SUMITOMO

CARBIDE - CBN - DIAMOND

Global Support, Global Solutions.

Igetalloy/SUMIBORON/SUMIDIA

Tooling Solutions for AEROSPACE

P M K N S H

SUMITOMO ELECTRIC GROUP

Past, present and future.
Aerospace component machining solutions continue to keep the world flying.

Tools For
JET ENGINE

Tools For AIRFRAME, PARTS

Jet engine case

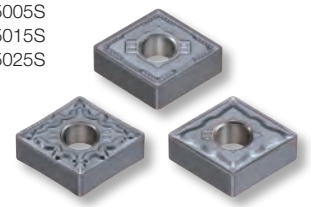
Titanium Alloy

Turning

■ Coated Carbide Grades for Exotic Alloys

AC5000S Series

AC5005S
AC5015S
AC5025S



■ CBN Series for Exotic Alloys

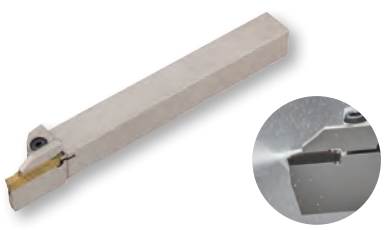
Titanium Alloy Machining NCB100
Heat-Resistant Alloy Machining IT105

■ SEC-Grooving Tools

GND Series Insert

■ SEC-Grooving Tools

GND Series



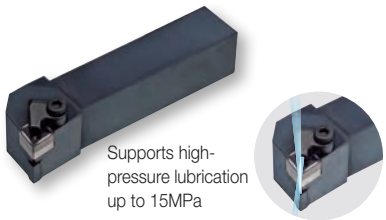
■ Polygonal Taper Shanks

SumiPolygon Internal Coolant Supply

Supports high-pressure lubrication up to 15MPa

■ SEC-External Holders

Internal Coolant Holders



Supports high-pressure lubrication up to 15MPa

Drilling

■ MINI-MULTIDRILL

MDSS Series

Diameter: ø0.2 to 1.0mm

■ MULTIDRILL

MDM Series

Diameter: ø3.0 to 16.0mm
L/D: 3, 5

■ SumiReamer

SSR Series

Diameter: ø2.97 to 12.0mm

Combustor case

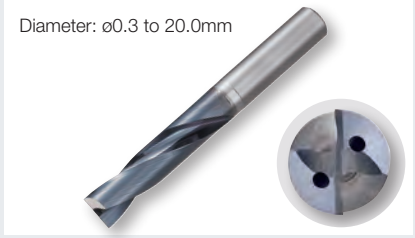
Heat-Resistant Alloy INCONEL718 / WASPALOY / HASTELLOY

Milling

■ SumiDrill
WDX Series
Diameter: ø13.0 to 68.0mm

■ SEC-MULTIDRILL SMD Series
Indexable Head MSL Type
Diameter: ø12.0 to 30.8mm
L/D: 1.5, 3, 5, 8, 12

■ Flat MULTIDRILL
MDF Series
Diameter: ø0.3 to 20.0mm



■ SEC-Wave Radius Mill
RSE Series / RSX Series

■ SEC-WaveMill
WFXH Series

■ SEC-WaveMill
WSE Series

■ SEC-WaveMill
WEZ Series

■ GSX MILL Series
GSX MILL

■ Radius Endmills for Exotic Alloys
SSEH Series

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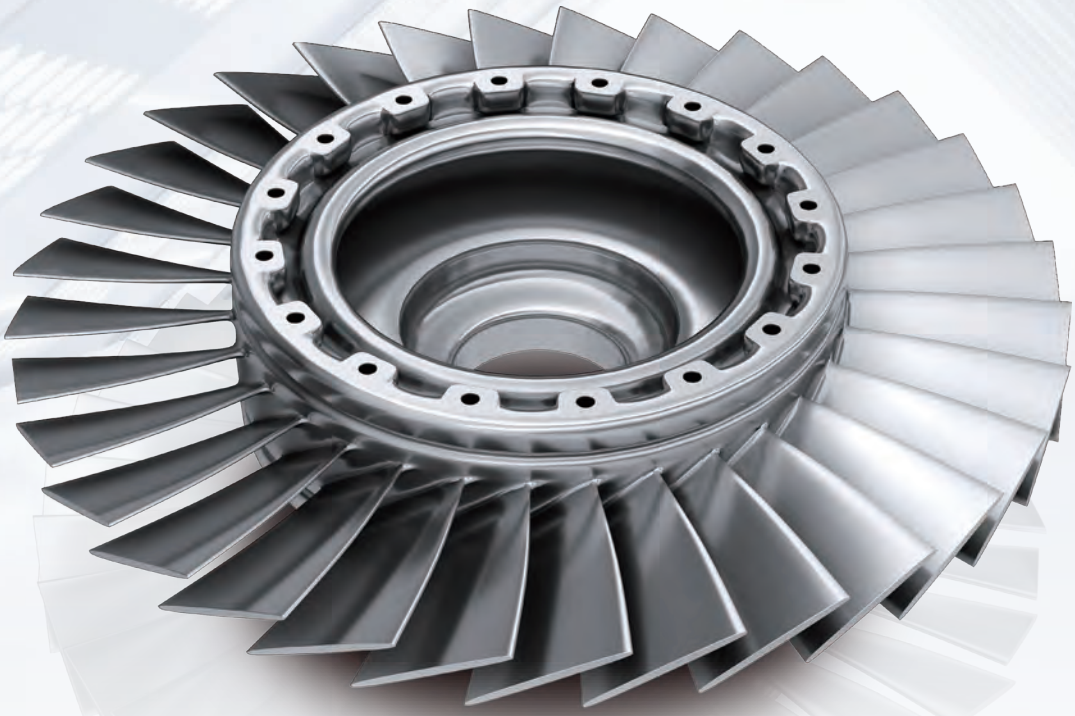
Blisk

Titanium Alloy

Heat-Resistant Alloy INCONEL718 / WASPALOY / HASTELLOY

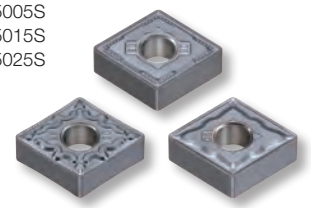


Turning

■ Coated Carbide Grades for Exotic Alloys

AC5000S Series

AC5005S
AC5015S
AC5025S



■ CBN Series for Exotic Alloys

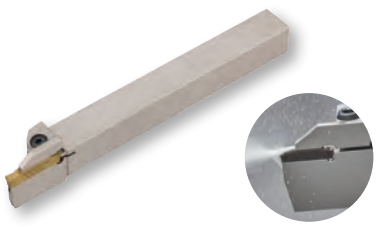
Titanium Alloy Machining NCB100
Heat-Resistant Alloy Machining IT105

