

# SumiBoron PCBN Grades

Sumitomo Electric is a world leader in the development of polycrystalline 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, sizes and grades available nowhere else.

In general, polycrystalline 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.



## GENERAL DESCRIPTION

SUMIBORON is a remarkable CBN sintered material first developed by Sumitomo in 1977. SUMIBORON materials are made under ultra high temperature and pressure sintering of a mixture of cubic boron nitride (CBN) and a special ceramic binder material. SUMIBORON is capable of high-speed precision machining of hardened steels or cast irons, thus replacing the costly conventional grinding process.

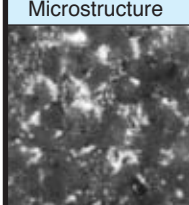

## CBN CLASSIFICATIONS

Moreover, as the chemical reactivity between PCBN and ferrous metals is low, SUMIBORON can achieve long tool life in such applications.

PCBN is generally classified into two groups according to the material microstructure. The PCBN particles of the first type are bonded together directly without an additional binder material. (BN600) This type of PCBN contains a large percentage of PCBN and is thus extremely hard.

SUMIBORON, representative of the second type of PCBN materials, consists of PCBN particles bonded together by a ceramic binder. (BN500) The bonding strength is very high and thus is very wear-resistant and tough.

The enhancements of TiN and TiAlN based coatings to new Sumitomo PCBN grades have allowed for increased wear resistance, the ability to achieve higher speeds and superior surface finishes in a multitude of hardened steel applications.

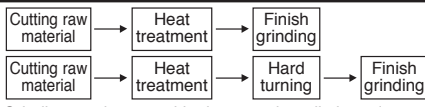

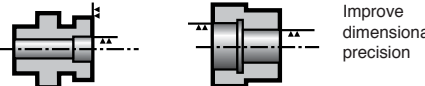
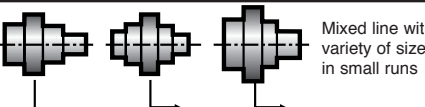
Microstructure	Features	Grades
	PCBN particles are bonded to each other	BN100 BN600 BN700
	PCBN particles are bonded by a ceramic binder	BNX10 BN250 BNX20 BNX25 BN300 BN500 BNC80 BNC150 BNC200 BNC300

## TURNING OF HARDENED STEELS

### Benefits of Replacing Conventional Grinding with Turning

- **REDUCE EQUIPMENT COST** – Lathes are generally two to three times less expensive than grinding machines.
- **INCREASE PRODUCTION CAPACITY** – Turning is superior to grinding.
- **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 rechucking.
- **REDUCED SET-UP TIME** – Only simple NC program changes are needed to machine parts of different sizes.
- **REDUCE INDUSTRIAL WASTE** – Turning eliminates the expense and environmental problems associated with grinding sludge.

### Turning of Hardened Steels

Reduce Machining Costs	Lathe = 1/2 - 1/3 cost of grinding machine
Increase Production Capacity	 <p>Grinding stock removal is decreased or eliminated, increasing production capacity by 300%.</p>
Save Time	 <p>One process finishing of complicated parts</p>
Improve Quality	 <p>Improve dimensional precision</p>
Reduce Set-up Time	 <p>Mixed line with variety of sizes in small runs</p>
Reduce Industrial Waste	Used grinding oil disposal      Chip disposal

