0.05	Yes	With breaker
	Cast Iron Exotic Alloy	BNS800	W	T02020	20°	0.20	No	Wiper
			LFW	Sharp edge	0°	0	No	Wiper Sharp edge
Coated SUMIBORON	Hardened Steel	BNC100	W	S01715	15°	0.17	Yes	Wiper
		BNC2010 BNC2020	WG	S01215	15°	0.12	Yes	Wiper
			WH	S01215	15°	0.12	Yes	Wiper
			W	S01215	15°	0.12	Yes	Wiper
			N-FV	—	0°	0	Yes	With breaker
			N-LV	S00535	35°	0.05	Yes	With breaker
			N-SV	S01235	35°	0.12	Yes	With breaker
		BNC160 BNC200	WG	S01215	15°	0.12	Yes	Wiper
			WH	S01215	15°	0.12	Yes	Wiper
			W	S01215	15°	0.12	Yes	Wiper
			N-FV	—	0°	0	Yes	With breaker
			N-LV	S00535	35°	0.05	Yes	With breaker
			N-SV	S01235	35°	0.12	Yes	With breaker
	Cast Iron	BNC500	W	S01215	15°	0.12	Yes	Wiper

■ Edge Treatment Identification Code

Edge Treatment Notation				
No	Standard type			
L	Low cutting forces	+	F	Sharp edge
			E	Honing
H	Strong edge type		T	Negative land
			S	Negative land + Honing
WG/WH/W	Wiper			
N-FV/N-LV/N-SV	With Chipbreaker			

• Edge treatment identification code

(Ex) S 0 1 2 2 5



Negative land width
Negative land angle
Treatment type
T : Negative land
S : Negative land + honing

Ex: S01225
→25°/0.12mm width negative land with honing

RECOMMENDED RUNNING CONDITIONS (SFM)

Material	Application	Hardness	Grade	Low	Low Opt.	High Opt.	High
INDUCTION HARDENED STEEL	Continuous	45-65HrC	BNC2010	450	650	750	1000
			BNC2020	400	550	600	800
			BN1000	400	550	650	700
			BNX10	400	500	650	700
			BNC160	400	550	650	800
			BNX20	300	450	550	600
			BNC200	350	500	650	750
			BNC100	400	600	700	1000
			BN2000	300	400	550	600
	Interrupted (DRY)	45-65 HrC	BNC2020	350	450	500	700
			BNX25	400	550	700	750
			BN2000	300	400	550	600
			BN350	300	400	550	600
			BNC300	300	400	550	600
			BNC200	350	400	500	600

Material	Application	Hardness	Grade	Low	Low Opt.	High Opt.	High
CARBURIZED HARDENED STEEL BEARING STEEL	Continuous	45-65 HrC	BNC2010	450	600	750	1000
			BNC2020	350	450	600	800
			BNC160	350	450	550	600
			BNX20	250	300	500	600
			BNC200	300	350	550	650
			BNC100	350	425	550	675
			BN2000	300	400	550	600
	Interrupted (DRY)	45-65 HrC	BNC2020	300	450	550	700
			BNX25	400	550	700	750
			BN300	300	400	550	600
			BN350	300	400	550	600
			BNC200	300	400	550	650
			BNC300	300	400	550	600

Material	Application	Hardness	Grade	Low	Low Opt.	High Opt.	High
DIE STEEL HIGH SPEED STEEL	Continuous	55-65 HrC	BNC2010	350	400	550	800
			BNC2020	250	350	500	700
			BN2000	150	250	450	550
			BN1000	250	300	450	650
			BNX10	250	300	400	500
			BNC160	250	300	400	500
			BNX20	150	200	300	450
			BNC200	200	250	350	450
			BNC100	250	300	400	500
	Interrupted (DRY)	55-65 HrC	BNC2020	200	300	400	600
			BN2000	150	200	250	300
			BNX25	300	400	500	550
			BN300	150	200	250	300
			BN350	150	200	250	300
			BNC300	200	250	300	350

FEED RATE

FEED RATE (IPR)		
Finishing	General Purpose	Roughing
0.002 - 0.004	0.004 - 0.006	0.006 - 0.008

Note: Use above speeds for threading and grooving applications.
The recommended feed rate for grooving is 0.001 - 0.002 IPR, while your threading feed rate should be based upon the thread form, but not to exceed 0.006 IPR.

Grade	General Running Parameters* (SFM)			
	Low	Low Opt.	High Opt.	High
BNC2010	400	550	700	900
BNC2020	200	400	600	850
BNX10	400	450	650	700
BNC160	400	450	650	720
BNX20	250	400	600	650
BNC200	200	350	650	820
BN250	200	250	400	500
BNX25	450	500	650	700
BN300	200	300	500	550
BN350	200	300	500	550
BNC100	400	525	675	850
BNC300	200	250	400	500

DEPTH OF CUT

Mini-Tip (NU, NS, NC)	D.O.C. < 0.015"
Medium-Tip (MD)	D.O.C. < 0.020"
Full-Tip	D.O.C. < 0.020"

Note: Depth of cut per pass

* The recommendations are a general range of running parameters based on grade and material.Please contact your local Sumitomo Sales Representative or the Sumitomo Engineering Department to obtain more application specific running parameters.

Note: Running wiper inserts at the above feed rates will produce a higher quality surface finish when compared to a non-wiper insert.

RECOMMENDED RUNNING CONDITIONS FOR CBN APPLICATIONS(SFM)

Material	Application	Grade	Low	Low Opt.	High Opt.	High
GRAY CAST IRON	Continuous & Interrupted	BN7000	2600	3000	5000	6500
		BN700	2300	3000	5000	6000
		BNS800	1000	2000	5500	6500
		BNC500	600	1000	2000	2500
		BN500	1500	2000	5500	6000
Material	**Application**	**Grade**	**Low**	**Low Opt.**	**High Opt.**	**High**
DUCTILE IRON 150 -300 HBn	Continuous & Interrupted	BNC500	650	800	1300	1650
		BN7000	300	450	550	650
		BN700	300	450	550	600
Material	**Application**	**Grade**	**Low**	**Low Opt.**	**High Opt.**	**High**
GENERAL SINTERED ALLOY	Continuous & Interrupted	BN700	400	550	800	1000
		BN7000	400	550	800	1000
		BN7500	400	550	650	1000
Material	**Application**	**Grade**	**Low**	**Low Opt.**	**High Opt.**	**High**
HIGH DENSITY SINTERED ALLOY	Continuous & Interrupted	BN7500	65	450	550	750
		BN7000	65	450	550	750
		BN700	65	450	550	750
		BNS800	65	450	550	750

FEED RATE

FEED RATE (IPR)		
Finishing	General Purpose	Roughing
0.002 - 0.004	0.004 - 0.006	0.006 - 0.008

Note: Use above speeds for threading and grooving applications.
The recommended feed rate for grooving is 0.001 - 0.002 IPR, while your threading feed rate should be based upon the thread form, but not to exceed 0.006 IPR.

Grade	General Running Parameters* (SFM)			
	Low	Low Opt.	High Opt.	High
BN500	500	800	1500	2000
BNS800	2000	3000	5000	6000
BN700	2000	3000	5000	6000

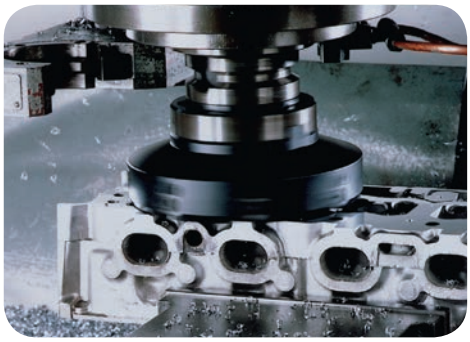
* The above are a general range of running parameters based on grade and material. Please contact your local Sumitomo Sales Representative or the Sumitomo Engineering Department to obtain more application specific running parameters.
Coolant should not be used for any interrupted cutting when using PCBN tools

DEPTH OF CUT

Mini-Tip (NU, NS, NC)	D.O.C. ≤ 0.020"
Medium-Tip (MD)	D.O.C. ≤ 0.040"
Full-Tip	D.O.C. ≤ 0.040"
Solid CBN**	D.O.C. ≤ 0.150"

**Depth of cut based on gray cast iron material. For chilled iron, depth of cut should not exceed 0.080".

Note: The above running parameters are for turning applications only.



Since the introduction of SUMIDIA DA polycrystalline diamond (PCD) blanks in 1978, Sumitomo has continually developed and expanded the product line to offer finished inserts in a wide range of grades, shapes and sizes. SUMIDIA inserts consist of a layer of fine grain synthetic diamond crystals bonded to a tungsten carbide substrate which is securely brazed into the pocket of a standard size insert. A high degree of diamond to diamond bonding is achieved by an ultra high pressure-temperature process. This crystal to crystal bonding provides exceptional hardness and abrasion resistance.

Our closely controlled manufacturing process produces unequaled consistency resulting in superior tool edge quality.

SUMIDIA DA inserts and wipers are replacing tungsten carbide and natural diamond cutting tools on a worldwide basis. Use of SUMIDIA DA grades will provide dramatically increased tool life, the ability to hold closer part tolerance, and improved surface finish.

New technological advances have given the industry a new style of PCD insert. The optimum size of PCD used in NF-DA2200 offers a less expensive alternative when machining non-ferrous materials.

■ GRADE DESCRIPTION

Grade	DA1000	DA2200	DA150	DA90
Average diamond crystal size (microns)	Up to 0.5	0.5	5	~ 50
Hardness (Hv)	11,000-12,000	9,000-10,000	10,000-12,000	10,000-12,000
T.R.S. (kg/mm^2)	260	250	200	115
Product Desription	• Ultra-fine grain structure • Superior hardness and wear resistance with sharp edge	• High density sintered material made of ultra-micro diamond particles • Superior hardness and wear resistance with sharp edge	• Fine grain diamond • High abrasion resistance	• Coarser grain • High wear resistance
Applications	• High Silicon Aluminum • Copper • Fiberglass • Hard rubber • Graphite epoxy • Wood • Aluminum alloys (finishing, roughing, interrupted) • Plastics • Carbon	• High silicon Aluminum • Copper • Fiberglass • Hard rubber • Graphite epoxy • Wood • Aluminum alloys (finishing, roughing, interrupted)	• High silicon aluminum • Copper • Fiberglass • Hard rubber • Graphite epoxy • Wood • Carbon	• Sintered carbide • Stone or rock • High silicon aluminum • Green or semi-sintered carbide & ceramic

Break Master LD / GD Type

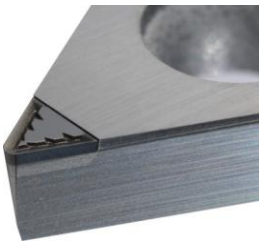
General features

- Excellent chip control by 3D Chipbreaker
- Long tool life by high toughness grade DA1000

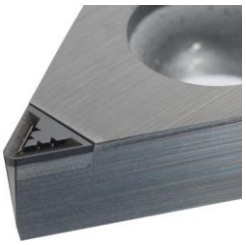
Characteristics/Applications

1 LD/GD type for various types of machining

- LD type for finishing application
- GD type for general purpose-machining



LD type

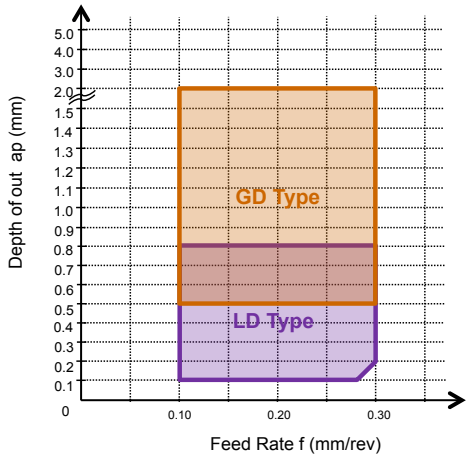


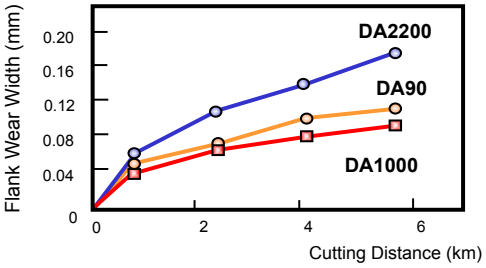
GD type

2 Long tool life – DA1000

- Long, stable tool life and good chipping resistance with high toughness grade DA1000

expanded material (A6061)





Workpiece: A390 (17%Si-Al)
Conditions: Vc=800m/min, f=0.12mm/rev, ap=0.5mm, Wet

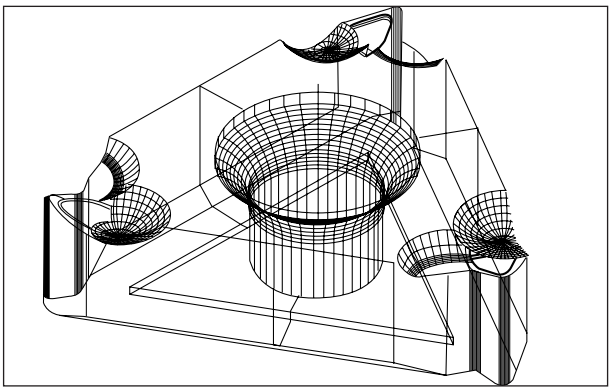
■ RECOMMENDED RUNNING CONDITIONS FOR PCD APPLICATIONS

Material	SFM	IPR	D.O.C	Grade Recommendation		
				First	Second	Third
Aluminum Alloys (4% - 8% Si)	3,000 - 10,000	0.004 - 0.025	0.120″	DA1000	DA2200	DA150
Aluminum Alloys (9% - 14% Si)	2,000 - 8,000	0.004 - 0.020	0.120″	DA1000	DA2200	DA150
Aluminum Alloys (15% - 18% Si)	1,000 - 2,300	0.004 - 0.015	0.120″	DA1000	DA2200	DA150
Copper Alloy	3,300	0.002 - 0.008	0.120″	DA1000	DA2200	DA150
Hard Plastic	3,300	0.004 - 0.012	0.080″	DA1000	DA2200	DA150
Wood & Composite	13,000	0.004 - 0.015	–	DA1000	DA2200	DA150
Tungsten Carbide	30 - 70	0.003 - 0.008	0.020″	DA90	DA150	-
Reinforced Plastics	3,300	0.016	0.080″	DA1000	DA2200	DA150

Note: The above running parameters are for turning applications only.

Sumitomo Electric has developed TME (external) and TMI (internal) threading inserts with a pitch range of 1.0 ~ 3.0 mm and 8~24 threads per inch (TPI) along with applicable LTE type and STI holders. The superior features of the TME and TMI threading inserts include an M-class tolerance and dimple shaped chipbreaker. The M-class tolerance reduces insert cost by eliminating the need for expensive grinding. Furthermore, chip control is greatly improved as a result of the specially designed dimple chipbreakers.

TME Insert Design



■ FEATURES

- A positive rake angle encourages good chip control and reduces cutting resistance.
- Two tier dimple-style chip breakers evacuate chips smoothly and easily.
- M-class tolerance reduces insert cost.
- Four available grades cover a wider range of applications.