■ SEC-Grooving Tools

GND Series Insert

■ SEC-Grooving Tools

GND Series



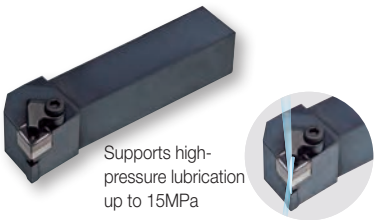
■ Polygonal Taper Shank

SumiPolygon Internal Coolant Supply

Supports high-pressure lubrication up to 15MPa

■ SEC-External Holders

Internal Coolant Holders



Supports high-pressure lubrication up to 15MPa

Drilling

■ SEC-Plunge Mill

PCT Type

Diameter: ø16.0 to 40.0mm
L/D: 3, 5

■ SEC-Plunge Drill

PDL Type

Diameter: ø16.0 to 40.0mm
L/D: 2, 3

■ MULTIDRILL

MDM Series

Diameter: ø3.0 to 16.0mm
L/D: 3, 5

■ Solid Carbide Endmills

Endmills for Chamfering

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Impeller

Titanium Alloy

Heat-Resistant Alloy INCONEL718 / WASPALOY / HASTELLOY

Blade

Titanium Alloy

Heat-Resistant Alloy INCONEL718 / WASPALOY / HASTELLOY

Milling

■ SEC-Wave Radius Mill

RSE Series / RSX Series

■ SEC-WaveMill

WEZ Series

■ Solid Carbide Endmills

Endmills for Blade Machining

■ GSX MILL Series

GSX MILL

■ Radius Endmills for Exotic Alloys

SSEH Series

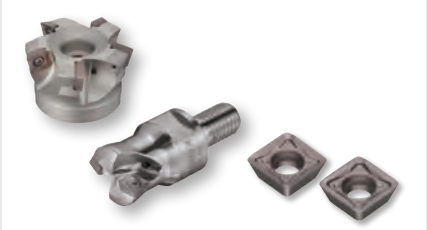
■ SUMIBORON BINDERLESS

Ballnose Endmills / Radius Endmills

For Finishing Ni-based
Heat-resistant Alloys

■ SEC-WaveMill

WFXH Series



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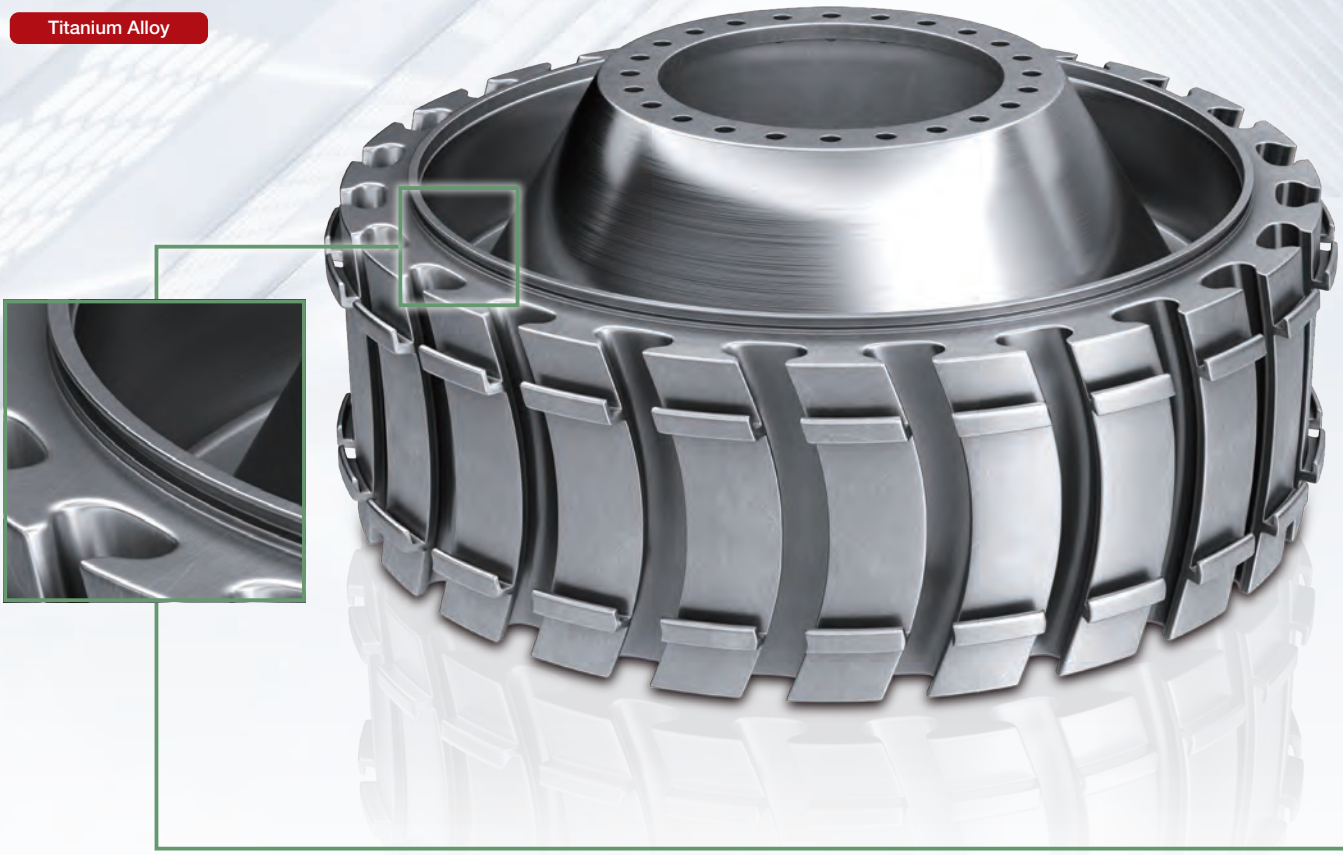
Fan hub

