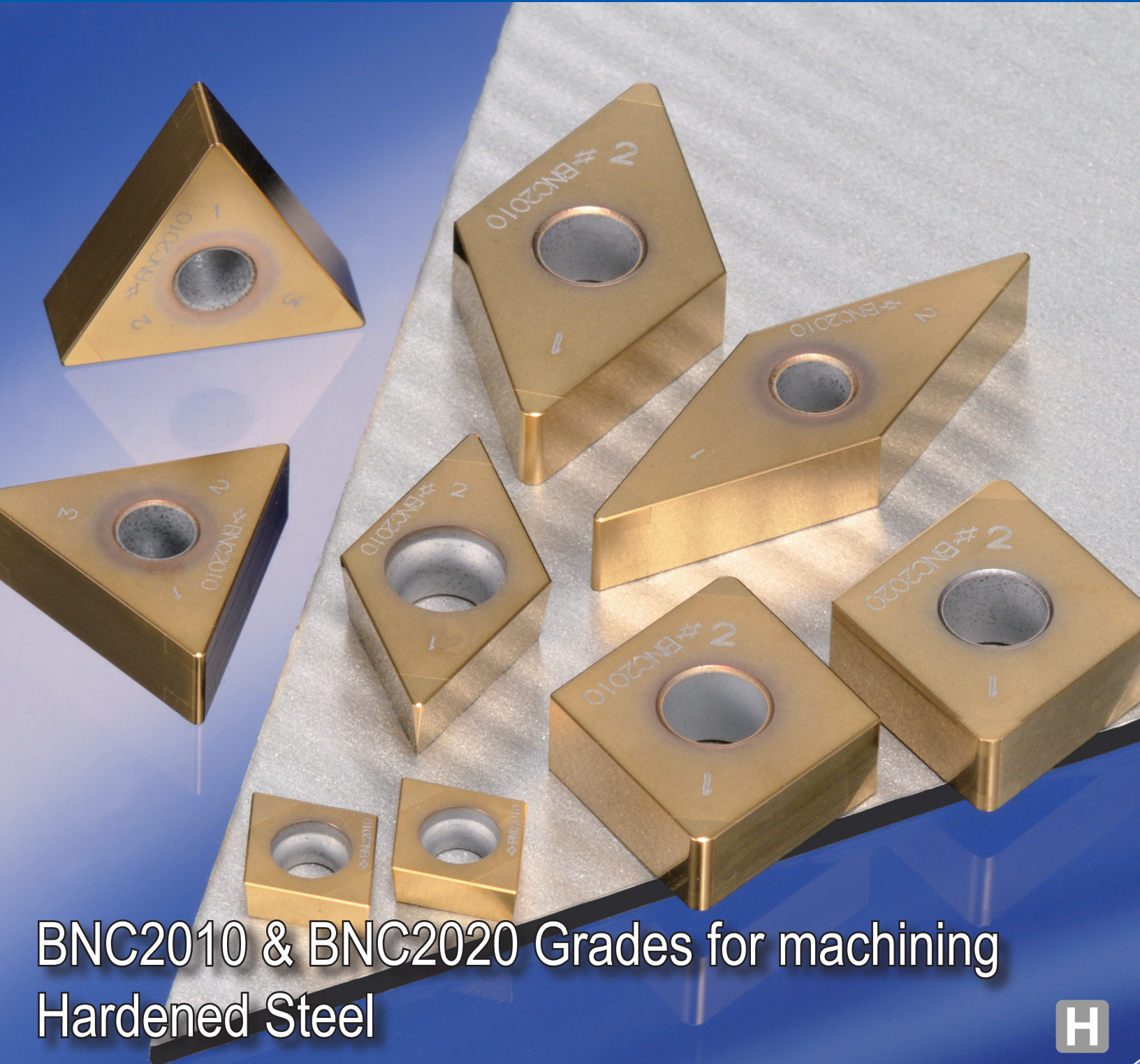


BNC2010 / BNC2020



BNC2010 & BNC2020 Grades for machining
Hardened Steel



BNC2010

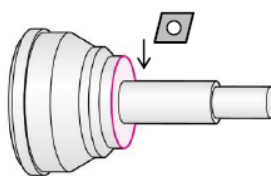


BNC2010 Features & Benefits

- Sumitomo's new BNC2010 CBN grade contains 10% higher CBN content than conventional grade creating significantly higher wear resistance
- BNC2010 has excellent surface finish resulting from high notch wear resistant multi-layers

