

AEROSPACE **T**OOLING **S**OLUTIONS

READY TO CREATE New Standards

PMKNSH

SUMITOMO ELECTRIC GROUP

Past. Present. Future. Continuing to Support the Wings of the World



JET ENGINE PARTS

Engine Case





Blades

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Solutions for Aircraft Parts

Tools For AIRFRAME PARTS

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Jet Engine Case

Titanium Alloy

Turning



Grooving Tooling GND Inserts



Polygon Shank Style
PSC Polygon Shank Series



Coated Carbide Grades for Exotic Alloy Turning AC5000S Series Carbide Grades for Exotic Alloy Turning AC5000S Series Carbide Grades for Exotic Alloy Turning Heat Resistant Alloy: IT105 (non-stock standard)



Grooving Tooling GND Series



■ Toolholders
Internal Coolant Toolholders



Drilling

Micro Drilling MDSS Series

Diameter Range: ø0.2 - 1.0mm



Stainless Steel Drilling MDM Series

Diameter Range: ø3 - 16mm L/D: 3, 5



SSR Series *Made to Order Item Diameter Range:



Combustor Case

Heat-Resistant Alloy

INCONEL 718 WASPALOY HASTELLOY



Milling

Radius Milling Cutter
RSE Series / RSX Series



Wavemill Milling Cutter WSE Series



Solid Carbide Endmill GSX Endmills



High Feed Roughing Milling Cutter WFXH Series



Shoulder Milling CutterWEZ Series



Radius Endmill for Exotic Alloys
SSEH Series (non-stock standard)



Blisk

Titanium Alloy

Heat-Resistant Alloy

INCONEL 718 WASPALOY HASTELLOY

Turning

AC5000S Series AC5005S AC5015S AC5025S

Coated Carbide Grades for Exotic Alloy Turning

Grooving Tooling **GND** Inserts



Polygon Shank Style **PSC Polygon Shank Series**



CBN Series for Exotic Alloys **Titanium Alloy: NCB100** Heat Resistant Alloy: IT105 (non-stock standard)



Grooving Tooling **GND Series**



Toolholder **Internal Coolant Toolholders**



Drilling

Plunge Milling **PCT Series**

Plunge Drilling **PDL Series**

Diameter Range: ø16 - 40mm L/D: 3, 5

Diameter Range: ø16 - 40mm L/D: 2, 3





Stainless Steel Drilling **MDM Series**

> Diameter Range: ø3 - 16mm



Solid Carbide Endmill Chamfering Endmill *Made to Order Item



Tooling for Jet Engine Applications Impeller

Titanium Alloy

Heat-Resistant Alloy

INCONEL 718 WASPALOY HASTELLOY

Blade

Titanium Alloy

Heat-Resistant Alloy

INCONEL 718 WASPALOY HASTELLOY

Milling

Radius Milling Cutter **RSE Series /RSX Series**



Solid Carbide Endmill **GSX Endmills**



High Feed Roughing Milling Cutter WFXH Series



Shoulder Milling Cutter **WEZ Series**



Radius Endmill for Exotic Alloys SSEH Series (non-stock standard)



Solid Carbide Endmill *Made to Order Item Endmill for Blade





Binderless CBN **Ballnose Endmills / Radius Endmills**





*Made to Order Item

Ni-based heat-resistant alloy for finishing

Fan hub

Titanium Alloy







Radius Endmill for Exotic Alloys

SSEH Series (non-stock standard)

Plunge Milling PCT Series

Milling

Diameter Range: ø16 - 40mm L/D: 3, 5



Plunge Drilling
PDL Series

Diameter Range: ø16 - 40mm L/D: 2, 3



Turning

Coated Carbide Grades for Exotic Alloy Turning

AC5000S Series



■ CBN Series for Exotic Alloys Titanium Alloy: NCB100 Heat Resistant Alloy: IT105 (non-stock standard)