Titanium Alloy



Milling

■ Radius Endmills for Exotic Alloys

SSEH Series

■ GSX MILL Series

GSX MILL

■ SEC-Plunge Mill

PCT Type

Diameter: ø16.0 to 40.0mm
L/D: 3, 5

■ SEC-Plunge Drill

PDL Type

Diameter: ø16.0 to 40.0mm
L/D: 2, 3

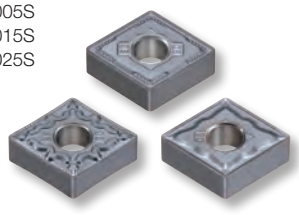
PDL Type Pocketing

Turning

■ Coated Carbide Grades for Exotic Alloys

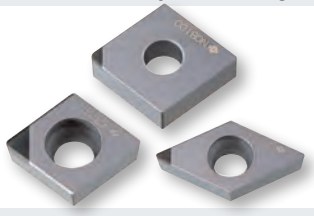
AC5000S Series

AC5005S
AC5015S
AC5025S



■ CBN Series for Exotic Alloys

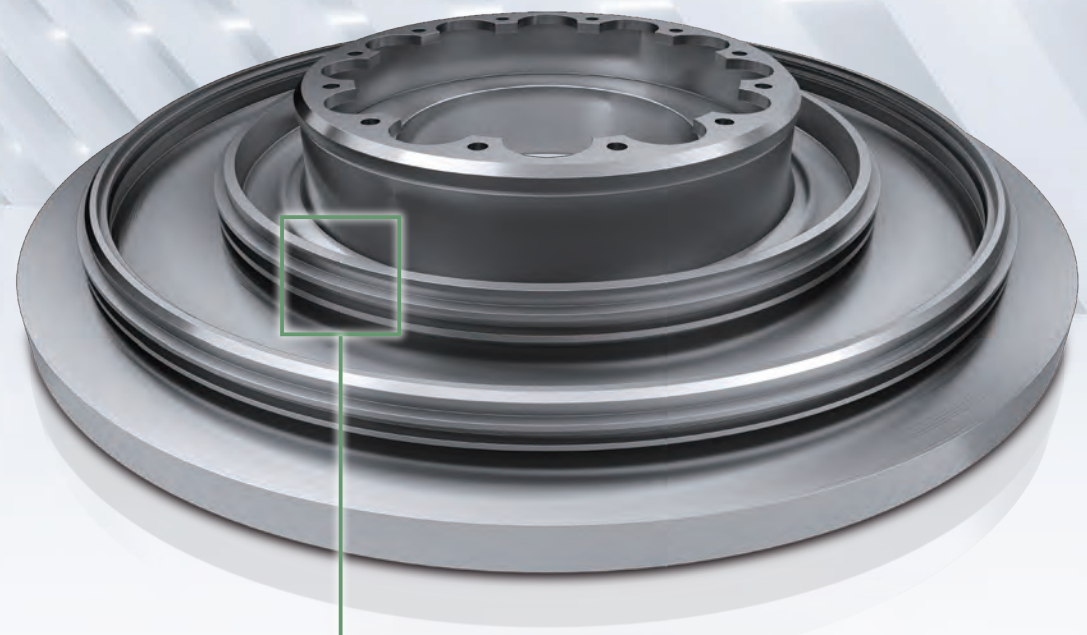
Titanium Alloy Machining NCB100
Heat-Resistant Alloy Machining IT105

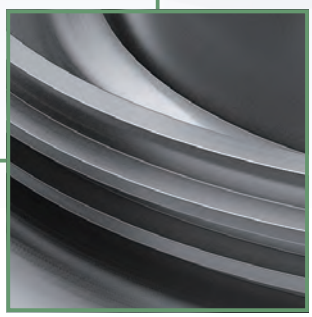


Disc

Titanium Alloy

Heat-Resistant Alloy INCONEL718 / WASPALOY / HASTELLOY





Drilling

■ MULTIDRILL

MDM Series

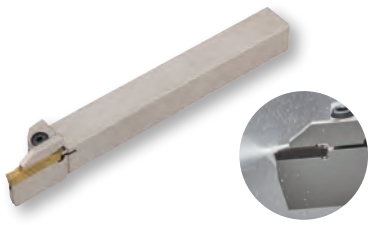
Diameter: ø3.0 to 16.0mm
L/D: 3, 5

■ SEC-Grooving Tools

GND Series Insert

■ SEC-Grooving Tools

GND Series



■ Drills for Heat-Resistant Alloys

SGS Series

Diameter: ø3.0 to 12.0mm
L/D: 3

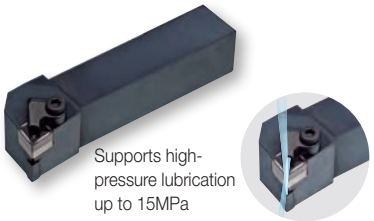
■ Polygonal Taper Shank

SumiPolygon Internal Coolant Supply

Supports high-pressure lubrication up to 15MPa

■ SEC-External Holders

Internal Coolant Holders



Supports high-pressure lubrication up to 15MPa

■ Solid Carbide Endmills

Endmills for Chamfering

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Engine Shaft

Titanium Alloy

Heat-Resistant Alloy INCONEL718 / WASPALOY / HASTELLOY

Ultra-hard Alloy Steel Maraging Steel (Grade 300)

Drilling

■ MULTIDRILL

MDM Series

Diameter: ø3.0 to 16.0mm
L/D: 3, 5

■ SEC-MULTIDRILL SMD Series

Indexable Head MSL Type

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

Milling

■ Radius Endmills for Exotic Alloys

SSEH Series

■ GSX MILL Series

GSX MILL

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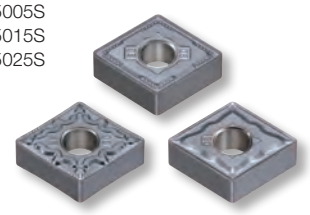
Turning