■ INSERT GRADES & RECOMMENDED RUNNING CONDITIONS

Application

AC225 (Coated)
- For stainless and general steels
- Stable machining

T130A (Cermet)
- For soft and general steels
- Good surface finish
- Long tool life

A30 (P30 Carbide)
- For low and medium speed cutting of stainless and general steels

EH20Z (PVD Coated)
- For exotic materials

Recommended Running Conditions (SFM)

Work Material \ Insert Grade	AC225	T130A	A30	EH20Z
Soft Steel	500 ~ 660	330 ~ 500	230 ~ 400	—
Carbon Steel	330 ~ 550	260 ~ 430	230 ~ 330	—
Alloy Steel	300 ~ 500	260 ~ 400	230 ~ 330	—
Stainless Steel	230 ~ 450	–	230 ~ 330	—
Exotics	—	—	—	100 ~ 150

Trouble Shooting

- **Chipping**
  T130A ⟶ AC225
- **Excessive Wear**
  A30 ⟶ AC225 ⟶ T130A
- **Plastic Deformation**
  A30 ⟶ AC225 ⟶ T130A

Recommended Infeed Values mm (inch)

Pass \ Pitch (mm) / TPI	1.0 / 24	1.25 / 19	1.5 / 16	1.75 / 14	2 / 12	2.5 / 9	3 / 8
1ST	0.25 (.010)	0.25 (.010)	0.30 (.012)	0.30 (.012)	0.30 (.012)	0.35 (.014)	0.35 (.014)
2ND	0.20 (.008)	0.20 (.008)	0.25 (.010)	0.25 (.010)	0.25 (.010)	0.30 (.012)	0.30 (.012)
3RD	0.15 (.006)	0.15 (.006)	0.20 (.008)	0.20 (.008)	0.20 (.008)	0.25 (.010)	0.25 (.010)
4TH	0.10 (.004)	0.15 (.006)	0.15 (.006)	0.15 (.006)	0.20 (.008)	0.20 (.008)	0.20 (.008)
5TH	0.05 (.002)	0.10 (.004)	0.10 (.004)	0.15 (.006)	0.15 (.006)	0.20 (.008)	0.20 (.008)
6TH	—	0.05 (.002)	0.05 (.002)	0.10 (.004)	0.12 (.005)	0.15 (.006)	0.15 (.006)
7TH	—	—	—	0.05 (.002)	0.10 (.004)	0.15 (.006)	0.15 (.006)
8TH	—	—	—	—	0.05 (.002)	0.10 (.004)	0.15 (.006)
9TH	—	—	—	—	—	0.05 (.002)	0.10 (.004)
10TH	—	—	—	—	—	—	0.10 (.004)
11TH	—	—	—	—	—	—	0.05 (.002)

TERMS:

Thread Form – (most common shapes)

60˚ (UN standard, ISO) 55˚ (British standard) 29˚ (Acme standard/stub)

Pitch – Distance from the top of one thread to the next.

Pitch = 1 (inch) / threads per inch, Ex: 20 TPI = 1 / 20 = .050

T.P.I. – Number of threads per inch

TPI = 1 (inch) / pitch, Ex: 1 / .050 (pitch) = 20 tpi

Lead – Movement caused by one revolution of the screw.

(the same as pitch in a single start thread)

Lead = pitch x number of starts

Example: double start thread with .050 pitch = .100 lead

Multi-Start Thread – Thread with more than one starting position. (lead different than pitch)

Helix angle – Angle generated by the helix of the thread at the pitch diameter.

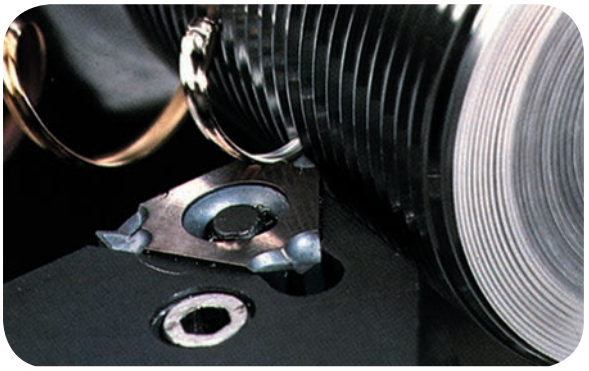
Major Diameter – see drawing below

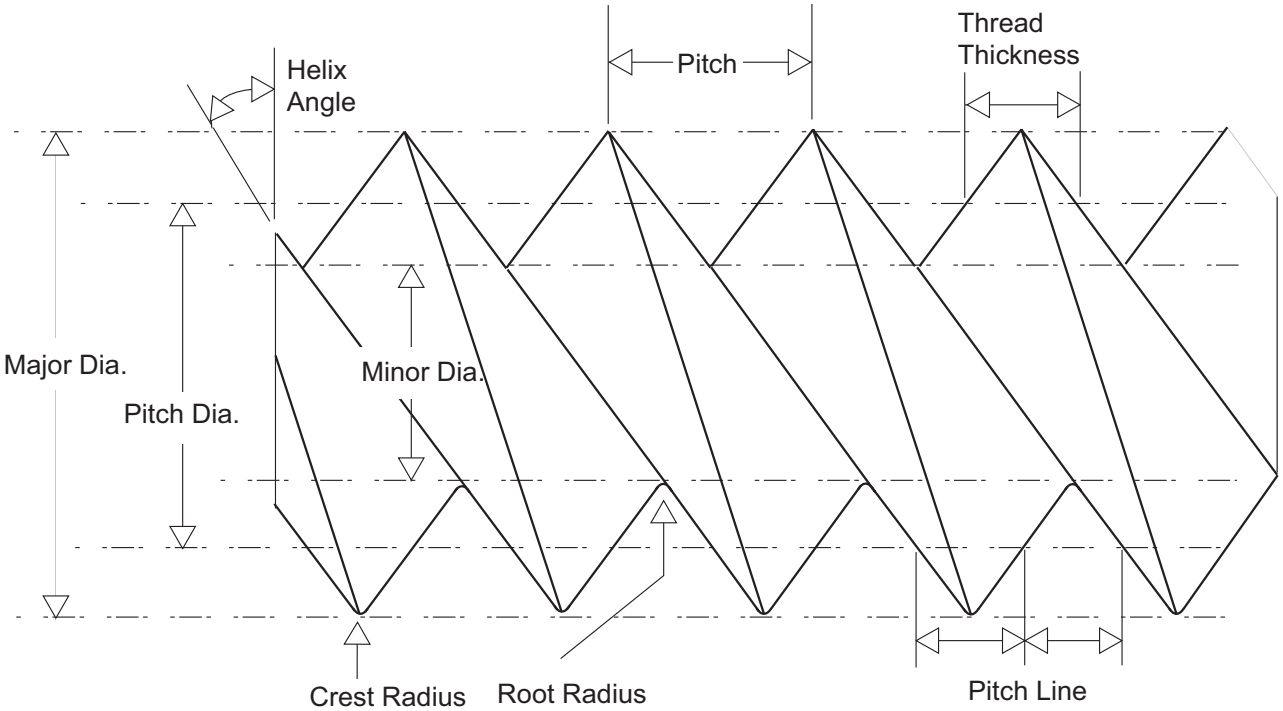
Minor Diameter – see drawing below

Pitch Diameter – see drawing below

Pitch Line – -see drawing below

Crest and Root Radius – see drawing below





Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .008 IPR. 005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .008 ~ .020 IPR .040" ~ .200" D.O.C.
LOW CARBON STEELS 1005, 1006, 1008, 1009, 1010, 1011, 1012, 1013, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1025, 1026, 1029, 1108, 1109, 1110, 1115, 1116, 1117, 1118, 1119, 1211, 1212, 1213, 1215, 1513, 1518, 1522			CUTTING SPEED SFM		
	<250	T1500A	800~1650	800~1450	–
		T1500Z	800~1750	800~1550	–
		AC805P	800~1750	800~1550	700~1200
		AC810P	800~1600	800~1400	700~1100
		AC8025P	350~1200	350~1000	350~900
		AC820P	500~1200	500~1000	400~900
		AC830P	–	500~900	400~850
	220~350	T1500A	700~1300	700~1200	–
		T1500Z	700~1450	700~1300	–
		AC805P	700~1300	700~1200	600~1100
		AC810P	700~1200	700~1100	600~950
		AC8025P	350~1000	350~900	350~800
		AC820P	500~1000	500~900	400~800
		AC830P	–	500~800	400~750
	HRc 35~55	T1500A	400~750	400~650	–
		T1500Z	400~800	400~750	–
		AC805P	400~750	400~650	350~600
		AC810P	400~600	400~550	350~550
		AC8025P	250~500	250~450	250~450
		AC820P	300~500	300~450	300~450
		AC830P	250~450	200~400	200~400
		NB90S	400~1400	–	–
LOW/MEDIUM CARBON STEEL -- LEADED 10L18, 10L45, 10L50, 11L17, 11L37, 11L41, 11L44, 12L13, 12L14, 12L15	<250	T1500A	1000~1650	1000~1550	–
		T1500Z	1000~1750	1000~1650	–
		AC805P	1000~1650	1000~1550	900~1450
		AC810P	1000~1500	1000~1400	900~1300
		AC8025P	600~1400	550~1300	500~1100
		AC820P	800~1400	750~1300	600~1100
		AC830P	–	750~1200	650~1000
	250~ 350	T1500A	900~1350	800~1200	–
		T1500Z	900~1450	800~1300	–
		AC805P	900~1350	800~1200	700~1100
		AC810P	900~1200	800~1100	700~1000
		AC8025P	600~1000	500~900	450~900
		AC820P	800~1000	700~900	650~900
		AC830P	–	700~900	650~900
	Chipbreaker Preference		ESE/ESU/ELU	EGE/ELU	EME/EMU

RECOMMENDED RUNNING CONDITIONS

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .012 IPR .005" ~ .060" D.O.C.	Gen. Purpose .010 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .015 ~ .026 IPR 200" D.O.C.
			CUTTING SPEED SFM		
MEDIUM CARBON STEELS 1030, 1033, 1035, 1037, 1038, 1039, 1040, 1042, 1043, 1044, 1045, 1046, 1049, 1050, 1053, 1055, 1132, 1137, 1139, 1140, 1141, 1144, 1145, 1146, 1151, 1524, 1525, 1526, 1527, 1536, 1541, 1547, 1548, 1551, 1552	<250	T1500A	900~1450	900~1300	–
		T1500Z	900~1550	900~1450	–
		AC805P	900~1450	900~1300	800~1100
		AC810P	900~1300	900~1200	800~1000
		AC8025P	600~1000	350~900	350~800
		AC820P	800~1000	500~900	450~800
		AC830P	–	500~800	400~700
	220~350	T1500A	800~1300	700~1200	–
		T1500Z	800~1450	700~1300	–
		AC805P	800~1300	700~1200	600~1100
		AC810P	800~1200	700~1100	600~1000
		AC8025P	400~1000	350~900	350~900
		AC820P	600~1000	500~900	450~900
		AC830P	–	500~850	400~800
	HRc 35~55	T1500A	600~1000	400~900	–
		T1500Z	600~1100	400~1000	–
		AC805P	500~1000	400~800	350~800
		AC810P	500~900	400~750	350~700
		AC8025P	350~750	300~700	300~550
		AC820P	400~750	350~700	300~550
		AC830P	–	350~600	300~500
		NB90S	400~1400	–	–
MEDIUM HIGH CARBON STEELS --LEADED 41L30, 41L40, 41L45, 41L47, 41L50, 43L40, 41L50, 43640, 51L32, 52L100, 86L20, 86L40	<250	T1500A	800~1550	800~1450	–
		T1500Z	800~1650	800~1550	–
		AC805P	800~1550	800~1450	700~1200
		AC810P	800~1400	800~1300	700~1100
		AC8025P	600~1200	500~1000	400~900
		AC820P	800~1200	700~1000	600~900
		AC830P	–	650~950	550~800
	250~ 350	T1500A	800~1450	750~1300	–
		T1500Z	800~1550	750~1450	–
		AC805P	800~1450	750~1300	650~1100
		AC810P	800~1300	750~1200	650~1000
		AC8025P	500~1100	450~1000	400~900
		AC820P	700~1100	650~1000	550~900
		AC830P	–	600~1000	500~800
	Chipbreaker Preference		ESE/ESU/ELU	EGE/ELU	EME/EMU

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .012 IPR .005" ~ .060" D.O.C.	Gen. Purpose .010 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .015 ~ .026 IPR 200" D.O.C.
			CUTTING SPEED SFM		
ALLOY STEELS– MEDIUM CARBON 1340, 1345, 4042, 4047, 4140, 4142, 4145, 4147, 4340, 50B40, 40B44, 5046, 50B46, 5140, 5145, 5147, 81B45, 8640 ,8642, 8645, 86B45, 8740, 8742, 4150, 4161, 50B50, 4060, 50B60, 5150, 5155, 5160, 51B60, 6150, 8650, 8655, 8660, 9254, 9255, 9260	250~350	T1500A	700~1200	700~1100	–
		T1500Z	700~1300	700~1200	–
		AC805P	700~1200	700~1100	500~900
		AC810P	700~1100	700~1000	500~800
		AC8025P	350~950	350~850	350~800
		AC820P	600~950	500~850	450~800
		AC830P	–	500~800	400~700
	<250	T1500A	600~1100	600~1000	–
		T1500Z	600~1200	600~1100	–
		AC805P	600~1100	600~1000	–
		AC810P	600~1000	600~900	–
		AC8025P	350~900	350~800	350~750
		AC820P	500~900	450~800	400~750
		AC830P	–	400~750	300~700
	250~350	T1500A	300~650	300~550	–
		T1500Z	300~800	300~650	–
		AC805P	300~650	300~550	200~550
		AC810P	300~600	300~500	200~500
		AC8025P	250~500	200~450	150~400
		AC820P	250~500	200~450	150~400
		AC830P	250~400	200~400	150~400
		NB90S	500~900	–	–
HIGH CARBON STEELS 50100, 51100 52100, M-50	<250	T1500A	800~1300	700~1200	–
		T1500Z	800~1450	700~1300	–
		AC805P	800~1400	700~1300	600~1100
		AC810P	800~1250	700~1150	600~1000
		AC8025P	350~850	250~750	250~700
		AC820P	450~850	300~750	300~700
		AC830P	–	300~750	300~650
	250~350	T1500A	700~1200	600~1100	–
		T1500Z	700~1300	600~1200	–
		AC805P	700~1300	600~1200	500~900
		AC810P	700~1150	600~1100	500~800
		AC8025P	350~550	350~750	350~650
		AC820P	550~850	500~750	400~650
		AC830P	–	450~700	400~600
	Chipbreaker Preference		ESE/ESU/ELU	EGE/ELU	EME/EMU