Application Examples

CVJ outer race Face Turning



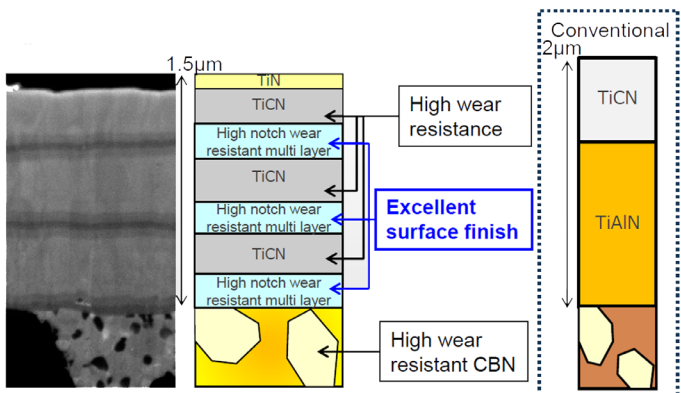
Cutting Conditions:

Part Material: 1053 Steel (HRC58-63)

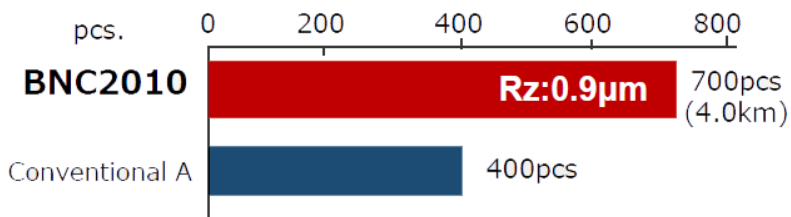
Insert: 4NC-CNGA433WG-BNC2010

Cutting Condition: V_c : 500 sfm f : 0.008 ipr
 a_p : 0.0078", Dry

BNC2010 Structure



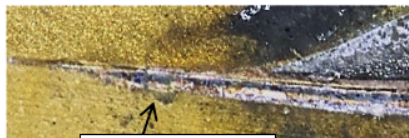
Grade	Binder	CBN content(%)	CBN grain size(μ m)	TRS (GPa)	K1C (MPa · m ^{1/2})
BNC2010	TiCN	50 - 55	2	1.10 - 1.20	5.5 - 6.0
Conventional Grade	TiN	40 - 45	1	1.05 - 1.15	5.0 - 5.5