■ Coated Carbide Grades for Exotic Alloys

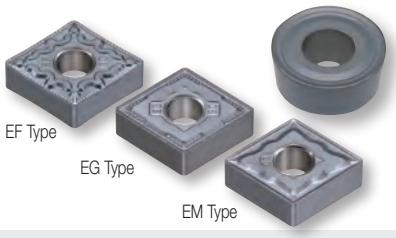
AC5000S Series

AC5005S
AC5015S
AC5025S



■ Inserts for Exotic Alloys

EF Type / EG Type / EM Type / Round Inserts



■ SEC-Threading Tools

SSTE Type / SSTI Type

For Aerospace Equipment
UNJ Standards

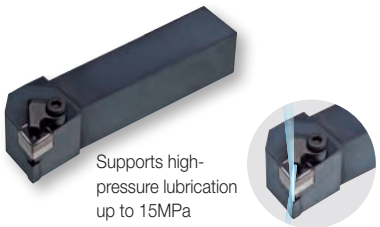
■ Anti-vibration Arbors

Smart Damper

Shank Dia.: ø32, ø40mm
L/D Range: 5.5 to 8

■ SEC-External Holders

Internal Coolant Holders



■ CBN Series for Exotic Alloys

Titanium Alloy Machining NCB100
Heat-Resistant Alloy Machining IT105

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Titanium Alloy

Titanium Alloy

Milling

■ SEC-Wave Radius Mill

RSE Series / RSX Series

■ SEC-WaveMill

WFXH Series

■ SEC-WaveMill

WEZ Series / WEZR Series

■ SEC-WaveMill

WSE Series

■ GSX MILL Series

GSX MILL

■ Radius Endmills for Exotic Alloys

SSEH Series

Drilling

■ Indexable SumiReamer

SR Series

Diameter ø12.0mm up

■ MULTIDRILL

MDM Series

Diameter: ø3.0 to 16.0mm
L/D: 3, 5

■ SumiDrill

WDX Series

Diameter: ø13.0 to 68.0mm

■ SEC-MULTIDRILL SMD Series

Indexable Head MSL Type

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

■ SEC-Plunge Mill

PCT Type

Diameter: ø16.0 to 40.0mm
L/D: 3, 5

■ SEC-Plunge Drill

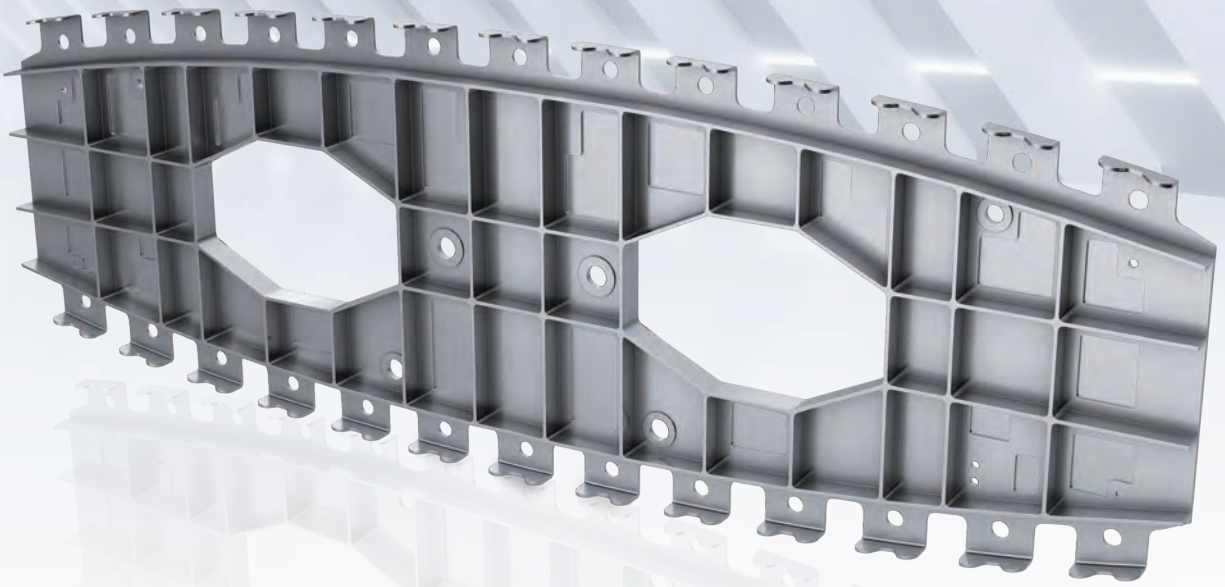
PDL Type

Diameter: ø16.0 to 40.0mm
L/D: 2, 3

PDL Type Pocketing

Aluminum Alloy

Aluminum Alloy

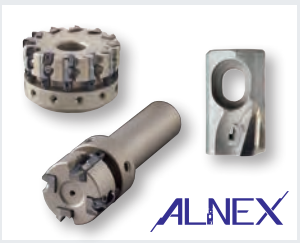


Milling

■ SEC-WaveMill
WEZ Series

■ SEC-WaveMill
WAX Series

■ PCD Cutters for High-speed/High-efficiency Machining
ALNEX ANX Series



■ AURORA Coat Endmills
ASM Series

Drilling

■ SumiDrill
WDX Series

Diameter: ø13.0 to 68.0mm

■ Insert for SumiDrill WDX Series
Grade for Aluminum Alloy Machining DL1500

■ Super MULTIDRILL
NHGS Series

Diameter: ø3.0 to 16.0mm
L/D: 3, 5, 10

Frame

CFRP

CFRP / Titanium Alloy

CFRP / Aluminum Alloy

Drilling

■ SUMIDIA Coat Drills

SDC-SE Type

General-purpose
1st Recommendation

SDC Type

Focus on Hole Quality

SDC-WE Type

For CFRP/Al
Focus on Al Machining Quality

Features

- Smooth Diamond Coating with Sharp Cutting Edges
- High Coating Adhesion due to Dedicated Substrate and Special Treatment
- CFRP Dedicated Cutting Edge Design

Hole diameter accuracy, delamination, uncut fibers, chip evacuation, and other issues addressed.
Also applicable to CFRP + multi-layered aluminum alloy.

Bore Dimensions	SUMIDIA Coat Diameter: ø2.0 to 20.0mm Overall Length: up to 200mm; Hole Depth (L/D): up to 8D

Recommended Cutting Conditions: v_c: 80 to 150m/min f: 0.05 to 0.1mm/rev

■ SEC-MULTIDRILL for CFRP

SMD Series

Diameter ø12.0mm up
L/D: 3, 5, 8

Uncoated Carbide Head

■ Indexable SumiReamer

SR Series

Diameter ø12.0mm up

Frame

CFRP

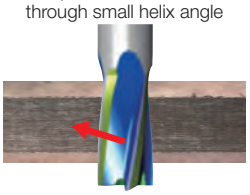
Milling

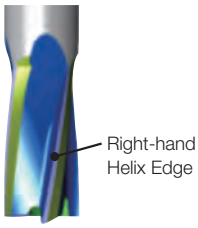
■ SUMIDIA Coated Endmills

SSDC Type

Features

- Optimised Rake and Relief Angles
- Balance of cutting edge sharpness and tool life through small helix angle



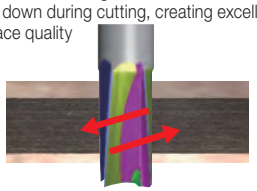


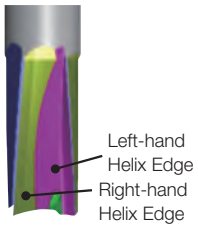
General-purpose
1st Recommendation

SSDCRL Type

Features

- Right/left-hand helix prevents delamination on top and bottom surfaces
- With a left-hand helix edge on the top and a right-hand helix edge on the bottom, fibers are held down during cutting, creating excellent surface quality





Recommended for
Machining of Thin Plates

■ PCD Cutters for High-speed/High-efficiency Machining

ALNEX ANX Series

Landing gear

Titanium Alloy

Ultra-hard Alloy Steel Maraging Steel (Grade 300)