RECOMMENDED RUNNING CONDITIONS

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .012 IPR .005" ~ .060" D.O.C.	Gen. Purpose .010 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .015 ~ .026 IPR 200" D.O.C.
			CUTTING SPEED SFM		
TOOL STEELS DIE STEELS	<250	T1500A	500~800	350~800	–
		T1500Z	500~950	350~900	–
		AC805P	500~1000	350~900	300~850
		AC810P	500~900	350~800	300~750
		AC8025P	350~700	300~650	250~600
		AC820P	400~700	350~650	300~600
		AC830P	–	350~650	300~600
	250~350	T1500A	650~1000	450~950	–
		T1500Z	500~900	350~900	–
		AC805P	500~1000	450~900	350~850
		AC810P	500~900	450~800	350~750
		AC8025P	300~750	300~650	200~600
		AC820P	400~750	400~650	300~600
		AC830P	–	300~650	200~600
	HRc 36-50	T1500A	350~550	300~550	–
		T1500Z	300~600	200~550	–
		AC805P	300~650	200~550	200~550
		AC810P	300~600	200~500	200~500
		AC8025P	150~400	150~350	150~300
		AC820P	200~400	200~350	150~300
		AC830P	200~400	200~350	150~300
		NB90S	300~600	–	–
HIGH STRENGTH STEELS 300M, 4340, 4340M 4340V, H13, H11 50100, 51100 52100, M-50	250~300	T1500A	600~1000	450~900	–
		T1500Z	550~1050	450~950	–
		AC805P	500~1050	350~950	300~800
		AC810P	500~950	350~850	300~700
		AC8025P	300~700	250~700	200~650
		AC820P	400~700	350~700	300~650
		AC830P	–	350~700	300~600
	HRc 35-45	T1500A	550~900	350~850	–
		T1500Z	500~1000	350~950	–
		AC805P	500~1000	350~950	300~900
		AC810P	500~900	350~850	300~800
		AC8025P	300~800	200~700	200~650
		AC820P	400~800	300~700	250~650
		AC830P	–	300~650	250~600
	Chipbreaker Preference		ESE/ESU/ELU	EGE/ELU	EME/EMU

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .012 IPR .005" ~ .060" D.O.C.	Gen. Purpose .010 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .015 ~ .026 IPR 200" D.O.C.
			CUTTING SPEED SFM		
STAINLES STEEL 300 SERIES AUSTENITIC	160~280	**T1500A**	350~850	300~650	–
		T1500Z	300~900	300~800	–
		AC510U	400~700	400~650	–
		AC520U	300~550	300~550	300~550
		AC530U	300~500	250~500	250~500
		EH510	300~500	300~500	–
		EH520	–	300~500	300~500
		AC810P	450~750	400~700	–
		AC820P	–	300~600	300~550
		AC830P	–	250~600	200~550
		AC610M	600~800	500~700	400~600
		AC6020M	350~750	300~700	300~650
		AC6030M	350~800	300~750	300~700
		AC630M	400~650	300~550	300~500
		AC6040M	350~750	300~700	300~700
STAINLESS STEEL 400 SERIES MARTENSITIC	160~260	**T1500A**	300~850	300~750	–
		T1500Z	300~950	300~850	–
		AC510U	500~850	450~750	–
		AC520U	400~700	400~600	300~600
		AC530U	300~600	300~550	300~550
		EH510	300~600	300~550	–
		EH520	300~600	300~550	300~500
		AC810P	–	400~700	–
		AC820P	450~650	300~600	300~550
		AC830P	–	250~600	200~550
		AC610M	500~700	500~650	500~600
		AC6020M	350~750	300~700	300~650
		AC6030M	400~750	400~700	400~650
		AC630M	300~650	300~600	300~550
		AC6040M	350~700	250~650	250~600
	Chipbreaker Preference		EEF/ESU	EEG/EEX/EUP	EEG/EMU

RECOMMENDED RUNNING CONDITIONS

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .016 IPR .040" ~ .150"D.O.C.	Roughing .010 ~ .020 IPR 120~250" D.O.C.
			CUTTING SPEED SFM		
STAINLESS STEEL 400 SERIES MARTENSITIC cont.	260~380	T1500A	200~600	200~550	–
		T1500Z	200~700	200~650	–
		AC510U	400~700	400~650	–
		AC520U	300~600	300~600	300~550
		AC530U	300~550	300~500	300~500
		EH510	300~600	300~600	–
		EH520	–	300~550	250~500
		AC810P	350~800	250~750	–
		AC820P	–	200~600	200~600
		AC830P	–	200~600	200~600
		AC610M	500~700	500~650	500~600
		AC6020M	400~700	400~650	400~600
		AC6030M	400~750	400~700	400~650
		AC630M	300~650	300~600	300~550
		AC6040M	250~700	250~650	250~600
	HrC 36~46	T1500A	200~600	200~500	–
		T1500Z	200~700	200~650	–
		AC510U	300~650	250~600	–
		AC520U	300~600	250~550	250~550
		AC530U	250~550	250~500	250~500
		EH510	200~500	200~450	–
		EH520	–	200~450	200~400
		AC810P	200~750	200~700	–
		AC820P	–	200~550	200~500
		AC830P	–	200~550	200~500
		AC610M	400~700	400~650	400~600
		AC6020M	400~700	400~650	400~600
		AC6030M	200~700	200~650	200~600
		AC630M	200~650	200~600	200~550
		AC6040M	200~650	200~650	200~600
	Chipbreaker Preference		EEF/ESU	EEG/EEX/EUP	EEG/EMU

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .016 IPR .040" ~ .150" D.O.C.	Roughing .010 ~ .020 IPR 120~250" D.O.C.
			CUTTING SPEED SFM		
STAINLESS STEEL PRECIPITATION HARDENING 15-5PH, 16-6PH, 17-4, 17-7PH, 13-8Mo	160~260	T1500A	300~800	250~700	–
		T1500Z	300~900	250~750	–
		AC510U	400~900	350~850	–
		AC520U	400~800	400~750	400~700
		AC530U	300~600	300~550	300~500
		EH510	350~700	325~600	–
		EH520	–	300~650	250~550
		AC810P	400~900	400~800	–
		AC820P	300~750	300~650	300~600
		AC830P	–	300~650	300~600
		AC610M	400~700	400~650	400~600
		AC6020M	200~700	200~650	200~600
		AC6030M	200~750	200~700	200~600
		AC630M	200~650	200~600	200~550
		AC6040M	200~750	200~700	200~600
	25~36	T1500A	200~700	200~600	–
		T1500Z	300~800	300~750	–
		AC510U	300~850	300~750	–
		AC520U	300~750	300~700	300~600
		AC530U	250~600	250~550	250~500
		EH510	250~450	250~400	–
		EH520	–	250~450	250~425
		AC810P	300~800	250~750	–
		AC820P	300~600	200~600	200~550
		AC830P	–	200~600	200~500
		AC610M	500~700	500~650	500~600
		AC6020M	200~700	200~650	200~600
		AC6030M	250~700	200~650	200~600
		AC630M	300~650	300~600	300~550
		AC6040M	250~700	200~650	200~600
	36~46	T1500A	300~650	300~600	–
		T1500Z	300~700	300~650	–
		AC510U	300~650	300~650	–
		AC520U	300~650	300~625	250~600
		AC530U	250~550	250~500	250~500
		AC810P	200~750	200~650	–
		AC820P	200~550	200~525	200~500
		AC830P	–	200~500	200~450
		AC610M	400~700	400~650	400~600
		AC6020M	200~700	200~650	200~600
		AC6030M	200~700	200~650	200~600
		AC630M	300~650	300~600	300~550
		AC6040M	200~700	200~650	200~600
Chipbreaker Preference			EEF/ESU	EEG/EEX/EUP	EEG/EMU

RECOMMENDED RUNNING CONDITIONS

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .016 IPR .040" ~ .150" D.O.C.	Roughing .010 ~ .020 IPR 120~250" D.O.C.
			CUTTING SPEED SFM		
STAINLESS STEEL WROUGHT AUSTENITIC NITRONIC 32 NITRONIC 33 NITRONIC 40 NITRONIC 50 NITRONIC 60	160~260	**T1500A**	200~600	200~550	–
		T1500Z	200~700	200~650	–
		EH510/520	250~600	200~500	150~400
		AC510U	200~750	200~750	300~700
		AC520U	200~750	200~700	200~700
		AC530U	200~600	200~550	200~500
		AC810P	300~850	250~750	250~750
		AC820P	300~600	200~600	200~600
		AC830P	300~700	200~600	300~600
HIGH TEMP. ALLOYS Nickel Base, Wrought Haynes Alloy 263, Incoloy Alloy 901, 903 Inconel Alloy 617, 625, 702, 706, 718, 721, 722, X-750, 751, M252 Nimonic 75, 80 Waspaloy		EH510/520	50~150	30~130	30~100
		AC510U	100~240	100~200	60~180
		AC520U	100~200	80~180	50~150
	25~36	**AC530U**	80~180	80~150	50~120
		WX2000	400~1500	400~1200	400~1000
		EH510/520	40~130	30~110	30~90
		AC510U	90~200	80~180	80~150
		AC520U	90~180	70~150	50~120
		AC530U	80~160	70~140	50~120
		WX2000	400~1500	400~1200	400~1000
Nickel Base, Wrought Hastelloy Alloy		EH510/520	100~190	80~150	70~130
		AC510U	120~230	90~190	80~170
		AC520U	120~230	90~190	80~170
		AC530U	80~180	80~150	50~150
		WX2000	400~1500	400~1200	400~1000
Nickel Base, Wrought Incoloy Alloy 804, 825 Inconel Alloy 600, 601 Refractaloy 26	36~46	EH510/520	60~140	50~130	40~110
		AC510U	80~180	60~150	50~140
		AC520U	80~180	60~150	50~140
		AC530U	70~150	50~140	50~120
		WX2000	400~1500	400~1200	400~1000
Nickel Base, Cast Hastalloy Alloy		EH510/520	60~130	40~120	30~100
		AC510U	70~200	50~180	40~150
		AC520U	70~170	50~150	40~130
		AC530U	60~150	50~130	40~120
		WX2000	400~1500	400~1200	400~1000
	Chipbreaker Preference		EEF/ESU	EEG/EEX/EUP	EEG/EMU

Recommended Running Conditions

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .016 IPR .040" ~ .150" D.O.C.	Roughing .010 ~ .020 IPR 120~250" D.O.C.
			CUTTING SPEED SFM		
HIGH TEMP ALLOYS IRON BASE, WROUGHT	180~230	**AC510U**	120~220	100~200	80~180
		AC520U	120~220	100~200	80~180
		AC530U	80~150	80~120	70~100
		WX2000	400~1500	400~1200	400~1000
	250~320	**AC510U**	120~210	90~190	75~160
		AC520U	120~210	90~190	75~160
		AC530U	80~180	80~160	50~120
		WX2000	400~1500	400~1200	400~1000
COBALT BASE		**AC510U**	110~210	100~180	80~160
		AC520U	110~210	100~180	80~160
		AC530U	80~180	70~150	50~120
		WX2000	400~1500	400~1200	400~1000
STELLITE		**AC510U**	110~200	100~170	80~150
		AC520U	110~200	100~170	80~150
		AC530U	80~180	80~150	50~120
		WX2000	300~1500	300~1200	300~1000
PURE TITANIUM		**AC510U**	100~190	90~170	80~140
		AC520U	100~190	90~170	80~140
		AC530U	80~150	70~130	50~120
TITANIUM ALLOY Ti-6AL-4V		EH510/520	100~180	90~160	70~140
		AC510U	120~210	120~190	100~160
		AC520U	120~210	120~190	100~160
		AC530U	80~170	70~150	50~120
ALUMINUM ALLOYS BRASS ALLOYS		**DA1000***	1000~10000	1000~10000	–
		DA2200*	1000~10000	1000~10000	
		DA150*	1000~10000	1000~10000	–
		H1	500~2000	500~2000	500~2000
		EH510/520	800~1700	700~1200	700~1000
		AC510U	500~1500	500~1200	500~1000
		AC520U	500~1500	500~1200	500~1000
		G10E	800~1500	700~1200	700~1000
	Chipbreaker Preference		EEF/ESU	EEG/EEX/EUP	EEG/EMU

* Refer to the PCD section for proper running conditions of PCD grades.

RECOMMENDED RUNNING CONDITIONS

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .012 IPR .005" ~ .100" D.O.C.	Gen. Purpose .008 ~ .020 IPR .040" ~ .120" D.O.C.	Roughing .015 ~ .030 IPR .100"~.180" D.O.C.
			CUTTING SPEED SFM		
COPPER ALLOYS WROUGHT 145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782		**DA1000***	2000~3300	2000~3300	–
		DA2200*	2000~3300	2000~3300	
		DA150*	2000~3300	2000~3300	–
		H1	500~2000	500~2000	500~2000
		EH510/520	800~1300	800~1200	700~1100
		AC510U	1200~1700	1100~1500	900~1300
		AC520U	1200~1700	1100~1500	900~1300
		G10E	800~1100	800~1000	700~900
190, 226, 230, 240, 260, 268,270, 280, 425, 435, 442, 443, 444, 445, 464, 465, 466, 467,613, 618, 630, 632, 651, 655, 667, 675, 687, 694, 770		**DA1000***	2000~3300	2000~3300	–
		DA2200*	2000~3300	2000~3300	
		DA150*	2000~3300	2000~3300	–
		H1	500~2000	500~2000	500~2000
		EH510/520	800~1100	600~950	500~850
		AC510U	900~1300	800~1150	700~1000
		AC520U	900~1300	800~1150	700~1000
		G10E	800~900	600~750	500~650
411, 413, 505, 512 ,511, 521, 524, 608, 610 ,614, 619, 625, 674, 688, 706, 710 ,715, 7285, 745		**DA1000***	2000~3300	2000~3300	–
		DA2200*	2000~3300	2000~3300	
		DA150*	2000~3300	2000~3300	–
		H1	500~2000	500~2000	500~2000
		EH510/520	250~550	200~500	150~450
		AC510U	450~750	350~650	300~600
		AC520U	450~750	350~650	300~600
		G10E	250~350	200~300	150~250
	Chipbreaker Preference		EEF/ESU	EEG/EEX/EUP	EEG/EMU

* Refer to the PCD section for proper running conditions of PCD grades.

Recommended first choice, Recommended second choice, Recommended third choice

Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .016 IPR .040" ~ .150" D.O.C.	Roughing .010 ~ .020 IPR 120~250" D.O.C.
			CUTTING SPEED SFM		
COPPER ALLOYS, CAST 834, 836, 938, 842, 844, 848, 852, 8545, 8955, 857, 858, 864, 867, 879, 928, 932, 934, 935, 937, 938, 939, 943, 944, 945, 953, 954, 956, 973, 974, 976, 078		**DA1000***	2000~3300	2000~3300	–
		DA2200*	2000~3300	2000~3300	
		DA150*	2000~3300	2000~3300	–
		EH510/520	1000~1400	850~1250	750~1150
		AC510U	1200~1600	1050~1500	950~1400
		AC520U	1200~1600	1050~1500	950~1400
		G10E	1000~1200	850~1050	750~950
817, 821, 833, 853, 861, 862, 865, 888, 872, 874 ,875, 876, 878, 903, 905, 915, 9022, 923, 9059, 926, 927, 947, 948, 952, 955, 957, 958		**DA1000***	2000~3300	2000~3300	–
		DA2200*	2000~3300	2000~3300	
		DA150*	2000~3300	2000~3300	–
		EH510/520	700~1100	550~850	500~800
		AC510U	950~1350	700~1100	650~1050
		AC520U	950~1350	700~1100	650~1050
		G10E	700~900	550~650	500~600
801, 803, 805, 807, 809, 811, 813, 814, 815, 818, 820 ,822, 824, 825, 826, 827, 828, 863, 902, 907, 909, 910, 911, 913, 916, 917, 962, 963, 964, 966, 993		**DA1000***	2000~3300	2000~3300	–
		DA2200*	2000~3300	2000~3300	
		DA150*	2000~3300	2000~3300	–
		EH510/520	300~600	175~500	150~450
		AC510U	500~850	350~725	325~675
		AC520U	500~850	325~725	325~675
		G10E	300~400	175~300	150~250
GRAY CAST IRON		**BN500***	600~2400	–	–
		BN700*	2000~6000	–	–
		BNS800*	2000~6000	–	–
		SN2000K	1000~3500	800~3500	800~2500
		SN2100K	1000~3500	800~3500	800~2500
		T2000Z	600~1400	500~1200	–
		AC405K	700~1700	700~1500	600~1400
		AC410K	600~1600	500~1300	400~1000
		AC415K	600~1600	500~1300	400~1000
		AC420K	600~1500	500~1200	400~1000
		AC700G	–	400~1200	400~900
		AC820P	–	600~1000	500~900
		G10E	200~350	150~300	100~250
	Chipbreaker Preference		EEF/ESU	EEG/EEX/EUP	EEG/EMU

* Refer to the PCD section for proper running conditions of PCD grades.