BNC2010
700pcs

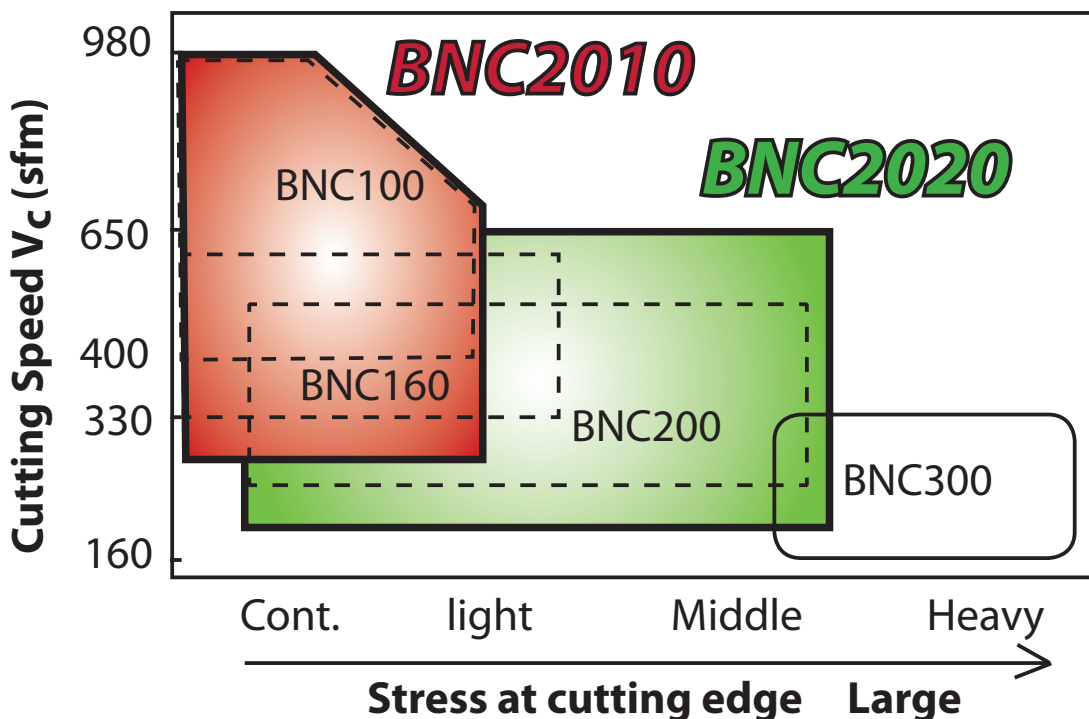


Conventional A
400pcs

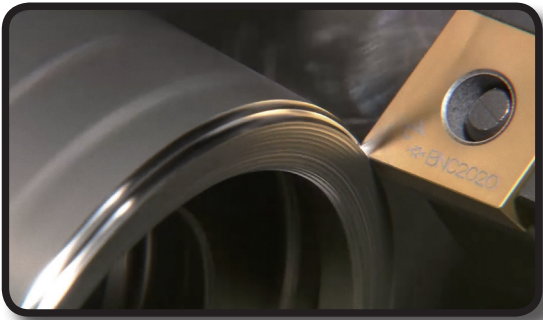


Notch Wear

Cutting Conditions



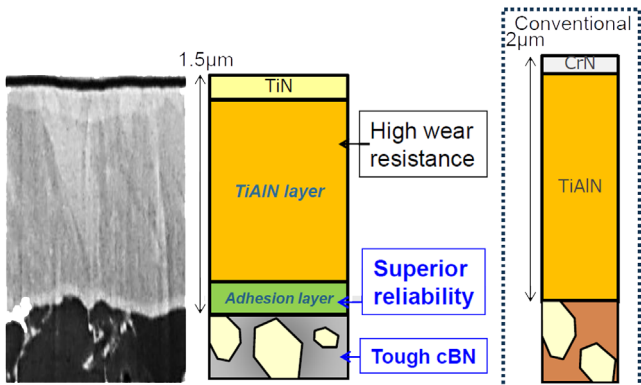
BNC2020



BNC2020 Features & Benefits

- Sumitomo's new BNC2020 contains CBN particles that provide superb chipping resistance, stable performance and long tool life
- The strength of CBN particles provides excellent chipping resistance, ensures stable performance and long tool life in high efficiency and interrupted machining of hardened steel

BNC2020 Structure



Grade	Binder	CBN content(%)	CBN grain size(µm)	TRS (GPa)	K1C (MPa · m ^{1/2})
BNC2020	TiN	70 – 75	5	1.20 – 1.30	7.0 – 7.5
Conventional Grade	TiN	65 – 70	4	1.15 – 1.25	6.5 – 7.0