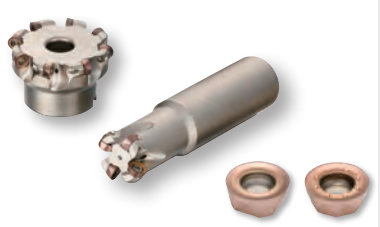
Milling

■ SEC-WaveMill

WEZ Series / WEZR Series

■ SEC-Wave Radius Mill

RSE Series / RSX Series



■ Radius Endmills for Exotic Alloys

SSEH Series

■ GSX MILL Series

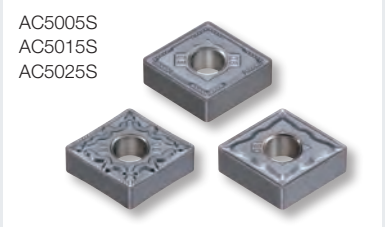
GSX MILL

Turning

■ Coated Carbide Grades for Exotic Alloys

AC5000S Series

AC5005S
AC5015S
AC5025S



■ Anti-vibration Arbors

Smart Damper

Shank Dia.: ø32, ø40mm
L/D Range: 5.5 to 8

■ Inserts for Exotic Alloys

Round Inserts

Drilling

■ SEC-MULTIDRILL SMD Series

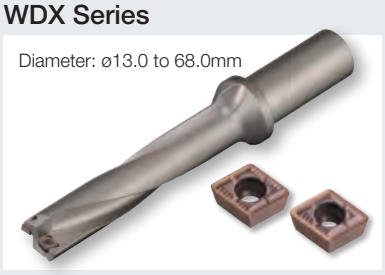
Indexable Head MSL Type

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

■ SumiDrill

WDX Series

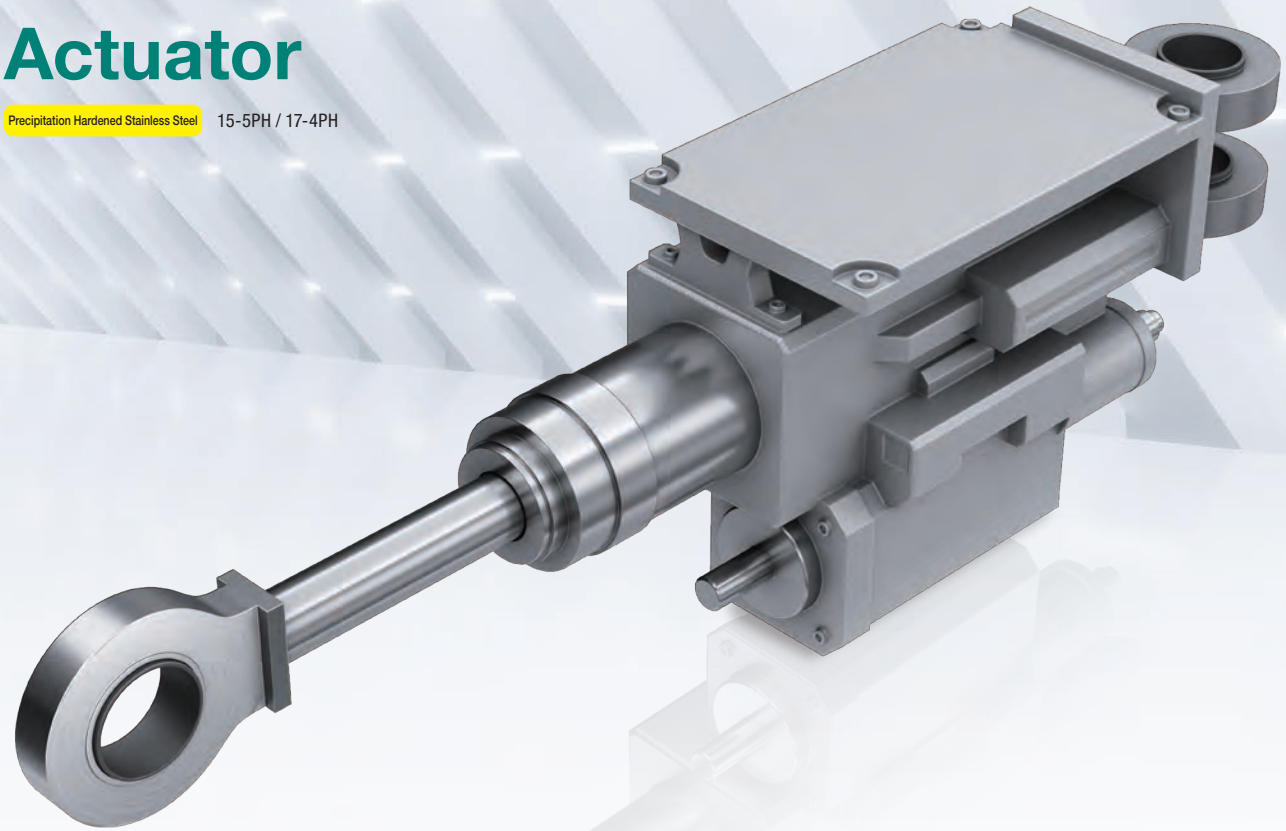
Diameter: ø13.0 to 68.0mm



*SMART DAMPER™ is a registered trademark of BIG DAISHOWA Co., Ltd.

Actuator

Precipitation Hardened Stainless Steel 15-5PH / 17-4PH



Turning

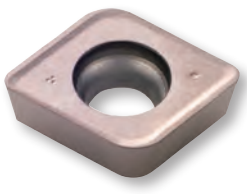
■ Indexable SumiReamer

SR Series

Diameter: ø12.0mm up

■ Insert for SumiDrill WDX Series

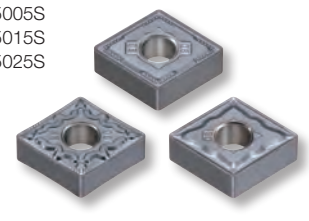
M Type Chipbreaker for Stainless Steel Machining



■ Coated Carbide Grades for Exotic Alloys

AC5000S Series

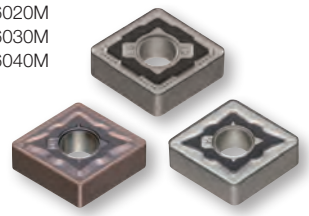
AC5005S
AC5015S
AC5025S



■ Coated Carbide Grades For Stainless Steel

AC6000M Series

AC6020M
AC6030M
AC6040M



Milling

■ SEC-WaveMill

WGX Series

■ SEC-WaveMill

WEZ Series

Fastener

Titanium Alloy

Heat-Resistant Alloy — INCONEL718 / WASPALOY / HASTELLOY

Precipitation Hardened Stainless Steel — 15-5PH / 17-4PH

Gear

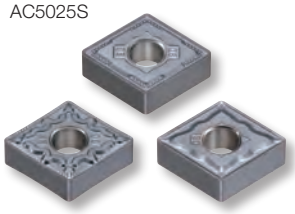
Special Steel

Turning

■ Coated Carbide Grades for Exotic Alloys

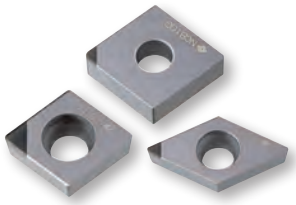
AC5000S Series

AC5005S
AC5015S
AC5025S



■ CBN Series for Exotic Alloys

Titanium Alloy Machining NCB100
Heat-Resistant Alloy Machining IT105



■ SEC-Threading Tools

SSTE Type / SSTI Type

For Aerospace
Equipment
UNJ Standards

■ SEC-Grooving Tools GND Series

CF Type Chipbreaker for Cut-off

Handed

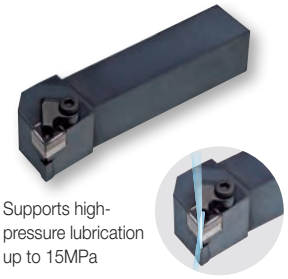
■ Polygonal Taper Shank

SumiPolygon Internal Coolant Supply

Supports high-pressure lubrication up to 15MPa

■ SEC-External Holders

Internal Coolant Holders

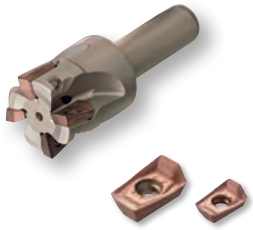


Supports high-pressure lubrication up to 15MPa

Milling

■ SEC-WaveMill

WEZ Series for Multi-tasking Machines



Drilling

■ Flat MULTIDRILL

MDF Series

Diameter: ø0.3 to 20.0mm

■ MULTIDRILL

MDM Series

Diameter: ø3.0 to 16.0mm
L/D: 3, 5

■ Micro Long Drill

MLDH Series

Diameter: ø0.80 to 2.00mm
L/D: 2, 5, 12, 20, 30
(2D is for guide holes)