RECOMMENDED RUNNING CONDITIONS

Recommended first choice, Recommended second choice, Recommended third choice

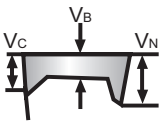
Work Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .016 IPR .040" ~ .150" D.O.C.	Roughing .010 ~ .020 IPR 120~250" D.O.C.
	<220		CUTTING SPEED SFM		
GRAY CAST IRON cont.	>220	BN500*	600~2000	–	–
		BN700*	1900~3100	–	–
		BNS800*	1900~3100	–	–
		SN2000K	1000~3500	800~3500	600~2500
		SN2100K	1000~3500	800~3500	600~2500
		T1500Z	500~1350	400~1100	–
		AC405K	600~1600	600~1500	600~1400
		AC410K	550~1600	500~1200	450~1000
		AC415K	550~1600	500~1200	450~1000
		AC420K	500~1500	450~1100	400~1000
		AC700G	–	300~1200	400~1000
		AC820P	–	600~1000	500~900
		G10E	200~300	150~300	100~250
DUCTILE IRON NODULAR IRON	<220	BN500*	300~1000	–	–
		T1500Z	350~1000	400~950	–
		SN2000K	600~1700	600~1500	500~1100
		SN2100K	600~1700	600~1500	500~1100
		AC405K	600~1700	600~1500	600~1400
		AC410K	500~1500	500~1200	400~1000
		AC415K	500~1500	500~1200	400~1000
		AC420K	500~1400	500~1100	400~1000
		AC700G	–	500~1100	400~1000
		AC820P	–	600~950	600~900
		AC510U	500~800	400~750	350~600
	>220	BN500*	300~900	–	–
		T1500Z	330~900	330~850	–
		SN2000K	500~1700	500~1500	400~1000
		SN2100K	500~1700	500~1500	400~1000
		AC405K	500~1700	500~1500	500~1100
		AC410K	400~1300	400~1100	300~1000
		AC415K	400~1300	400~1100	300~1000
		AC420K	400~1100	400~1000	300~900
		AC700G	–	400~900	300~800
		AC820P	–	500~900	450~850
		AC510U	500~800	300~700	300~600
	Chipbreaker Preference		ENZ/FLAT TOP	EGZ/FLAT TOP	EGZ/ FLAT TOP

* Refer to the PCD section for proper running conditions of PCD grades.

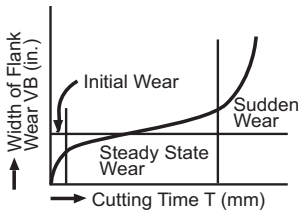
Tool Life

① Wearing Process Curve

Flank Wear

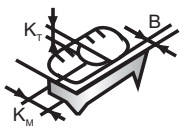


V_B: Width of Flank Mean Wear
V_C: Maximum Wear of Nose Radius
V_N: Grooving Wear

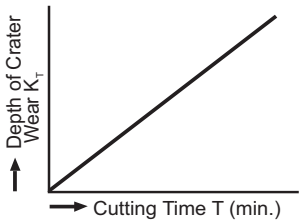


- Initial wear very fast, then evens out to a more gradual pattern, until limit is reached; wear is then increased substantially.

Crater Wear



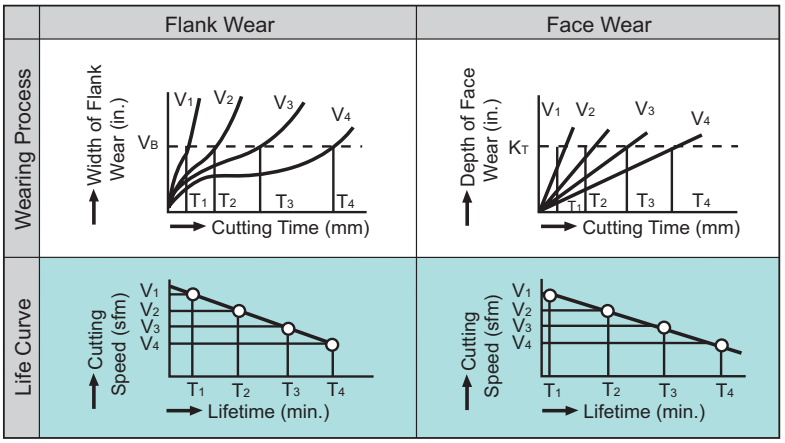
K_T: Depth of Crater Wear
B: Width of Land
K_M: Distance Between The Center of Crater Wear and Cutting Edge



- Crater wear is more progressive; no sudden breakdown pattern.

② Life Curve (V-T Lines)

- At four speeds V_1, V_2, V_3 and V_4, the relative tool lives for a given flank wear V_B or crater K_T are indicated as T_1, T_2, T_3 and T_4 respectively, using log-log graph paper.



③ Tool Life Equation

- Tool Life Equation (Taylor's Equation)

$$VT^n = C$$

V: Cutting Speed
T: Tool Life
n, C: Constants determined by work material, tool material, tool design, etc.

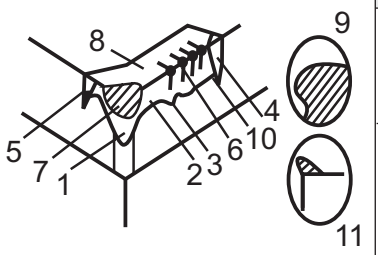
④ Alternative Tool Life Criteria

① When surface finish deteriorates unacceptably.
② When a fixed amount of tool wear is reached (see the right-hand table).
③ When work piece dimension is out of tolerance.
④ When power consumption reaches limit.
⑤ Sparking or chip discoloration and disfigurement.
⑥ Cutting time or component quantity.

- Width of Flank Wear for General Life Determination (For Cemented Carbides)

Width of Wear (in.)	Applications
.008	Finish cutting of non-ferrous alloys, fine & light cut, etc.
.016	Cutting of special steels
.028	Normal cutting of cast irons, steels, etc.
.040-.050	Rough cutting of common cast irons

1. Forms of Tool Failure

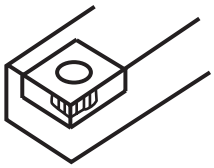


No.	Failure	Cause	
1-5	Flank Wear	Physical	Due to the abrasive effect of hard grains contained in the work material
6	Chipping		Fine chips caused by high-pressure cutting, chatter, vibration, etc.
7	Partial Fracture		Due to the mechanical impact when an excessive force is applied to the cutting edge
8	Crater Wear	Chemical	Carbide particles are removed due to degradation of tool performances and chemical reactions at high temperature
9	Deformation		The cutting edge is deformed due to its softening at high temperature
10	Thermal Crack		Thermal fatigue in the heating and cooling cycle with interrupted cutting
11	Build-Up Edge		A portion of the workpiece material adheres to the insert cutting edge

2. Failure Remedies

Edge Failure

Excessive Flank Wear



Basic Remedy

Tool Material
Cutting Conditions

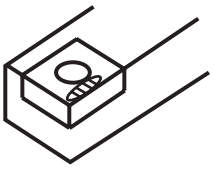
- Use a more wear-resistant grade
  - Carbide → { Coated / Cermet }
- Decrease speed

Proven Remedies

- Recommended Insert Grade:

	Steel	Cast Iron
Finishing	AC810P	BN700, BN7000, BNC500
Rough	ACA20P	AC405K

Excessive Crater Wear



Basic Remedy

Tool Material
Tool Design
Cutting Conditions

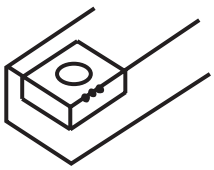
- Use a crater-resistant grade
  - Carbide → { Coated / Cermet }
- Enlarge the rake angle
- Select the correct chip breaker
- Decrease speed
- Reduce the depth of cut and feed

Proven Remedies

- Recommended Insert Grade:

	Steel	Cast Iron
Finishing	AC810P	BN700, BN7000, BNC500
Rough	ACA20P AC830P	AC415K, AC420K

Cutting Edge Chipping



Basic Remedy

Tool Material
Tool Design
Cutting Conditions

- Use tougher grades
  - If carbide, (AC820P → AC830P)
- If built-up edge occurs, change to a less susceptible grade (cermet)
- Reinforcement of the cutting edge (honing)
- Reduce the rake angle
- Increase speed (if caused by edge build-up)

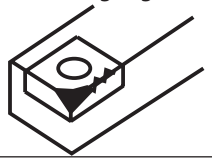
Proven Remedies

- Recommended Insert Grades:

	Steel	Cast Iron
Finishing	T2000Z,T1200A	BN700, BN7000, BNC500
Rough	ACA20P AC830P	AC420K

- All coated inserts are honed

Partial Fracture of Cutting Edges



Basic Remedy

Tool Material
Tool Design
Cutting Conditions

- Use tougher grades
  - If carbide, (AC820P → AC830P)
- Use holder with a large approach angle
- Use larger shank-size holder
- Reduce the depth of cut and feed

Proven Remedies

- Recommended Insert Grade:

	Steel	Cast Iron
Rough Machining	AC820P AC830P	AC420K

Built-up Edge

Basic Remedy

Tool Material
Cutting Conditions

- Change to a grade which is adhesion resistant
- Increase the cutting speed and feed
- Use cutting fluids

Proven Remedies

- Recommended Insert Grade:

	Steel	Cast Iron
Finishing	T2000Z, T1200A	BN700, BN500
Rough	AC820P	AC700G, YB100

Plastic Deformation

Basic Remedy

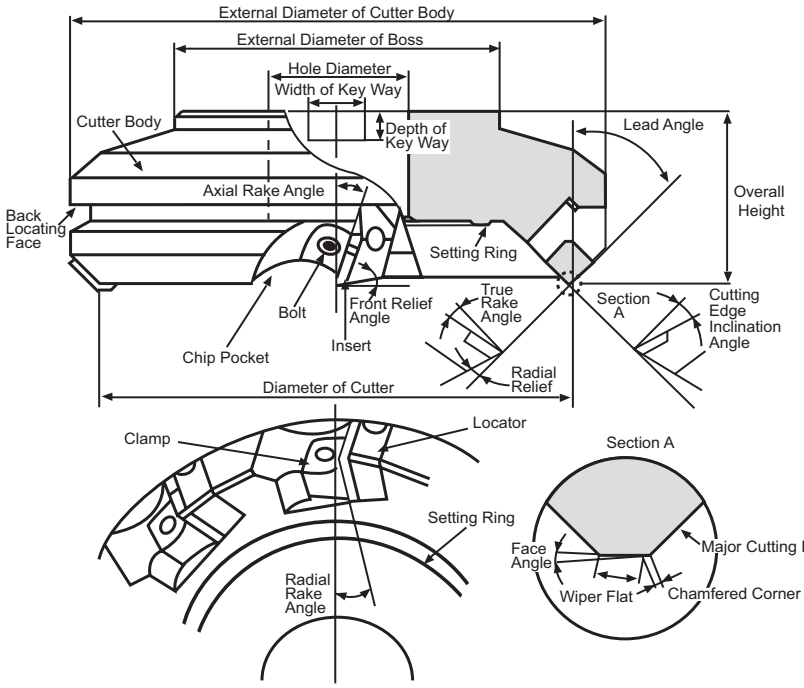
Tool Material
Cutting Conditions

- Change to high thermal resistant grades
- Reduce the cutting speed and feed

Proven Remedies

	Steel	Cast Iron
Finishing	T2000Z,AC810P	AC405K
Rough	ACA20P	AC415K, AC420K

■ Illustration of Technical Terms



Calculating Power Requirement

• Power Requirement

$$P_c = \frac{a_e \times a_p \times v_f \times k_c}{60 \times 10^3 \times \eta} = \frac{Q \times k_c}{60 \times 10^3 \times \eta}$$

• Horsepower Requirement

$$H = \frac{P_c}{0.75}$$

• Chip Removal Amount

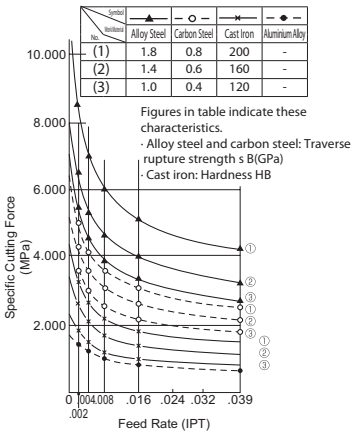
$$Q = \frac{a_e \times a_p \times v_f}{1000}$$

P_c: Power requirement (kw)
H: Required horsepower (HP)
Q: Chip removal amount (cm^3/min)
a_e: Cutting width (mm)
v_f: Feed rate (mm/min)
a_p: Depth of cut (mm)
k_c: Specific cutting force (MPa)
Rough value (Steel: 2,500 to 3,000MPa / Cast iron: 1,500MPa / Aluminium: 800MPa)
η: Machine efficiency (about 0.75)

• Relation Between Feed Rate, Work Material, Specific Cutting Force

No. \ Symbol / Workpiece	Alloy Steel	Carbon Steel	Cast Iron	Aluminum Alloy
(1)	1.8	0.8	200	-
(2)	1.4	0.6	160	-
(3)	1.0	0.4	120	-

Figures in table indicate these characteristics.
· Alloy steel and carbon steel: Traverse rupture strength s B(GPa)
· Cast iron: Hardness HB



Cutting Force Comparison of Typical Sumitomo Mills

Cutter Series	Cutting Edge Angle (deg)			Cutting Force (MPa)
	A.R	R.R	A.A	0 0.5 1.0 1.5
UFO	+27°	−7°	45°	Back force, Feed force, Principal force, Total force
FPG	+15°	−4°	45°	
DPG	+ 8°	−0°	15°	

· Work: 4137 (250HB)
· Machine: M/C (15HP)
· Cutting Conditions: *vc*=394 SFM
fz =0.012 IPT
ap =0.118"

• Calculating Cutting Speed

$$v_c = \frac{\pi \times D_c \times n}{1{,}000}$$

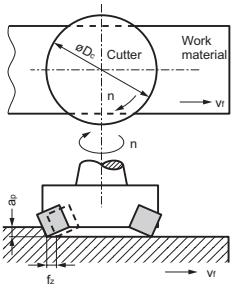
$$n = \frac{1{,}000 \times v_c}{\pi \times D_c}$$

• Calculating Feed Rate

$v_f = f_z \times z \times n$

$$f_z = \frac{v_f}{z \times n}$$

v_c: Cutting speed (SFM)
π : ≈ 3.14
D_c: Cutter diameter (inch)
n: Rotational speed (min^{-1})
v_f: Feed rate per minute (IPM)
f_z: Feed rate per tooth (IPT)
z: Number of teeth
f: Feed rate (IPR)



TECHNICAL GUIDANCE
MILLING INSERTS

The following pages contain basic technical data intended to address the use and application of Sumitomo solid carbide, and indexable carbide tooling. Sumitomo has compiled speed, feed, horsepower, material, and grade information in order to help the machinist, programmer, tooling engineer, etc., obtain successful results with our products.