Application Example #1

Carburized layer removal machining

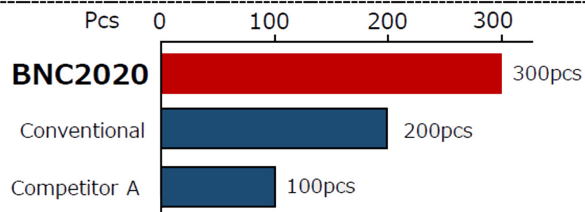
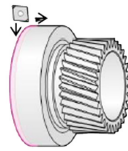
Cutting Conditions:

Part Material: 5120 Steel (HRC60)

Insert: 4NC-CNGA432-BNC2020

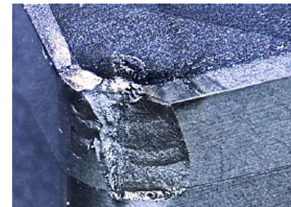
Cutting Condition: V_c : 500 sfm f : 0.006 ipr

a_p : 0.020", Wet



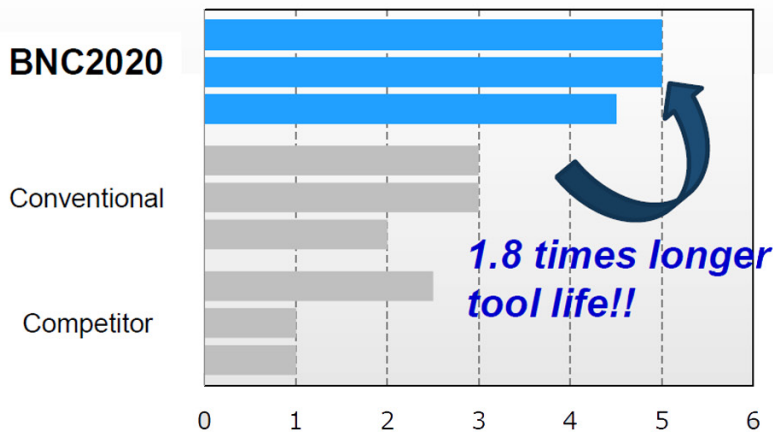
BNC2020 : 300 pcs

Conventional : 200 pcs



BNC2020 achieves 1.5 times longer life than conventional CBN

Application Example #2



Application Example Cutting Conditions:

Part Material: 4115 Steel HRC58-62

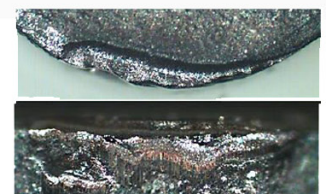
Insert: 4NC-CNGA433-BNC2020

Cutting Condition: V_c : 430 sfm f : 0.004 ipr

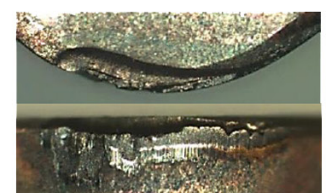
a_p : 0.024", Dry



BNC2020 (5.0km)



Conventional (3.0km)



Competitor (1.0km)

BNC2010 & BNC2020 Inventory - Negative Inserts

CNGA 80° Diamond/Negative

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCCNGA432	●	●	.500	.1875	.0313	.015	.2031
2NCCNGA432HS	●	●	.500	.1875	.0313	.015	.2031
2NCCNGA433	●	●	.500	.1875	.0469	.015	.2031
2NCCNGA433HS	●	●	.500	.1875	.0469	.015	.2031
4NCCNGA431	●	●	.500	.1875	.0156	.015	.2031
4NCCNGA431HS	●	●	.500	.1875	.0156	.015	.2031
4NCCNGA431W	●	●	.500	.1875	.0156	.015	.2031
4NCCNGA431WG	●	●	.500	.1875	.0156	.015	.2031
4NCCNGA431WH	●	●	.500	.1875	.0156	.015	.2031
4NCCNGA432	●	●	.500	.1875	.0313	.015	.2031
4NCCNGA432HS	●	●	.500	.1875	.0313	.015	.2031
4NCCNGA432W	●	●	.500	.1875	.0313	.015	.2031
4NCCNGA432WG	●	●	.500	.1875	.0313	.015	.2031
4NCCNGA432WH	●	●	.500	.1875	.0313	.015	.2031
4NCCNGA433	●	●	.500	.1875	.0469	.015	.2031
4NCCNGA433HS	●	●	.500	.1875	.0469	.015	.2031
4NCCNGA433W	●	●	.500	.1875	.0469	.015	.2031
4NCCNGA433WG	●	●	.500	.1875	.0469	.015	.2031