Titanium Alloy

Heat-Resistant Alloy

INCONEL 718 WASPALOY HASTELLOY



Grooving Tooling GND Inserts - L Shape



Polygon Shank Style
PSC Polygon Shank Series



Supports high pressure Coolant up to 15MPa Grooving Tooling
GND Series



Toolholders
Internal Coolant Toolholders



Drilling

Stainless Steel Drilling MDM Series



■ Heat Resistant Alloy Drilling SGS Series *Made to Order Item



Solid Carbide Endmill
Chamfering Endmill *Made to Order Item



Engine Shaft

Titanium Alloy

Heat-Resistant Alloy

INCONEL 718 WASPALOY HASTELLOY

Ultra-Hard Alloy Steel

Maraging Steel (Grade 300)



Drilling

Stainless Steel Drilling
MDM Series

Diameter Range: ø3 - 16mm L/D: 3, 5

Replaceable Tip Drilling SMD Series



Milling

Radius Endmill for Exotic Alloys
SSEH Series (non-stock standard)



Solid Carbide Endmill GSX Endmills





Turning

Coated Carbide Grades for Exotic Alloy Turning

AC5000S Series



Boring Bar
Smart Damper



Chipbreakers for Exotic Alloys EEF / EEG / EEM / Round Inserts



■ Toolholder Internal Coolant Toolholders



Threading SSTE / SSTI

For aerospace equipment UNJ standard

CBN Series for Exotic Alloys Titanium Alloy: NCB100 Heat Resistant Alloy: IT105 (non-stock standard)



Titanium Alloy

Titanium Alloy

Milling

Radius Milling Cutter RSE Series / RSX Series



Wavemill Milling Cutter
WSE Series



Solid Carbide Endmill GSX Endmills



High Feed Roughing Milling Cutter WFXH Series



Shoulder Milling Cutter WEZ / WEZR Series



Radius Endmill for Exotic Alloys
SSEH Series (non-stock standard)



Drilling

Indexable Reamer
SR Reamer Series



Indexable Drilling WDX Series

Diameter Range: ø13.0 - 68.0mm



Plunge Milling
PCT Series

Diameter Range: ø16 - 40mm L/D: 3, 5





Replaceable Tip Drilling SMD Series

Diameter Range: ø12.0 - 30.8mm L/D: 1.5, 3, 5, 8, 12



Plunge Drilling PDL Series Diameter Range: ø16 - 40mm



Tooling for Airframe Parts Aluminum Alloy

Aluminum Alloy

Milling

Shoulder Milling Cutter
WEZ Series



PCD Cutter for High-Speed and High-Efficiency Machining ALNEX Series



 Shoulder Milling Cutter for Non-Ferrous
 WAX Series



DLC - Aurora Coated Endmill ASM Series (non-stock standard)



Drilling

Indexable Drilling
WDX Series
Diameter Range:
Ø13.0 - 68.0mm



DLC Coated Drilling
 NHGS Series
 Diameter Range:
 a3.0 - 16.0mm
 L/D: 3, 5, 10

Indexable Drilling - WDX Inserts Grade for Aluminum: DL1500







Frame



Milling

Sumidia Coat Endmill

SSDC Series

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*Made to Order Item

Optimized rake angle and clearance angle
Achieves both sharpness and longevity due to a weak helix angle





SSDCRL Series

*Made to Order Item

• Left and right blades prevent delamination of the upper and lower surfaces and prevents delamination of the upper and lower surfaces.

• The upper surface is cut with a left-handed twisted blade and the lower surface is cut with a right-handed twisted blade while pressing the fibers, resulting in good surface quality.





Recommended for thin plates

PCD Cutter for High-Speed and High-Efficiency Machining

ALNEX Series



Landing Gear

Titanium Alloy

Ultra-Hard Alloy Steel Maraging Steel (Grade 300)

Milling

Shoulder Milling CutterWEZ / WEZR Series



Radius Milling Cutter
RSE Series /RSX Series



Radius Endmill for Exotic Alloys
SSEH Series (non-stock standard)