Bearing

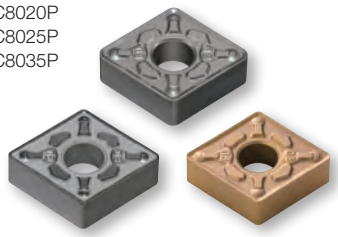
Special Steel

Turning

■ Coated Carbide Grades for Steel

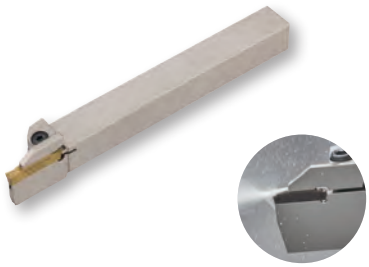
AC8000P Series

AC8015P
AC8020P
AC8025P
AC8035P



■ SEC-Grooving Tools

GND Series



■ SEC-Threading Tools

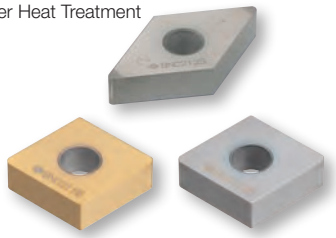
SSTE Type / SSTI Type

For Aerospace Equipment
UNJ Standards

■ Coated SUMIBORON

BNC2115/BNC2125

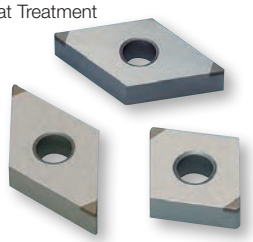
Continuous Machining
after Heat Treatment



■ SUMIBORON

BN350

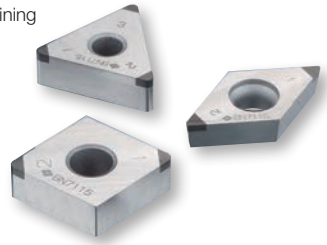
Interrupted Machining
after Heat Treatment



■ SUMIBORON

BN7115

For Special Steel
Machining

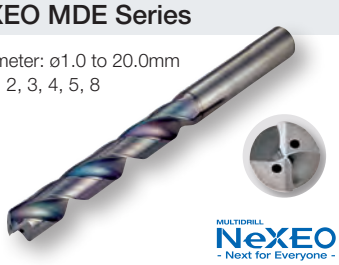


Drilling

■ MULTIDRILL

NeXEO MDE Series

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



Milling

■ GSX MILL Series

GSX MILL

■ Radius Endmills for Exotic Alloys

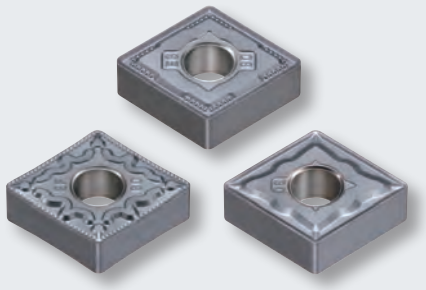
SSEH Series

Coated Carbide Grades

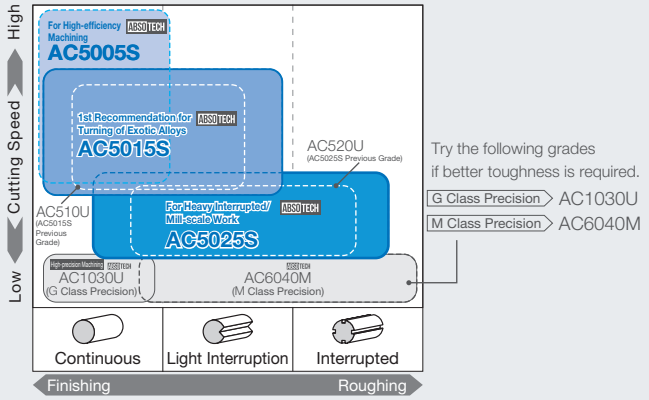
Turning

AC5005S/AC5015S/AC5025S

New grade series for exotic alloys



■ Application Range



Try the following grades if better toughness is required.

G Class Precision AC1030U

M Class Precision AC6040M

Also suitable for work materials other than exotic alloys

Applicable Work Material: P M K S H

■ Features of AC5000S Series

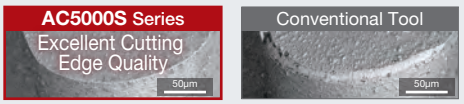
ABSOTECH PVD

PVD Coating Technology ABSOTECH™

Highly heat-resistant super multi-layered thin-film AlTiSiN structure realises excellent crater wear resistance and flank wear resistance.

Newly Developed Tough Carbide Substrate

Introduction of a revolutionary new sintering process enables hardness to be maintained while greatly improving toughness, achieving excellent notch wear and chipping resistance.



New Newly Developed Heat-Resistant Carbide Substrate AC5005S

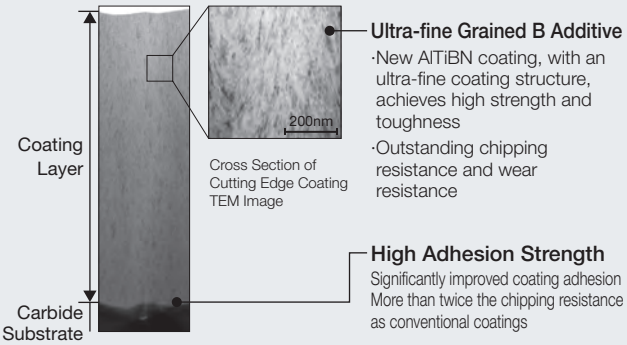
Newly developed dedicated substrate with excellent high-temperature hardness and strength, provides excellent wear resistance and plastic deformation resistance during high-efficiency machining.