Often feedback is received in regards to Sumitomo's technical information. Customers inquire as to why this information may not yield the best possible results for their respective applications. The following is an explanation on the preferred way to utilize this section.

Perhaps milling, more so than most machining operations, brings forth a greater number of variables to the science of optimizing a successful machining operation. Tool grade, pitch, diameter, effective rake angle, work piece material, hardness, rigidity, machine condition and design all will effect running parameters and overall tool performance. It is therefore not a question of looking up a number in a chart to maximize productivity, but to use the data provided to help customize the running parameters for a particular application.

One of the most valuable keys to ensuring productivity is an experienced machinist. The skill of an accomplished journeyman has yet to be replaced by any computer.

Take the time to check horsepower consumption, speeds, feeds and grade selection before loading a tool into the spindle and pressing "cycle start". Once an operation is completed successfully, then maximum productivity can be addressed.

■ MILLING APPLICATIONS

Work Material	Steels and Stainless Steels						Cast Iron and Non-Ferrous Metals				High Temperature Alloys		
Application	High Speed	Finishing		Medium	Roughing		High Speed	Finishing	Medium Cutting		Finishing	Medium	Roughing
ISO/ANSI		P01/C8	P10/C7	P20/C6	P30/C5A	P40/C5		K01	K10	K20	K01/C4	K10/C3	K20/C2
CBN							BN700						
							BNS800						
							BN500						
Ceramic								SN2100K					
Coated Cermet		T250A											
Coated Carbide		AC230					DL1000				ACM100		
		ACP100					ACK100						
			AC325					AC211					
											ACM200		
			ACP200					ACK200					
			ACZ310					EH520Z					
				ACZ330									
				ACP300					ACK300				
				ACZ350					ACZ310		ACM300		
Uncoated Carbide				A30N			H1		G10E				
				S30E					EH20				
									EH520				

1. Coated Grades

Grade	Coating Layer	Applications	Color	Old Grade
ACP100	CVD "Super FF" Coating	General to high speed and wet cutting of steels and stainless steels	Gold	AC230
ACP200	PVD "Super ZX" Coating	First choice for general purpose milling of steels and stainless steels	Bronze	ACZ330
ACP300	PVD "Super ZX" Coating	Very tough grade for steels and stainless steels	Bronze	ACZ350
ACK100	CVD "Super FF" Coating	High speed grade for milling gray and ductile cast irons	Gold	
ACK200	CVD "Super FF" Coating	General purpose milling of gray and ductile cast irons	Gold	AC211
ACK300	PVD "Super ZX" Coating	General to heavy cutting of gray and ductile cast irons	Bronze	ACZ310
ACM100	PVD "Super ZX" Coating	For finishing applications of stainless steels and exotics	Bronze	
ACM200	CVD "Super FF" Coating	First choice for general purpose milling of stainless steels and exotics	Gold	AC325
ACM300	PVD "Super ZX" Coating	Tough grade for interrupted machining of stainless steels and exotics	Bronze	
AC325	Double Phase PVD	General purpose milling of steels and stainless steels	Gold	
AC230	Multi-Phase Al_2O_3	High speed milling of steels and stainless steels	Gold	
AC211	Multi-Phase Al_2O_3	General purpose milling of cast iron	Gold	
ACZ120	ZX Coating (TIN/AIN)	Finish milling of heat treated tool steels and alloys	Pink	
ACZ310	ZX Coating (TIN/AIN)	General purpose milling of cast iron	Pink	
ACZ330	ZX Coating (TIN/AIN)	General purpose milling of steels and stainless steels	Pink	
ACZ350	ZX Coating (TIN/AIN)	General purpose milling of steels and stainless steels	Pink	
DL1000	Diamond-Like Carbon	High speed milling of non-ferrous materials	Blue	

2. Cermet Grades

Grade	Hardness (Hv)	T.R.S. (kg/mm²)	Applications
T250A	1430	220	Finish milling of steels and stainless steels
T2500A	1430	220	Finish milling of steels and stainless steels

3. Ceramic Grades

Grade	Composition	Hardness (Hv)	Applications
SN2100K	Si_3N_4	1,600	Milling of cast iron

4. CBN

Grade	Hardness (Hv)	Applications
BN500	3,300-3,500	High speed milling of gray and nodular cast irons
BN700	4,100-4,400	High speed milling of cast iron and powdered metals
BNS800	4,000-4,300	High speed milling of gray cast iron

5. Polycrystalline Diamond (PCD)

Grade	Hardness (Hv)	Applications
DA2200	9,000-10,000	Finishing, roughing and interrupted machining of aluminum and non-ferrous materials
DA200	8,000-10,0000	Milling of non-ferrous alloys and plastics
DA150	10,000-12,0000	Machining of aluminum, copper, wood, rubber, graphite and carbide (soft), plastic, etc.

6. Uncoated Carbide

Grade	Grade	Hardness	T.R.S. (psi)	Applications
C-5A	S30E	91.3	348,000	Milling of steels and stainless steels
	A30N (A30)	90.6	354,000	Rough turning and milling of steel and stainless steel
C3	H1	92.4	352,000	Finishing to semi-finishing of aluminum
C2	G10E	91.0	280,000	Milling of cast iron and aluminum
	H10E	92.3	284,467	Wiper inserts for cast iron and aluminum
	EH20	91.0	474,000	Milling of exotic materials
	EH520	91.8	436,000	Longer tool life for exotic material milling

■ Grade Descriptions/Applications

Sumitomo Electric Carbide, Inc. continues to introduce new and improved grades for milling. The patented "Super ZX" and "Super FF" coatings are featured on our new ACK and ACP series grades. This technology provides our customers with increased tool life and productivity.

With the introduction of our Wave Ballnose Finishing Endmill (WBMF), Sumitomo developed a ZX coated grade ACZ120 dedicate. The ACZ120 excels in applications involving finish milling of heat treated tool steels and alloys, and is available only for the WBMF cutter.

Sumitomo's idea of constant improvement through technology has once again provided the industry with a new style of insert. The Diamond-Like Carbon (DLC) coating on grade DL1000 excels in high speed non-ferrous milling applications due to its extremely hard coating.

These tools added to Sumitomo's existing milling grades complete the product line, making it easier for the customer when dealing with difficult applications.

■ Coated Grades

Grade	Coating Layer	Applications	Color
ACP100	CVD "Super FF" Coating	General to high speed and wet cutting of steels and stainless steels	Gold
ACP200	PVD "Super ZX" Coating	First choice for general purpose milling of steels and stainless steels	Bronze
ACP300	PVD "Super ZX" Coating	Very tough grade for steels and stainless steels	Bronze
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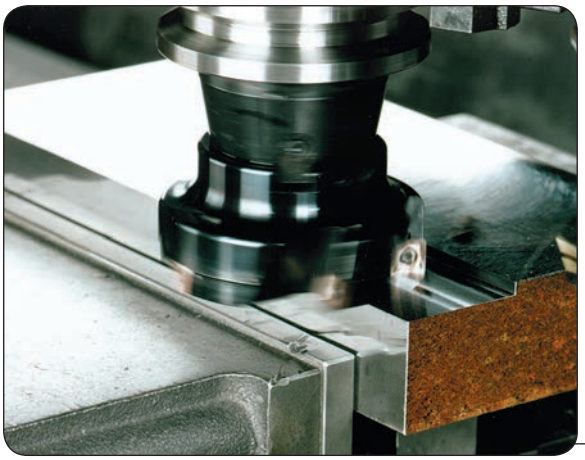
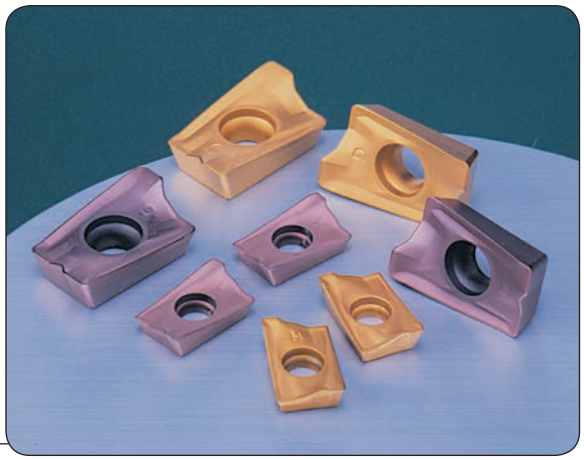
ACZ350	ZX Coating (TIN/AIN)	General purpose milling of steels and stainless steels	Pink
DL1000	Diamond-Like Carbon	High speed milling of non-ferrous materials	Blue



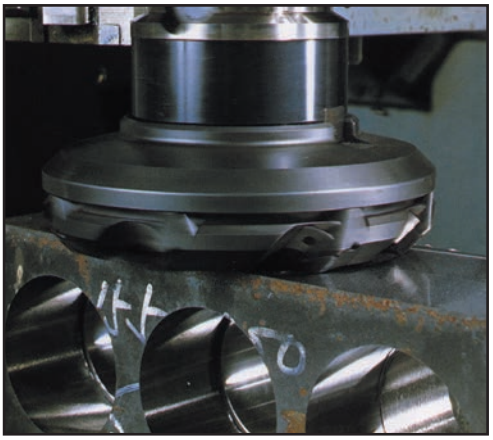


■ Cermet Grades

Grade	Hardness (Hv)	T.R.S. (kg/mm²)	Applications
T250A	1430	220	Finish milling of steels and stainless steels
T4500A	1430	220	Finish milling of steels and stainless steels

Cermets are a type of cutting tool insert that combine the properties of ceramic and metal materials in their chemical makeup. These tools provide excellent surface finishes and have a high resistance to adhesion due to their sharp cutting edge.

Sumitomos T250A cermet milling grade exhibits excellent toughness in finish milling applications. Also, the T250A is a great economic alternative to coated carbide grades when machining steels and stainless steels.



■ Ceramic Grades

Grade	Composition	Hardness (Hv)	Applications
SN2100K	Si_3N_4	1,600	Milling of cast iron

Developed using a patented microwave sintering process that produces a very fine-grained microstructure with enhanced characteristics, Sumitomo ceramic grade SN2100K is ideal for machining a cast iron materials.

■ GRADE FEATURES

Silicon Nitride Ceramic SN2100K

With its high shock and impact resistance, SN2100K is a grade ideally suited for cast iron roughing; use specifically when exceptional toughness and wear resistance is required..

■ Uncoated Carbide

Grade	Grade	Hardness	T.R.S. (psi)	Applications
C-5A	S30E	91.3	348,000	Milling of steels and stainless steels
	A30N (A30)	90.6	354,000	Rough turning and milling of steel and stainless steel
C3	H1	92.4	352,000	Finishing to semi-finishing of aluminum
C2	G10E	91.0	280,000	Milling of cast iron and aluminum
	H10E	92.3	284,467	Wiper inserts for cast iron and aluminum
	EH20	91.0	474,000	Milling of exotic materials
	EH520	91.8	436,000	Longer tool life for exotic material milling

Sumitomo Electric Carbide, Inc's research and development of tungsten carbide grades began in 1927. Since then, we have greatly improved and refined our grades to meet the needs of our customers today.

Our latest uncoated carbide milling grade is the EH520. This extremely tough grade outperforms the competition in applications involving exotic materials.

■ Cubic Boron Nitride (CBN) Grades

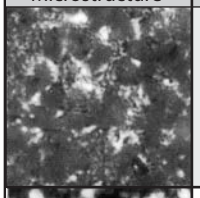
Grade	Hardness (Hv)	Applications
BN7000	4,100-4,400	High speed milling of gray and nodular cast irons
BN700	4,000-4,300	High speed milling of cast iron and powdered metals
BNS800	3,900-4,200	High speed milling of gray cast iron

Sumitomo Electric Carbide, Inc. is a world leader in the development of CBN cutting tool materials and their applications. For you, this means increased productivity, better surface finish, and an ability to hold closer tolerances with longer tool life. Sumitomo offers products, sizes and grades available nowhere else.

BN500, BN700, and BNS800 are three grades produced by Sumitomo and dedicated to machining cast irons. Their wear resistance and high speed capability increases tool life and productivity.

PCBN is generally classified into two groups according to the material microstructure. The CBN particles of the first type are bonded together directly without an additional binder material (BN700/BNS800). This type of CBN contains a large percentage of CBN and is thus extremely hard.

SUMIBORON, representative of the second type of PCBN materials, consists of CBN particles bonded together by a ceramic binder (BN500). The bonding strength is very high and thus is very wear-resistant and tough.