CNGG 80° Diamond/Negative/w/ Chipbreaker

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
4NCCNGG431FV	●	●	.500	.1875	.0156	.015	.2031
4NCCNGG431LV	●	●	.500	.1875	.0156	.015	.2031
4NCCNGG432FV	●	●	.500	.1875	.0313	.015	.2031
4NCCNGG432LV	●	●	.500	.1875	.0313	.015	.2031
4NCCNGG432SV	●	●	.500	.1875	.0313	.015	.2031
4NCCNGG433SV	●	●	.500	.1875	.0469	.015	.2031

DNGA 55° Diamond/Negative

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCDNGA432	●	●	.500	.1875	.0313	.015	.2031
2NCDNGA432HS	●	●	.500	.1875	.0313	.015	.2031
2NCDNGA433	●	●	.500	.1875	.0469	.015	.2031
2NCDNGA433HS	●	●	.500	.1875	.0469	.015	.2031
4NCDNGA431	●	●	.500	.1875	.0156	.015	.2031
4NCDNGA431HS	●	●	.500	.1875	.0156	.015	.2031
4NCDNGA431WG	●	●	.500	.1875	.0156	.015	.2031
4NCDNGA431WH	●	●	.500	.1875	.0156	.015	.2031
4NCDNGA432	●	●	.500	.1875	.0156	.015	.2031
4NCDNGA432HS	●	●	.500	.1875	.0313	.015	.2031
4NCDNGA432WG	●	●	.500	.1875	.0313	.015	.2031
4NCDNGA432WH	●	●	.500	.1875	.0313	.015	.2031
4NCDNGA433	●	●	.500	.1875	.0469	.015	.2031
4NCDNGA433HS	●	●	.500	.1875	.0469	.015	.2031

●= USA Stocked item

DNGG 55° Diamond/Negative/w/ Chipbreaker

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
4NCDNGG431FV	●	●	.500	.1875	.0156	.015	.2031
4NCDNGG431LV	●	●	.500	.1875	.0156	.015	.2031
4NCDNGG432FV	●	●	.500	.1875	.0313	.015	.2031
4NCDNGG432LV	●	●	.500	.1875	.0313	.015	.2031
4NCDNGG432SV	●	●	.500	.1875	.0313	.015	.2031
4NCDNGG433SV	●	●	.500	.1875	.0313	.015	.2031

SNGA Square Type/Negative

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCSNGA432		●	.500	.1875	.0313	.015	.2031
2NCSNGA433		●	.500	.1875	.0469	.015	.2031

TNGA 60° Triangle/Negative

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
3NCTNGA332	●	●	.375	.1875	.0313	.015	.150
3NCTNGA332HS	●	●	.375	.1875	.0313	.015	.150
6NCTNGA331	●	●	.375	.1875	.0156	.015	.150
6NCTNGA331HS	●	●	.375	.1875	.0156	.015	.150
6NCTNGA332	●	●	.375	.1875	.0313	.015	.150
6NCTNGA332HS	●	●	.375	.1875	.0313	.015	.150
6NCTNGA333	●	●	.375	.1875	.0469	.015	.150
6NCTNGA333HS	●	●	.375	.1875	.0469	.015	.150

TNGG Triangle/Negative/w/ Chipbreaker

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
6NCTNGG332SV		●	.375	.1875	.0313	.015	.150