Milling

ACS2500/ACS3000

■ New PVD Coating Features

ABSOTECH PVD



Ultra-fine Grained B Additive

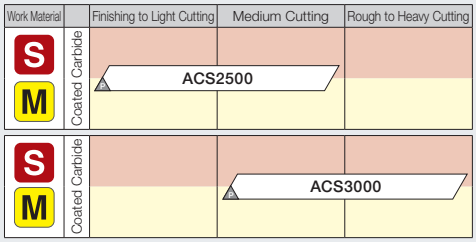
- New AlTiBN coating, with an ultra-fine coating structure, achieves high strength and toughness
- Outstanding chipping resistance and wear resistance

High Adhesion Strength

Significantly improved coating adhesion
More than twice the chipping resistance as conventional coatings

■ Grade Application Range

Newly developed ACS2500/ACS3000 grades, ideal for machining titanium alloys, heat-resistant alloys and stainless steel, are now available!



The letter "P" at the end of each grade indicates the coating type. △: PVD

■ Grade Features

Work Material	Grade	Coating Thickness (μm)	Features
S	ACS2500	3	Carbide substrate with excellent wear and adhesion resistance, coupled with a highly chipping-resistant coating, provides outstanding performance in machining **heat-resistant alloys**, **stainless steel**, and particularly **titanium alloys**
M	ACS3000	3	High toughness carbide substrate and a coating with excellent chipping resistance provide outstanding stability when machining **titanium alloys**, **heat-resistant alloys** or **stainless steel**

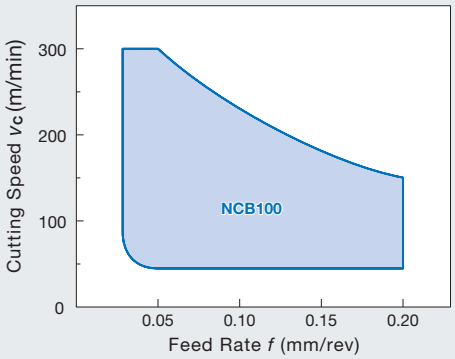
CBN

Turning

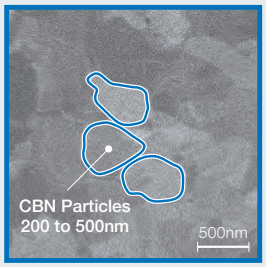
NCB100 For high-speed machining of Ti alloys

Nano-polycrystalline CBN

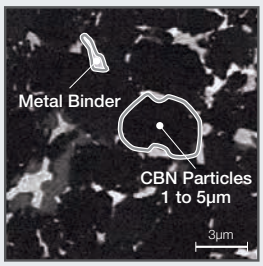
■ Application Range



■ Sintered Body Structure (SEM Image)



SUMIBORON BINDERLESS
NCB100



Conventional CBN

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

■ Physical Properties

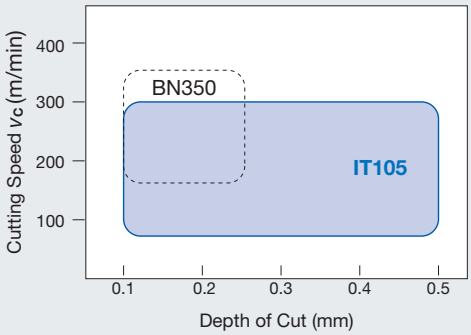
	SUMIBORON BINDERLESS NCB100	Conventional CBN
CBN Content (vol%)	100	90 to 95
Binder	—	WC-Co
Hardness HV (GPa)	51 to 54	41 to 44
Thermal Conductivity (W/m·K)	180 to 200	100 to 120

Turning

IT105 For high-speed machining and finishing of heat-resistant alloys

INCONEL718 / WASPALOY / HASTELLOY

■ Application Range

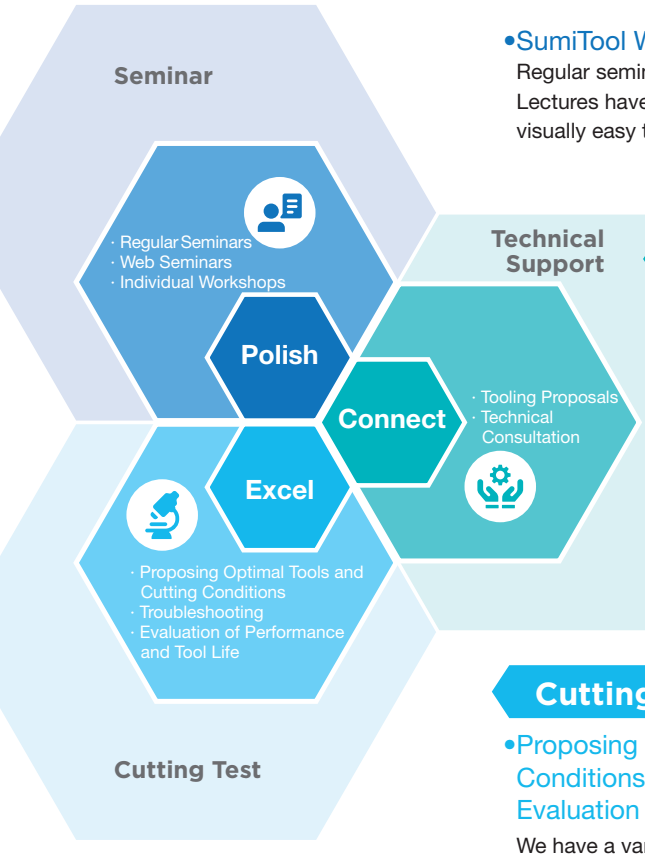


■ Physical Properties

	IT105	BN350
CBN Grain Size (μm)	1	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

TOOL ENGINEERING SERVICE

Sumitomo Electric Group provides superior products and services through understanding the needs of our customers. Our Tool Engineering Centers strongly support manufacturing by offering a variety of services tailored to the customer's needs.



Seminar

•Regular Seminars and Individual Workshops

9 courses catering to different machining experience levels are available.
We offer hands-on practicals using machine tools.

•SumiTool Web Seminars

Regular seminars are offered online.
Lectures have a sense of realism and contents are visually easy to understand.

Technical Support

•Tooling Support

We can propose optimal tools and cutting conditions based on product drawings and machining equipment.
We provide total support from equipment installation to improvement activities.

•Technical Consultation

Our technical specialists provide support to resolve customer's machining problems.

Cutting Test

•Proposing Optimal Tools and Cutting Conditions / Troubleshooting / Performance Evaluation

We have a variety of machine tools, tooling and measurement equipment to conduct a wide range of cutting tests in support of various customers' requirements.
Using the latest evaluation tools to propose improvements.

ONLINE TEC TOOL ENGINEERING CENTER

Online TEC

Live relays in which cutting videos can be viewed from remote locations in real time are possible.
Evaluation as needed is possible while watching actual operation remotely as well.