Microstructure	Features	Grades
	CBN particles are bonded to each other	BN700 BNS800
	CBN particles are bonded by a ceramic binder	BN500

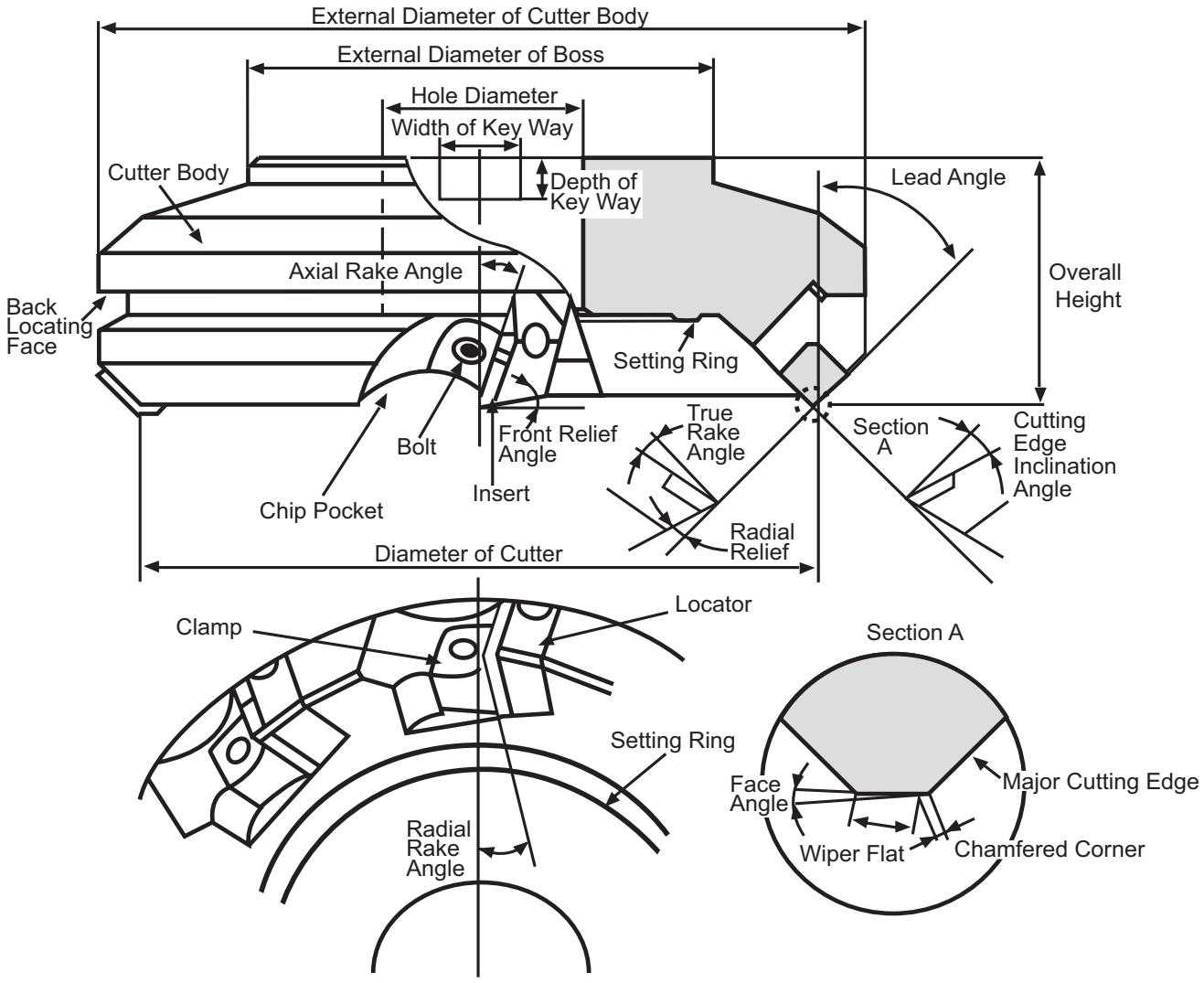
Polycrystaline Diamond				
Grade	DA1000	DA2200	DA150	DA200
Average diamond crystal size (microns)	0.5	0.5	5	0.5
Hardness (Hv)	11,000-12,000	9,000-10,000	10,000-12,000	8,000-10,000
T.R.S. (kg/mm^2)	260	250	200	220
Product Desription	• Ultra-fine grain structure • Superior hardness and wear resistance with sharp edge	• High density sintered material made of ultra-micro diamond particles • Superior hardness and wear resistance with sharp edge	• Fine grain diamond • High abrasion resistance	• Ultra-fine grain structure • Superior tool edge sharpness and toughness
Applications	• High Silicon Aluminum • Copper • Fiberglass • Hard Rubber • Graphite Epoxy • Wood • Aluminum Alloys • Plastics • Carbon (finishing, roughing, interrupted)	• High Silicon Aluminum • Copper • Fiberglass • Hard Rubber • Graphite Epoxy • Wood • Aluminum Alloys (finishing, roughing, interrupted)	• High Silicon Aluminum • Copper • Fiberglass • Hard Rubber • Graphite Epoxy • Wood • Carbon	• Wood • Plastics • Aluminum applications where low microfinish is needed

Since the introduction of SUMIDIA DA polycrystalline diamond (PCD) blanks in 1978, Sumitomo has continually developed and expanded the product line to offer finished inserts in a wide range of grades, shapes and sizes. SUMIDIA inserts consist of a layer of fine grain synthetic diamond crystals bonded to a tungsten carbide substrate which is securely brazed into the pocket of a standard size insert. A high degree of diamond to diamond bonding is achieved by an ultra high pressure-temperature process. This crystal to crystal bonding provides exceptional hardness and abrasion resistance.

Our closely controlled manufacturing process produces unequaled consistency resulting in superior tool edge quality.
SUMIDIA DA inserts and wipers are replacing tungsten carbide and natural diamond cutting tools on a worldwide basis. Use of SUMIDIA DA grades will provide dramatically increased tool life, the ability to hold closer part tolerance, and improved surface finish.

New technological advances have given the industry a new style of PCD insert. The optimum size of PCD used in NF-DA2200 offers a less expensive alternative when machining non-ferrous materials.

■ Illustration of Technical Terms



■ Horsepower Consumption

This section contains the horsepower consumption formula and the explanation of the associated variables. A list of commonly encountered materials has been added to assist you when determining the required horsepower for a machining operation.

Machine efficiency, drive type, and amount of time that the machine has been running can effect the horsepower and torque availability at the spindle. Without an extensive list of specifications, it is nearly impossible to predict the capabilities of a machine tool. Sumitomo suggests that unless the capabilities of a machine tool are well known, it is wise to limit the attempted operations to those that require no more than 65% of the machine's rated horsepower.

Please take the time to understand the power requirements of an operation before attempting it, unless you are very familiar with the tool, material, and especially the machine being used.

*Note: If the material that you are machining is not found in this list, contact the material manufacturer for further information. Most material suppliers, or mills, have excellent technical resources available. However, if the material in question exhibits machining properties that are similar to a given material, use the corresponding "K" factor.

■ Horsepower Consumption Formula

$$\text{Horsepower} = \frac{W \times D \times F}{K}$$

W = width of cut (inches)
D = depth of cut (inches)
F = feed rate (inches/minute)
K = 'K' factor for material

'K' factors for some common materials are:

Material	'K'
Magnesium	4.0
Aluminum	4.0
Copper	2.0
Brass	2.5
Bronze	2.0
Malleable iron	1.0
Cast iron	
Ferrite	1.5
Pearlitic	1.0
Chilled	.6
Steel	
up to 150 BHN	1.0
up to 300 BHN	.8
up to 400 BHN	.5
up to 500 BHN	.4

Material	'K'
Stainless steel	
Free machining	1.0
Others	.6
Titanium	
under 100,000 psi	.8
100,000-135,000 psi	.6
135,000 psi and over	.4
High-tensile alloys	
180,000-220,000 psi	.5
220,000-260,000 psi	.4
260,000-300,000 psi	.3
High-temperature alloys	
Nickel base alloys	.4
Cobalt base alloys	.4
Austenitic alloys	.4

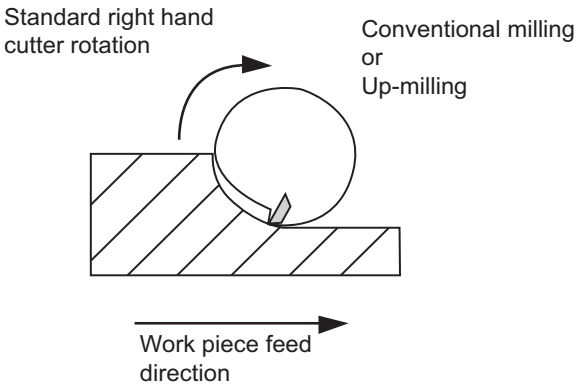
■ COMMENTARY ON GENERAL MACHINING PRACTICES

Despite the influx of computers, Computer Aided Design and Computer Aided Machining in the modern manufacturing environment, general machining practices are almost unchanged from those used decades ago.

Correct set up of the work piece, tooling and machine are mandatory for high productivity, and more importantly, success. Sumitomo assumes that an enduser's shop practices are proper. Technology cannot replace sound machining practices.

In almost all situations where a CNC machine, or a conventional machine with backlash eliminators is used, modern carbide tooling should be applied with tool paths that climb mill. Conventional milling reduces tool life, promotes vibration and chatter, and prevents maximum performance in most situations.

INCORRECT



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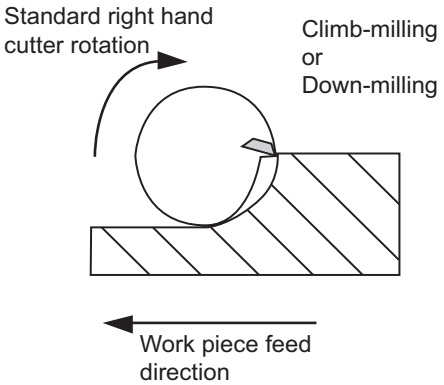


■ Lead Angle Effect

The lead angle effect is a commonly known phenomenon in tool design. As the lead angle of a tool (the angle at which the insert is rotated away from its axial center line) increases, the actual thickness of the produced chip decreases from the programmed amount. This allows us to take advantage of increased feed rates over standard zero degree (90 degree shoulder) lead tools.

By comparing the following lead angle figures, it is possible to increase the actual feed rate up to 30% over the suggested numbers (depending on the type of tool), thus increasing productivity.

Tool Lead Angle	Percentage of chip thickness from programmed feed rate
15 degrees	96%
20 degrees	94%
30 degrees	86%
45 degrees	71%

To simplify this calculation we have included a chart that allows easy determination of *programmed feed per tooth* by choosing *desired feed per tooth* and then following the column down to the row that matches the lead angle of the tool that is being used.

Example: Find the programmed feed per tooth for a UFO cutter (45 degree lead angle), when the desired feed per tooth is 0.006 IPT.

Answer: Programmed feed per tooth = 0.0085 IPT

Programmed Feed Per Tooth vs. Desired Feed Per Tooth

Tool Lead Angle	Desired Feed Per Tooth (IPT)								
	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.012
	Programmed Feed Per Tooth (IPT)								
15	0.0042	0.0052	0.0063	0.0073	0.0083	0.0094	0.0104	0.0115	0.0125
20	0.0043	0.0053	0.0064	0.0074	0.0085	0.0096	0.0106	0.0117	0.0128
30	0.0047	0.0061	0.0070	0.0081	0.0093	0.0105	0.0116	0.0128	0.0140
45	0.0057	0.0075	0.0085	0.0099	0.0113	0.0127	0.0141	0.0156	0.0170

■ Radial Chip Thinning

Just as the axial rake of a cutting tool can alter the actual chip thickness, so can radial chip thinning. This occurs whenever the radial width of cut is less than 1/2 the cutter diameter. This is commonly found when making periphery cuts while end milling.

Since both tool life and productivity rely on maintaining full chip thickness, it is important to compensate for this scenario. Rather than using the mathematical process to arrive at a *programmed feed rate*, we have included the following chart.

To use this chart it is necessary to have the following information:

1) Desired feed per tooth (as taken from the end mill speed and feed section)
2) Cutter diameter
3) Radial width of cut

The first step is to divide the radial width of cut by the cutter diameter and find the closest value in the first column on the left. Next find the *desired feed per tooth* at the top of the chart and follow that column down to the row that was found in the first step. This will be the *programmed feed per tooth*.

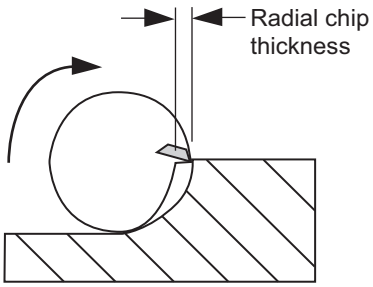
Example: 1.00″ diameter end mill
0.020″ radial width of cut
0.004″ *desired feed per tooth*

Answer: Dividing 0.020″ by 1.00″=0.020

Finding 0.020 in the first column on the left, and then the 0.004″ desired feed per tooth at the top, we find where the two meet and obtain 0.014″ *programmed feed per tooth*.

This results in a large increase in the feed rate. If we use these factors for a four flute tool at 2292 RPM, we have a feed rate of 128 IPM (2292 RPM x 0.014 IPT x 4 Flutes) versus 37 IPM (2292 RPM x 0.004 IPT x 4 Flutes) that might have otherwise been programmed.

As you can see from the illustration below, as radial depth increases, so does chip thickness until we reach 50% of the cutting diameter. At this point we have full, programmed chip load.



■ Radial Chip Thinning Compensation

	Desired Feed Per Tooth (IPT)								
	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.012
WOC/Dia.	Programmed Feed Per Tooth (IPT)								
0.005	0.0280	0.0350	0.0420	0.0490	0.0560	0.0630	0.0700	0.0770	0.0840
0.010	0.0200	0.0250	0.0300	0.0350	0.0400	0.0450	0.0500	0.0550	0.0600
0.015	0.0164	0.0205	0.0246	0.0287	0.0328	0.0369	0.0410	0.0451	0.0492
0.020	0.0140	0.0175	0.0210	0.0245	0.0280	0.0315	0.0350	0.0385	0.0420
0.025	0.0128	0.0160	0.0192	0.0224	0.0256	0.0288	0.0320	0.0352	0.0384
0.030	0.0116	0.0145	0.0174	0.0203	0.0232	0.0261	0.0290	0.0319	0.0348
0.035	0.0108	0.0135	0.0162	0.0189	0.0216	0.0243	0.0270	0.0297	0.0324
0.040	0.0100	0.0125	0.0150	0.0175	0.0200	0.0225	0.0250	0.0275	0.0300
0.060	0.0084	0.0105	0.0126	0.0147	0.0168	0.0189	0.0210	0.0231	0.0252
0.080	0.0072	0.0090	0.0108	0.0126	0.0144	0.0162	0.0180	0.0198	0.0216
0.120	0.0060	0.0075	0.0090	0.0105	0.0120	0.0135	0.0150	0.0165	0.0180
0.200	0.0052	0.0065	0.0078	0.0091	0.0104	0.0117	0.0130	0.0143	0.0156
0.300	0.0044	0.0055	0.0066	0.0077	0.0088	0.0099	0.0110	0.0121	0.0132

Indexable Milling Cutters

The following chart contains a list of commonly encountered materials, suggested surface speeds, and chip loads (ipt). It is important to note that this is not a complete listing of all materials used in industry. It should be considered a guide to be used when initially setting up a new application, and as a resource for better understanding Sumitomo's cutting tool grades.

As there are tremendous variations in the capabilities and performance of machine tools, and variations in work piece materials as well, individual results can vary considerably. This is where the trained eye of an advanced machinist, or Applications Engineer can markedly improve tool life and productivity. Sumitomo has Sales and Applications personnel for just this purpose. When in doubt of the correct selection of a tool type or grade your sales person can assist in achieving winning results.

When applying carbide grades it is important to understand the characteristics of the different types that Sumitomo offers. A few minutes spent looking at the grade comparison chart on page 83 will shed some light on the differences between them. Coated grades in most situations will provide an increase in tool life, and are the preferred choice in the majority of industry today. Whether coated or not, the harder grades will tend to be more wear resistant, but at the cost of toughness. They generally will be the best choice for easier to machine materials, but will sacrifice tool life in situations that lack machine and/or part rigidity.

When programming an operation with a new grade, or an unfamiliar material, it is wise to start at the low end of the speed and feed range and then work towards the upper ranges. Make any changes one at a time so that the results can be examined accurately.

It is worth noting that modern cutting tool materials will often encounter as many problems when run too slowly, or when programmed at insufficient feed rates as they can when run too fast. Since most of our inserts have been manufactured with edge preparations, feeds below .002, or .003 IPT may diminish tool life. Also, they must have enough speed to operate correctly. Cutting tools require an elevated temperature to perform without chip weld. Proper cutting parameters will insure the heat that is generated will be deposited into, and removed with the chip. Most situations involving steels and alloys the best results are obtained with an air blast versus coolant. In applications cutting exotic alloys, aluminum, brass, grey iron, etc., commonly employ coolant.