VNGA 35° Diamond/Negative

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCVNGA331	●		.375	.1875	.0156	.015	.150
2NCVNGA332	●	●	.375	.1875	.0313	.015	.150
2NCVNGA332HS	●	●	.375	.1875	.0313	.015	.150
4NCVNGA331	●	●	.375	.1875	.0156	.015	.150
4NCVNGA331HS	●	●	.375	.1875	.0156	.015	.150
4NCVNGA332	●	●	.375	.1875	.0313	.015	.150
4NCVNGA332HS	●	●	.375	.1875	.0313	.015	.150
4NCVNGA333	●	●	.375	.1875	.0469	.015	.150

WNGA 80° Trigon/Negative

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
6NCWNGA432	●	●	.500	.1875	.0313	.015	.2031
6NCWNGA432HS	●	●	.500	.1875	.0313	.015	.2031
6NCWNGA432WG	●	●	.500	.1875	.0313	.015	.2031
6NCWNGA432WH	●	●	.500	.1875	.0313	.015	.2031
6NCWNGA433WG	●	●	.500	.1875	.0469	.015	.2031
6NCWNGA433WH	●	●	.500	.1875	.0469	.015	.2031

BNC2010 & BNC2020 Inventory - Positive Inserts

CCGA 80° Diamond/7° Relief

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCCCGA21.50.5	●	●	.250	.094	.0078	.015	.110
2NCCCGA21.50.5WG	●	●	.250	.094	.0078	.015	.110
2NCCCGA21.51	●	●	.250	.094	.0156	.015	.110
2NCCCGA21.52	●	●	.250	.094	.0156	.015	.110
2NCCCGA21.51WG	●	●	.250	.094	.0156	.015	.110
2NCCCGA21.52WG	●	●	.250	.094	.0156	.015	.110
2NCCCGA32.50.5	●	●	.375	.156	.0078	.015	.1732
2NCCCGA32.50.5WG	●	●	.375	.156	.0078	.015	.1732
2NCCCGA32.51	●	●	.375	.156	.0156	.015	.1732
2NCCCGA32.51W	●	●	.375	.156	.0156	.015	.1732
2NCCCGA32.51WG	●	●	.375	.156	.0156	.015	.1732
2NCCCGA32.52	●	●	.375	.156	.0313	.015	.1732
2NCCCGA32.52WG	●	●	.375	.156	.0313	.015	.1732
NCCCGA21.51	●	●	.250	.094	.0156	.015	.110

DCGT 55° Diamond/7° Relief/w/ Chipbreaker

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCDCGT21.50.5FV	●	●	.250	.094	.0078	.015	.110
2NCDCGT21.51FV	●	●	.250	.094	.0156	.015	.110
2NCDCGT21.52FV	●	●	.250	.094	.0313	.015	.110
2NCDCGT32.50.5LV	●	●	.375	.156	.0078	.015	.1732
2NCDCGT32.51LV	●	●	.375	.156	.0156	.015	.1732
2NCDCGT32.52LV	●	●	.375	.156	.0313	.015	.1732

TCGA Triangle/7° Relief

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
NCTCGA21.51	●	●	.250	.094	.0156	.015	.110
NCTCGA21.52	●	●	.250	.094	.0313	.015	.110

CCGT 80° Diamond/7° Relief/w/ Chipbreaker

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCCCGT21.50.5FV	●	●	.250	.094	.0078	.015	.110
2NCCCGT21.51FV	●	●	.250	.094	.0156	.015	.110
2NCCCGT21.52FV	●	●	.250	.094	.0313	.015	.110
2NCCCGT32.50.5LV	●	●	.375	.156	.0078	.015	.1732
2NCCCGT32.51LV	●	●	.375	.156	.0156	.015	.1732
2NCCCGT32.52LV	●	●	.375	.156	.0313	.015	.1732