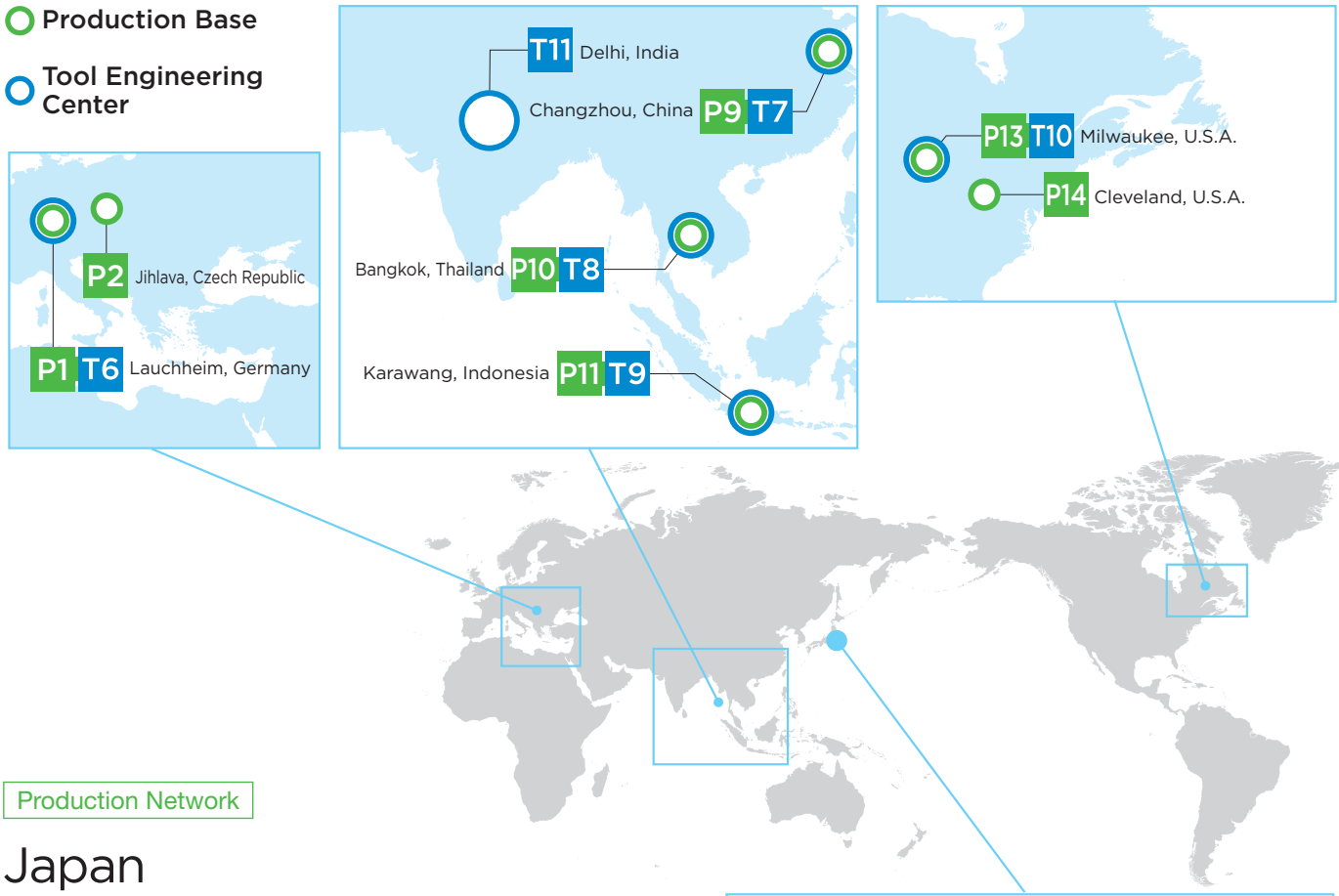
CUTTING TOOLS

WORLDWIDE LOCATIONS

Strengthening our global presence and expansion of overseas markets through establishment of local production and technical support network.

Production Base

Tool Engineering Center



Production Network

Japan

- P3 Hokkaido Sumiden Precision Co., Ltd.
- P5 Tohoku Sumiden Precision Co., Ltd.
- P6 Tokai Sumiden Precision Co., Ltd.
- P7 Kyushu Sumiden Seimitsu Ltd.

Europa

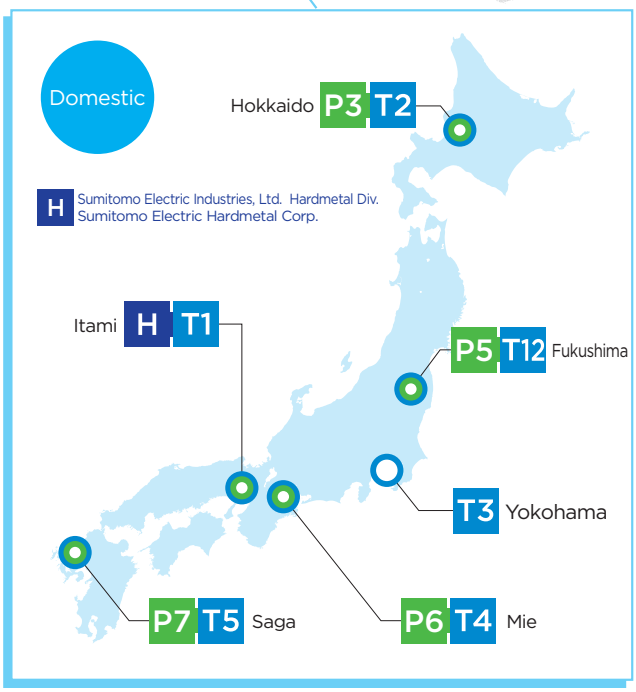
- P1 Sumitomo Electric Hartmetallfabrik GmbH
- P2 Sumitomo Electric Hartmetallfabrik GmbH, organizační složka.

America

- P13 Sumitomo Electric Carbide Manufacturing, Inc. (Wisconsin)
- P14 Sumitomo Electric Carbide Manufacturing, Inc. (Ohio)

Asia

- P9 Sumitomo Electric Hardmetal Manufacturing (Changzhou) Co., Ltd.
- P10 Sumitomo Electric Hardmetal Manufacturing (Thailand) , Ltd.
- P11 PT.Sumiden Hardmetal Manufacturing Indonesia



TEC TOOL ENGINEERING CENTER

T1 Itami	T2 Hokkaido	T3 Yokohama	T4 Tokai
T5 Kyushu	T6 Germany	T7 China	T8 Thailand
T9 Indonesia	T10 America	T11 India	T12 Tohoku

For inquiries about cutting tools for the aerospace industry: aerospace@info.sei.co.jp

Sumitomo Electric Cutting Tools Official Apps for iOS/Android

Cutting calculation App

SumiTool Calculator

Download on the App Store

GET IT ON Google Play

Grade & chipbreaker comparison App

SumiTool Converter

Download on the App Store

GET IT ON Google Play

< SAFETY NOTES >

- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.
- Please handle with care as this product has sharp edges.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.
- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

Sumitomo Electric Industries, Ltd.

Hardmetal Division

Global Marketing Department : 1-1-1, Koyakita, Itami, Hyogo 664-0016, Japan

https://www.sumitool.com/global

(2022.4) I AK/AK