Solid Carbide Endmill GSX Endmills



Turning

Coated Carbide Grades for Exotic Alloy Turning AC5000S Series



■ Boring Bar Smart Damper Diameter Range: ø32, 40mm



Insert for Exotic Alloys Round Inserts



Drilling

Replaceable Tip Drilling SMD Series

Diameter Range: ø12.0 - 30.8mm L/D: 1.5, 3, 5, 8, 12





Actuator

Stainless Steel with Precipitation Hardened Structure

15-5PH / 17-4PH

Indexable Reamer SR Reamer Series



WDX Series - Indexable Insert
M Chipbreaker for Stainless Steel



Turning

Coated Carbide Grades for Exotic Alloy Turning

AC5000S Series



■ Coated CarbideGrades for Stainless Steel Turning AC6000M Series



Milling

Shoulder Milling CutterWGX Series



Shoulder Milling Cutter
WEZ Series



Fastener

Titanium Alloy

Heat-Resistant Alloy

INCONEL718 WASPALOY HASTELLOY

Ultra-Hard Alloy Steel

Maraging Steel (Grade 300)

Milling Turning CBN for Exotic Alloys Coated Carbide Grades for **Titanium Alloy: NCB100** Shoulder Milling Cutter **Exotic Alloy Turning** Threading Heat Resistant Alloy: IT105 **AC5000S Series** WEZ Series - Modular SSTE / SSTI AC5005S For aerospace AC5015S equipment AC5025S UNJ standard Grooving Series - GND Inserts Polygon Shank Style Toolholders **CF** Chipbreaker for Part-off **PSC Polygon Shank Series Internal Coolant Toolholders** Supports high pressure Coolant up to Supports high pressure 15MPa Coolant up to 15MPa Drilling Micro Long Drilling Flat Bottom Drilling Stainless Steel Drilling **MLDH Series MDF** Series **MDM Series Diameter Range:** Diameter Range: Diameter Range: ø0.80 - 2.00mm ø3 - 16mm ø0.3 - 20.0mm L/D: 2, 5, 12, 20, 30 L/D: 3, 5 (2D is pilot drill)



Gear

Special Steel

Turning

Coated Carbide Grades for Steel Turning



020P 025P 035P

Coated CBN Grades
BNC2115 / BNC2125





■ CBN Grade BN350

Grooving Tooling



Bearing Special Steel







Drilling Solid Carbide Drilling MDW - GS/HGS Series

Diameter Range: ø1.0 - 20.0mm L/D: 2, 3, 4, 5, 8



Radius Endmill for Exotic Alloys SSEH Series (non-stock standard)



Coated Carbide Grades



CBN

Turning

Turning

NCB100 For high-Speed Machining of Titanium Alloys

Nano-Polycrystalline CBN



Sintered Composition (SEM Image)



Metal Bind

NCB100

Conventional CBN

NCB100 can also be used for milling of heat-resistant alloys.

IT105 For High-Speed Machining and Finishing of Heat-Resistant Alloys *Non-Stock Standard Items

INCONEL718 / WASPALOY / HASTELLOY 0

Application Range (Turning)



Grade Map

(W/m·K)

	IT105	BN350
CBN Grain Size		1
CBN Content (vol%)	75 to 80	60 to 65
Binder	Co Compound	TiN
Hardness HV (GPa)	35 to 38	33 to 35
TRS (GPa)	2.3 to 2.4	1.5 to 1.6

Application Range (Machining Titanium Alloy)

Cutting Speed vc (SFM)	,000 660 330		NCB100		
	ہ Phy	usical V	19 .0039 .00 Feed Rate f (IP	59 .0079 R)	
			SUMIBORON BINDERLESS	Conventional CBN	
CBN Content (vol%)		Content ol%)	100	90 to 95	
Binder		nder	_	WC-Co	
Hardness HV (GPa)			51 to 54	41 to 44	
Thermal Conductivity			190 to 200	100 to 100	

180 to 200

100 to 120

TOOL ENGINEERING SERVICE

The Sumitomo Electric Group provides superb products and services with a firm grasp of our customers' needs. At the Tool Engineering Centers, we provide various services as powerful support for manufacturing suited to our customers' needs.



CUTTING TOOLS WORLDWIDE LOCATIONS

We are strengthening its global position for high-quality products and services, while contributing technology to market needs around the world.



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- P3 Hokkaido Sumiden Precision Co., Ltd.
- P5 Tohoku Sumiden Precision Co., Ltd.
- P6 Tokai Sumiden Precision Co., Ltd.
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- P10 Sumitomo Electric Hardmetal Manufacturing (Thailand), Ltd.
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T12

Tohoku

T10 America

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