TPGA Triangle/11° Relief

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
3NCTPGA221	●	●	.250	.125	.0156	.015	.110
3NCTPGA222	●	●	.250	.125	.0313	.015	.110
3NCTPGA331	●	●	.375	.1875	.0156	.015	.1693
3NCTPGA332	●	●	.375	.1875	.0313	.015	.1693
NCTPGA221	●	●	.250	.125	.0156	.015	.130
NCTPGA222	●	●	.250	.125	.0313	.015	.130

DCGA 55° Diamond/7° Relief

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCDCGA21.50.5	●	●	.250	.094	.0078	.015	.110
2NCDCGA21.50.5WG	●	●	.250	.094	.0078	.015	.110
2NCDCGA21.51	●	●	.250	.094	.0156	.015	.110
2NCDCGA21.51WG	●	●	.250	.094	.0156	.015	.110
2NCDCGA21.52WG	●	●	.250	.094	.0313	.015	.110
2NCDCGA32.50.5	●	●	.375	.156	.0078	.015	.1732
2NCDCGA32.50.5WG	●	●	.375	.156	.0078	.015	.1732
2NCDCGA32.51	●	●	.375	.156	.0156	.015	.1732
2NCDCGA32.51WG	●	●	.375	.156	.0156	.015	.1732
2NCDCGA32.52	●	●	.375	.156	.0313	.015	.1732
2NCDCGA32.52WG	●	●	.375	.156	.0313	.015	.1732

VBGA 35° Diamond/5° Relief

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCVBGA221	●	●	.250	.125	.0156	.015	.134
2NCVBGA222	●	●	.250	.125	.0313	.015	.134
2NCVBGA331	●	●	.375	.1875	.0156	.015	.1732
2NCVBGA332	●	●	.375	.1875	.0313	.015	.1732

VCGA 35° Diamond/7° Relief

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
2NCVCGA331	●	●	.375	.1875	.0156	.015	.1732
2NCVCGA331HS	●	●	.375	.1875	.0156	.015	.1732
2NCVCGA331LS	●	●	.375	.1875	.0156	.015	.1732
2NCVCGA332	●	●	.375	.1875	.0313	.015	.1732
2NCVCGA332HS	●	●	.375	.1875	.0313	.015	.1732

● = USA Stocked item

ZNEX Inserts for BNZ Boring Bar

Sumitomo Catalog Number	BNC2010	BNC2020	Inscribed Circle	Thickness	Nose Radius	Max D.O.C.	Insert Hole Diameter
NCZNEX620.5	●	●	.1875	.0625	.0078	.015	.090
NCZNEX621	●	●	.1875	.0625	.0156	.015	.090



Sumitomo Electric Carbide, Inc.

Headquarters

1001 Business Center Drive
Mount Prospect, IL 60056-2181
P.O. Box 545, Mt. Prospect, IL 60056-0545
Phone: (800) 950-5202
Phone: (847) 635-0044
Fax: (847) 635-7866
<http://www.sumicarbide.com>

Detroit Branch

14496 Sheldon Road #230
Plymouth, MI 48170
Phone: (800) 239-5177
Phone: (734) 451-0200
Fax: (734) 451-5338

Sumitomo Electric Tool Engineering Center

5637 S. Westridge Drive
New Berlin, WI 53151
Phone: (800) 950-5202

Huntsville Branch

6700 Odyssey Drive
Suite 211
Huntsville, AL 35806
Phone: (256) 971-1203
Fax: (256) 971-1205

Indiana Branch

595 S. Emerson Avenue
Suite 100
Greenwood, IN 46143
Phone: (800) 950-5202

Sumicarbide Canada, Inc.

150 Research Lane
Unit #210
Guelph, Ontario N1G 4T2
Canada
Phone: (519) 265-6050
Phone: (844) 211-6050

Torrance Branch

21241 South Western Avenue
Suite 120
Torrance, CA 90501
Phone: (800) 950-5202
Fax: (310) 782-0211