Material	Hardness	Insert Grade				Speed SFM			Feed IPT
		Carbide	Cermet	Diamond	Ceramic	.002-.050	.050-.125	.125 and over	
Low and medium carbon steels 1008,1010,1018 1020,1025 etc.	~.250Bhn	ACP200				721-1213	675-1180	600-1125	.006-.0135
		ACP100				775-1310	725-1275	675-1225	.006-.0125
			T250A			700-1310	675-1200	575-1000	.0035-.0075
		ACP300				675-1075	650-1025	525-925	.006-.014
			T4500A			700-1450	675-1350	575-1100	.0035-.0075
Free machining steels and alloys Freemax 15 Freemax 45 12L14, etc.	~.250Bhn	ACP200				725-1300	700-1250	675-1200	.006-.0135
		ACP100				750-1325	725-1275	675-1225	.006-.0135
			T250A			825-1450	825-1375	775-1300	.0035-.0085
			T4500A			825-1600	825-1500	775-1450	.0035-.0085
		ACP300				675-1075	650-1050	650-1025	.006-.014
Medium-high carbon steels 1040,1045 1055,1080 50100,51100 52100,M-50	<.250 Bhn	ACP200				575-950	550-925	500-875	.006-.012
		ACP100				600-975	575-950	550-900	.006-.011
		ACP300				575-950	550-925	500-875	.006-.012
			T250A			450-950	425-850	400-825	.0035-.0075
			T4500A			450-1050	425-950	400-900	.0035-.0075

*NOTE: THESE SPEEDS ARE BASED ON 2/3 THE DIAMETER OF THE CUTTER ENGAGED.

Material	Hardness	Insert Grade				Speed SFM			Feed IPT
		Carbide	Cermet	Diamond	Ceramic	.002-.050	.050-.125	.125 and over	
Medium carbon alloy steels 4140, 4340 5130, 8620	>.250 Bhn	ACP200				550-900	525-900	500-875	.006-.0115
		ACP100				600-875	575-950	550-900	.006-.0095
		ACP300				525-875	500-825	475-800	.006-.0115
			T250A			450-950	425-850	400-825	.0035-.0075
			T4500A			450-1050	425-950	400-900	.0035-.0075
Tool steels D2, H13, S7, etc.	<.250 Bhn	ACP200				450-820	435-790	425-750	.0047-.011
		ACP300				450-820	425-790	400-725	.0047-.012
		ACP100				475-820	450-790	425-750	.0047-.010
			T250A			450-650	425-600	250-550	.0039-.0079
			T4500A			450-750	425-650	250-600	.0039-.0079
	Bhn 220-350	ACP200				400-750	375-725	375-690	.0045-.010
		ACP300				375-700	400-695	375-685	.0047-.012
		ACP100				425-775	400-735	400-700	.004-.009
	>.35 Hrc	ACP200				325-650	300-625	300-590	.0045-.0095
		ACP100				325-650	300-625	300-590	.003-.007
	<55 Hrc	ACK300				175-400	150-350	125-300	.003-.008
		ACP100				160-250	135-300	110-250	.003-.006
Martensitic and Ferritic stainless steels 414, 416, 430, 440		ACP300				300-740	275-825	250-800	.004-.012
		ACP200				325-875	300-850	275-825	.004-.011
		ACM200				500-600	400-500	400-500	.0035-.0075
		ACM300				500-600	400-500	350-500	.004-.009
			T250A			550-950	500-900		.0035-.0075
			T4500A			550-1050	500-1000		.0035-.0075
Austenitic and Pre-cipitation hardening stainless steels 303, 304, 316, 321, etc.		ACP300				300-850	275-825	250-800	.004-.012
		ACP200				325-875	300-850	275-825	.004-.011
		ACM200				350-600	325-550	300-500	.003-.008
		ACM300				300-600	300-550	300-500	.003-.009
			T250A			650-950	600-900		.0035-.0075
			T4500A			650-1050	600-1000		.0035-.0075
Titanium alloy		ACM300				100-300	100-275	100-250	.003-.008
		ACK300				100-300	100-275	100-265	.003-.007
Exotic alloys Inconel, Hastalloy Waspalloy, etc.		ACM300				100-300	100-250	100-225	.003-.008
		ACK300				100-160	70-150	60-135	.003-.006
		ACM200				100-300	100-250	100-225	.003-.006
		G10E				70-125	60-110	50-100	.003-.007

SPEEDS & FEEDS

Material	Hardness	Insert Grade				Speed SFM			Feed IPT
		Carbide	Cermet	Diamond	Ceramic	.002-.050	.050-.125	.125 and over	
Grey Cast Iron	<.250 Bhn	ACK100				700-1250	625-1125	590-925	.004-.014
		ACK200				700-1050	625-925	590-900	.004-.014
		ACK300				600-950	575-875	550-850	.004-.014
					SN2100K	2250-2750	1750-2250	1250-1750	See Cutter
					SN2000K	3000-4200	2500-3500	2300-3300	See Cutter
		G10E				500-800	475-750	425-725	.004-.010
	>.250 Bhn	ACK100				600-1000	625-925	590-850	.004-.014
		ACK200				600-950	525-825	490-800	.004-.014
		ACK300				500-850	475-775	450-750	.004-.014
					SN2100K	1750-2250	1250-1750	1250-1750	See Cutter
					SN2000K	2000-3000	1800-2800	1500-2500	See Cutter
		G10E				400-700	375-650	325-625	.004-.009
Ductile Iron	~.320 Bhn	ACK200				600-925	550-875	490-800	.004-.012
		ACK100				600-1000	625-925	590-850	.004-.012
		ACK300				550-825	550-825	450-750	.004-.012
					SN2100K		1750-2250	1250-1750	See Cutter
Aluminum, Brass, Copper				DA2200/ DA1000		3500-10000	3200-8000	2800-6000	.003-.006
		DL1000				1500-4500	1475-4200	1275-4100	.004-.014
		H1				1500-3800	1300-3700	1200-3600	.004-.014
		G10E				1250-3500	1150-3100	1050-2900	.004-.015
High Silicone Aluminum				DA2200/ DA1000		1800-6500	1700-5500	1600-5000	
		DL1000				1075-3100	950-2950	850-2500	.0035-.0085
		H1				1000-3000	900-2500	800-2000	.0035-.0085
		G10E				900-2900	800-2400	700-1900	.0035-.009

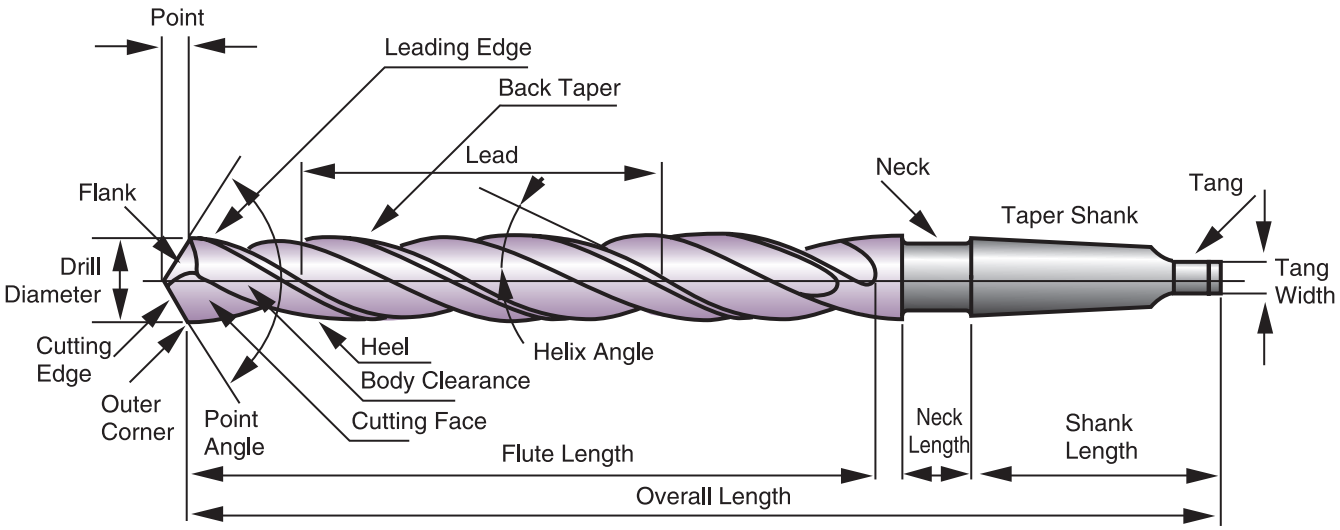
*NOTE: THESE SPEEDS ARE BASED ON 2/3 THE DIAMETER OF THE CUTTER ENGAGED.

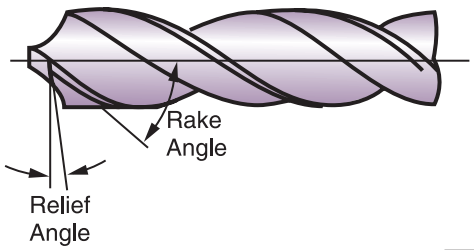
*NOTE: THESE SPEEDS ARE BASED ON 2/3 THE DIAMETER OF THE CUTTER ENGAGED.

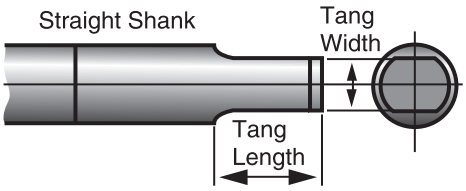
Decimal Conversion-Tap Drill Chart

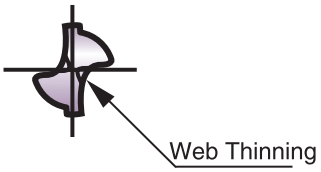
Inch-Wire	Decimal	Tap Size	Prob.% Thread	Inch-Wire	Decimal	Tap Size	Prob.% Thread	Inch-Wire	Decimal	Tap Size	Prob.% Thread	Inch-Wire	Decimal	Tap Size	Prob.% Thread
.1mm	.0039			45	.0820			5	.2055			29/64	.4531	1/2-20	65-72
.2mm	.0079			44	.0860			4	.2090			15/32	.4688	M14x2	76-81
.3mm	.0118			43	.0890	4-40	65-71	3	.2130	1/4-28	72-80	12mm	.4724		
80	.0135			42	.0935	4-48	61-68	7/32	.2188			31/64	.4844	9/16-12	68-72
79	.0145			3/32	.0938			2	.2210			1/2	.5000		
1/64	.0156			41	.0960			1	.2280			13mm	.5118		
.4mm	.0157			40	.0980	M3x.5	70-79	A	.2340			33/64	.5156	9/16-18	58-65
78	.0160			39	.0995			15/64	.2344			17/32	.5312	5/8-11	75-79
77	.0180			38	.1015	5-40	65-72	6mm	.2362			35/64	.5469	M16x2	76-81
.5mm	.0197			37	.1040	5-44	63-71	B	.2380			14mm	.5512		
76	.0200			36	.1065	6-32	71-78	C	.2420			9/16	.5625		
75	.0210			7/64	.1094			D	.2460			37/64	.5871	5/8-18	58-65
74	.0225			35	.1100			1/4	.2500			15mm	.5906		
.6mm	.0236			34	.1110			F	.2570	5/16-18	72-77	19/32	.5938		
73	.0240			33	.1130	M3.5x.6 6-40	72-81 69-77	G	.2610			39/64	.6094		
72	.0250			32	.1160			17/64	.2656	M8x1.25	74-80	5/8	.6250		
71	.0260			3mm	.1181			H	.2660			16mm	.6299		
.7mm	.0276			31	.1200			I	.2720	5/16-24	67-75	41/64	.6406		
70	.0280			1/8	.1250			7mm	.2756			21/32	.6562	3/4-10	68-72
69	.0292			30	.1285	M4x.7	74-82	J	.2770			17mm	.6693		
68	.0310			29	.1360	8-32 8-36	62-69 70-78	K	.2810			43/64	.6719		
1/32	.0312			28	.1405			9/32	.2812			11/16	.6875	3/4-16 M20x2.5	71-77 74-78
.8mm	.0315			9/64	.1406			L	.2900			45/64	.7031		
67	.0320			27	.1440			M	.2950			18mm	.7087		
66	.0330			26	.1470			19/64	.2969			23/32	.7188		
65	.0350			25	.1495	10-24	69-75	N	.3020			47/64	.7344		
.9mm	.0354			24	.1520			5/16	.3125	3/8-16	72-77	19mm	.7480		
64	.0360			23	.1540			8mm	.3150			3/4	.7500		
63	.0370			5/32	.1562			O	.3160			49/64	.7656	7/8-9	72-76
62	.0380			22	.1570			P	.3230			25/32	.7812		
61	.0390			4mm	.1575			21/64	.3281			20mm	.7874		
1mm	.0394			21	.1590	10-32	68-76	Q	.3320	3/8-24 M10x1.5	71-79 76-82	51/64	.7969		
60	.0400			20	.1610			R	.3390			13/16	.8125	7/8-14	62-67
59	.0410			19	.1660	M5x.8	69-77	11/32	.3438			21mm	.8268		
58	.0420			18	.1695			S	.3480			53/64	.8281	M24x3	72-76
57	.0430			11/64	.1719			9mm	.3543			27/32	.8438		
56	.0465			17	.1730			T	.3580			55/64	.8594		
3/64	.0469	0-80	71-81	16	.1770	12-24	66-72	23/64	.3594			22mm	.8661		
55	.0520			15	.1800	12-28	70-78	U	.3680	7/16-24	70-75	7/8	.8750	1-8	73-77
54	.0550			14	.1820			3/8	.3750			57/64	.8906		
53	.0595	1-72	59-67	13	.1850			V	.3770			23mm	.9055		
1/16	.0625	M2x.4	72-79	3/16	.1875			W	.3860			29/32	.9062		
52	.0635			12	.1890			25/64	.3906	7/16-20	65-72	59/64	.9219	1-12	67-72
51	.0670			11	.1910			10mm	.3937			15/16	.9375	1-14	61-67
50	.0700	2-56 2-65	62-69 70-79	10	.1935			X	.3970			24mm	.9449		
49	.0730			9	.1960	M6x1	76-84	Y	.4040	M12x1.75	69-74	61/64	.9531		
48	.0760			5mm	.1968			13/32	.4062			31/32	.9688		
5/64	.0781	3-48	70-77	8	.1990			Z	.4130			25mm	.9842		
47	.0785			7	.2010	1/4-20	70-75	27/64	.4219	1/2-13	73-78	63/64	.9844	1-1/8-7	72-76
2mm	.0787			13/64	.2031			11mm	.4331			1	1.000		
46	.0810	M2.5x.45	69-77	6	.2040			7/16	.4375						

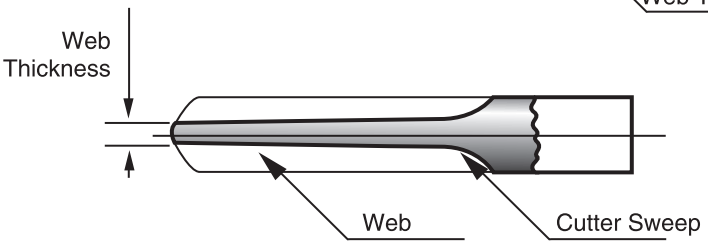
TECHNICAL TERMS OF TWIST DRILLS



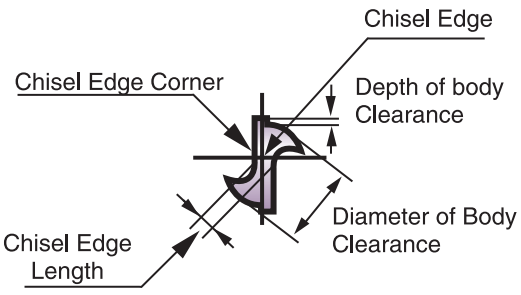


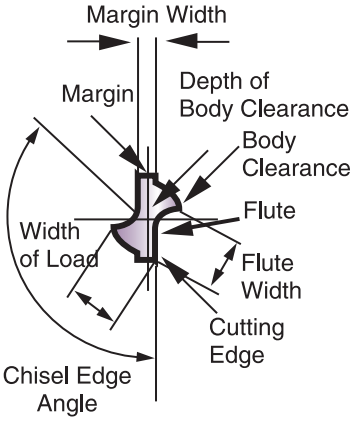






A:B or A/B=Flute Width Ratio





Drill Guidance

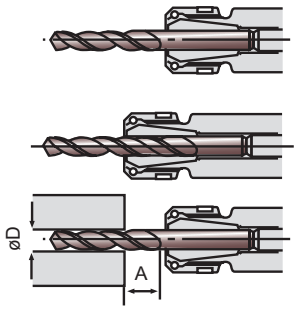
■ CHUCKING

Type of Chuck

- Collet type holders with thrust bearings are recommended.
- For KDS drills, when using an internal coolant supply, use a very rigid chuck with either an inducer or through spindle coolant source.
- Conventional holders such as keyless chucks cannot be used because the gripping strength is limited.
- Collet holders should be cleaned periodically with oil to remove small chips.

Chucking Position

- The entire flute length must protrude from the chuck.
- At maximum hole depth, the length of flute protruding from the hole must be at least 1 to 1.5 times the drill diameter.
- Radial run out at the drill tip must not exceed .001 in.



Correct chucking with spring collet.

Chips cannot be removed if the flute is chucked.

Dimension A should be 1 to 1.5 times drill diameter (D).

■ MACHINE

- Machine tools must have sufficient power and thrust resistance. Refer to the table below when selecting suitable machines.
- Rigid machines such as machining centers or NC turning machines are recommended.
- Machines designed for HSS drills or radial drilling machines are not recommended.

■ CUTTING FLUID

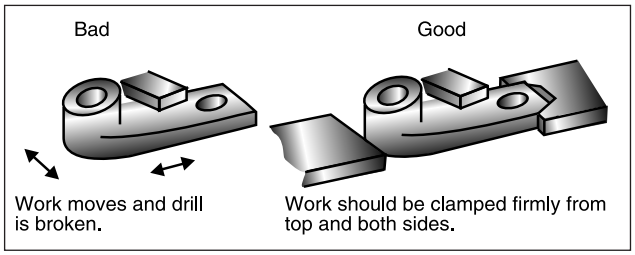
Type of Lubricant

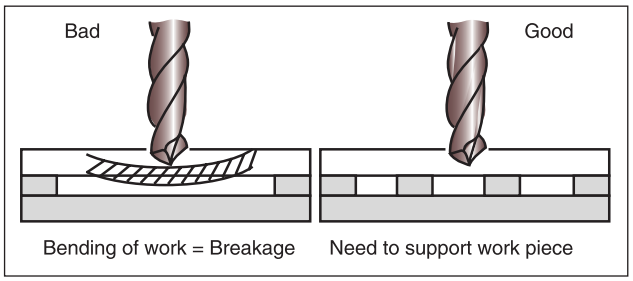
- For heavy duty cutting, emulsion type oil containing an extreme pressure additive is recommended.
- Other fluids may also be used with no difficulty.
- Neat oil can be used effectively with the solid carbide MDS drills for low speed drilling (up to 130 SFM).
- If the work surface becomes hard or blue in color, decrease the RPM and use neat oil.

Application of Lubricant

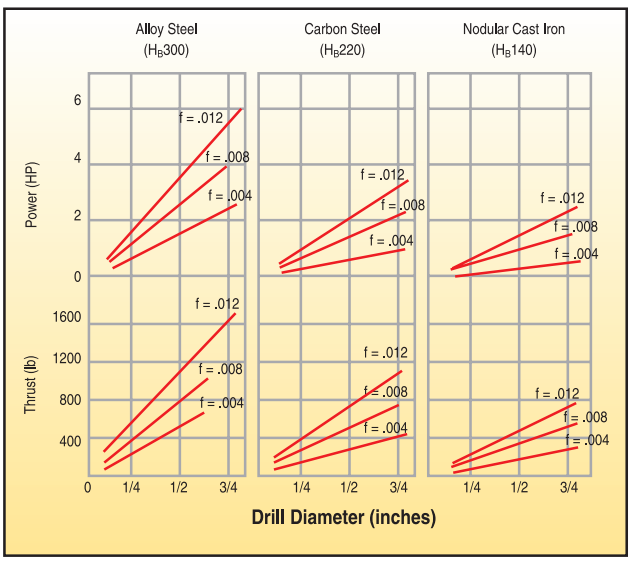
- Cutting fluid must be applied to the entrance of the hole when drilling.
- For internal coolant supply, coolant pressure should be at a minimum of 200 psi.
- A volume of 3.0 gal/min at a pressure of 50-75 psi is recommended for external coolant supply.
- A double stream supply of fluid is recommended.

■ WORK CLAMPING AND SUPPORT

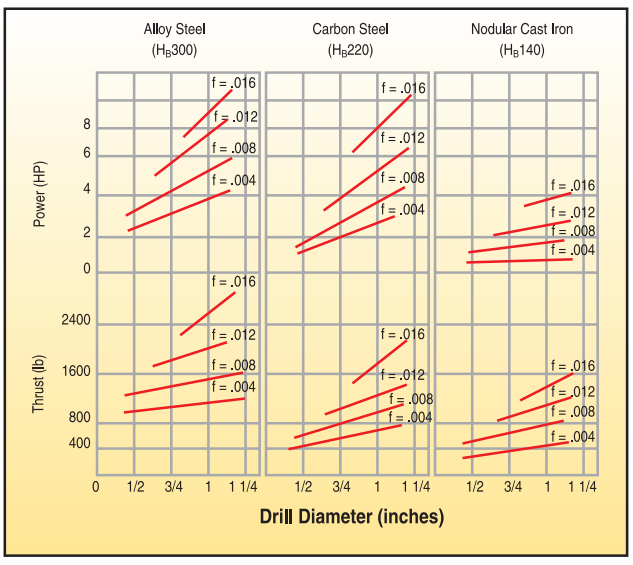




MDS

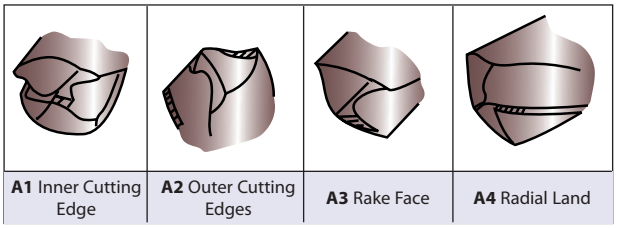


KDS



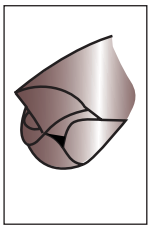
■ TROUBLE

A Drill Wear

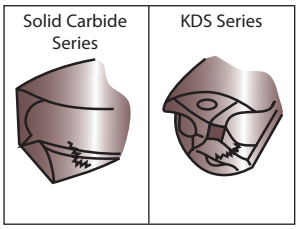


A1 Inner Cutting Edge | **A2** Outer Cutting Edges | **A3** Rake Face | **A4** Radial Land

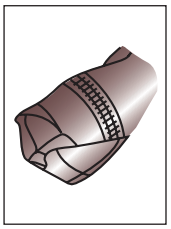
B Drill Chipping



C Cracking



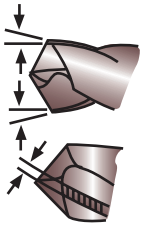
D Body Damage by Chips



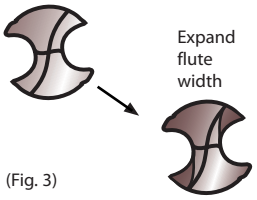
■ COUNTER MEASURE

A1	A2	A3	A4	B	C	D	E	F1	F2	G1	G2	G3	**Counter Measure**
•													Larger clearance angle near drill center.
•			•	•			•	•			•		The protruding length of drill should be shortened as much as possible without constricting chip flow.
	•												Increase clearance angle at the outer cutting edge.
	•	•	•		•								The interval between regrinding of drills should be shortened.
			•	•	•		•	•		•			Larger back taper and narrower width of radial land (Fig. 1).
			•	•		•	•				•		Lip height distance and run out of center cutting edges should be within .0008" ~ .001".
				•									Edge treatment should be larger.
				•									Clearance angle should be reduced.
						•	•		•				Expand the flute width (Fig. 2). Flute length should be maintained (target length is 1.5 L/D).
						•						•	Point angle should be increased (Fig. 3).
						•							The helical angle should be reduced (when it is used in horizontal machine).
						•							The diameter of body should be smaller (using in horizontal machine, A type drill) (Fig. 4).
												•	Edge treatment should be smaller.
•	•	•		•	•	•	•	•			•	•	The feed rate should be decreased.
					•	•		•	•		•		Cutting speed should be decreased.
									•				The feed rate should be increased.

(Fig. 1)

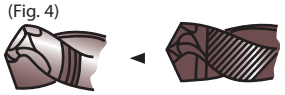


(Fig. 2)



(Fig. 3)

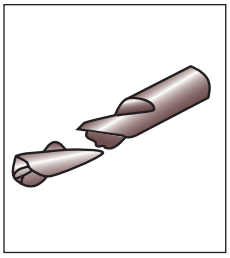
(Fig. 4)



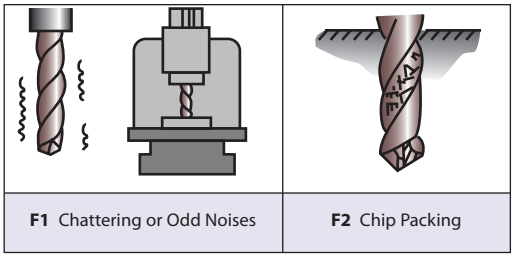
Outside dia. of body should be .020" ~ .040" smaller than the drill dia.

Drill Troubleshooting Guide

E Breakage

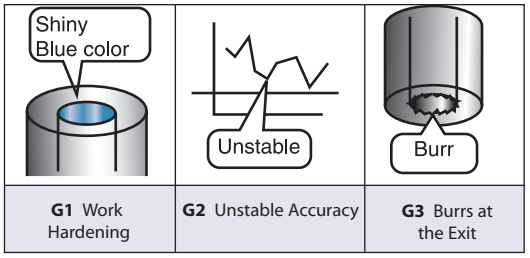


F Trouble During Operation



F1 Chattering or Odd Noises | **F2** Chip Packing

G Trouble With Hole Accuracy

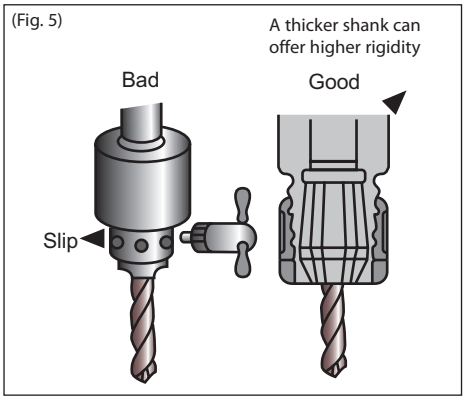


G1 Work Hardening | **G2** Unstable Accuracy | **G3** Burrs at the Exit

- **MACHINE**...A, B, C, E, F1
  Is there any excessive vibration or odd noise during operation?

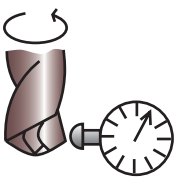
- **CHUCKING OF DRILL**...A, B, C, E, F1
  Is the rigidity of the drill chuck enough? (Fig. 5)
  Is there any dust or scratches inside the drill chuck? (Fig. 6)
  Is the run out of the drill too great when it is held in the drill chuck? (Fig. 7)
  The drill point should be within 0.001" maximum of the center of the work piece (when the work rotates) (Fig. 8)

(Fig. 5)

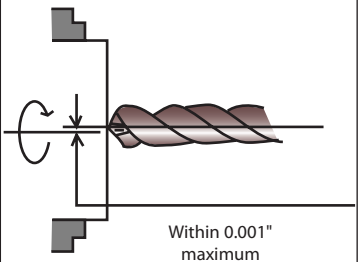


(Fig. 6)

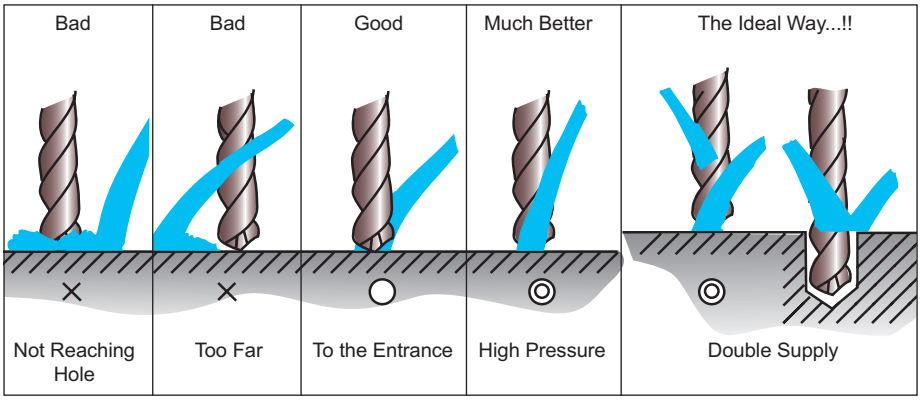
(Fig. 7)

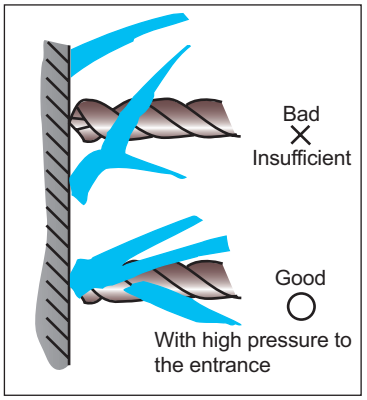


(Fig. 8)



- **CUTTING FLUID**...A, C, E, G1
  Make sure cutting fluid is supplied adequately to the entrance of drill hole.





Numerical

A

B

C

D

E

F

T

U

V

W

X

Z

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CARBIDE - CBN - DIAMOND

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