General Info

Negative Inserts

Positive Inserts

Ace-Fix Inserts

Threading, Grooving, & Cut-Off Inserts

Ceramic Inserts

PCBN & PCD Inserts

Toolholders

Swiss Toolholders

Boring Bars

Technical Info

ALMT

# SumiBoron PCBN Grades

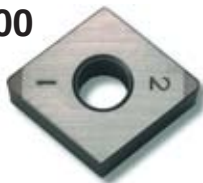
## GRADE DESCRIPTION

General Info	Grades	Hardness (Hv)	T.R.S. (kg/mm <sup>2</sup> )	Features	Applications
	BN100	4000   4500	80	<ul style="list-style-type: none"> <li>• High CBN content</li> <li>• Good heat and adhesion resistance</li> </ul>	Turning of gray cast iron and exotic materials
Negative Inserts	BNX10	2800   3200	80   90	<ul style="list-style-type: none"> <li>• High speed wet or dry applications</li> <li>• Better wear and thermal shock resistance than ceramics</li> <li>• Improved surface finish</li> </ul>	High speed continuous cutting of hardened steels
	BN250	3200   3500	100   110	<ul style="list-style-type: none"> <li>• Fine grain CBN with ceramic binder material</li> <li>• Very strong cutting edge</li> <li>• Tough and wear resistant</li> </ul>	Continuous to moderately interrupted cutting of hardened steels and cast irons
Positive Inserts	BNX20	3200   3400	95   110	<ul style="list-style-type: none"> <li>• Extremely high thermal resistant binder material</li> <li>• Excellent wear resistance and toughness at high cutting speeds</li> </ul>	High speed continuous cutting of hardened steels (HrC 45-68)
	BNX25	3000   3200	100   110	<ul style="list-style-type: none"> <li>• Tougher CBN material</li> <li>• New secure brazing alloy</li> <li>• High reliability performance against tool breakage</li> </ul>	High speed interrupted cutting of hardened steel (HrC 45-68)
Ace-Fix Inserts	BN300	3300   3500	110   120	<ul style="list-style-type: none"> <li>• Ultra-fine grain CBN and high strength ceramic binder material</li> <li>• Extremely strong and sharp cutting edge</li> </ul>	Heavy interrupted cutting of hardened steels
Threading, Grooving, & Cut-Off Inserts	BN500	3300   3500	100   110	<ul style="list-style-type: none"> <li>• CBN sintered with ceramic binder material</li> <li>• Good thermal and wear resistance</li> </ul>	Continuous and interrupted turning of nodular and gray cast iron
	BN600	3900   4200	95   110	<ul style="list-style-type: none"> <li>• High CBN content</li> <li>• Superior thermal conductivity and adhesion resistance</li> <li>• Milling geometries available</li> </ul>	Turning of cast iron, powdered metals, exotic materials and heat resistant alloys High speed milling of gray cast iron
Ceramic Inserts	BN700	4100   4400	120   130	<ul style="list-style-type: none"> <li>• High CBN content</li> <li>• Excellent wear resistance and toughness at high cutting speeds</li> <li>• Milling geometries available</li> </ul>	High speed machining of cast irons and powdered metals
	BNC80	3200   3400	100   110	<ul style="list-style-type: none"> <li>• TiN based coating</li> <li>• Increased notch wear resistance</li> <li>• Excellent surface roughness capability</li> <li>• Multi-corner inserts</li> <li>• Numbered corners</li> </ul>	High speed continuous cutting with the ability to achieve superior surface finishes
PCBN & PCD Inserts	BNC150	3000   3300	100   110	<ul style="list-style-type: none"> <li>• TiCN based coating</li> <li>• Heat resistant substrate</li> <li>• High wear resistant coating</li> </ul>	TiCN base coated for high speed machining of hardened steels
	BNC200	3400   3600	110   120	<ul style="list-style-type: none"> <li>• TiAlN based coating</li> <li>• Excellent wear resistance and toughness at high cutting speeds</li> <li>• Increased flank wear resistance</li> <li>• Multi-cornered inserts</li> <li>• Numbered corners</li> </ul>	High speed turning of continuous and mild interrupted hardened steels (HrC 45-68)
Toolholders	BNC300	3300   3500	120   130	<ul style="list-style-type: none"> <li>• TiAlN based coating</li> <li>• Micro-grain CBN</li> <li>• High fracture toughness</li> </ul>	Excellent performance in a wide range of interrupted hard turning
Swiss Toolholders	BNS800	4000   4300	100   120	<ul style="list-style-type: none"> <li>• Solid CBN</li> <li>• High thermal resistance</li> <li>• Excellent fracture resistance</li> </ul>	High speed turning and milling of gray cast iron Turning of chilled iron, nickel-based iron, and ductile iron

### Multi-Corner PCBN Grade

**NEW**

**BN700**



**NEW**

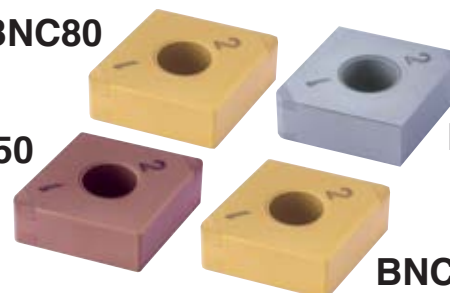
### Coated PCBN Grades

**BNC80**

**BNC150**

**BNC200**

**BNC300**



General Info

Negative Inserts

Positive Inserts

Ace-Fix Inserts

Threading, Grooving, & Cut-Off Inserts

Ceramic Inserts

PCBN & PCD Inserts

Toolholders

Swiss Toolholders

Boring Bars

Technical Info

ALMT

# Cubic Boron Nitride (PCBN) Inserts

General Info	Insert Hole		Dimensions (Inches)														
	—	No Breaker	Full Tip		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BN100	BNX20	BN250	BN300	BN500	BN600	BNX20	BN250	BN300	BN600					
Sumitomo Cat. No.	New ISO Cat. No.																
CNMA431	CNMA120404	•	•	•	•								1/2	3/16	1/64	.020	.2031
CNMA432	CNMA120408	•	•	•	•								1/2	3/16	1/32	.020	.2031
CNMA433	CNMA120412	•	•	•	•								1/2	3/16	3/64	.020	.2031
2MD-CNMA431	2MD-CNMA120404					•	•	•					1/2	3/16	1/64	.020	.2031
2MD-CNMA432	2MD-CNMA120408					•	•	•					1/2	3/16	1/32	.020	.2031
2MD-CNMA433	2MD-CNMA120412					•	•	•					1/2	3/16	3/64	.020	.2031
NS-CNMA431	NS-CNMA120404										•		1/2	3/16	1/64	.015	.2031
NS-CNMA432	NS-CNMA120408										•		1/2	3/16	1/32	.015	.2031
NS-CNMA433	NS-CNMA120412										•		1/2	3/16	3/64	.015	.2031
NU-CNMA431	NU-CNMA120404										•	•	1/2	3/16	1/64	.015	.2031
NU-CNMA432	NU-CNMA120408										•	•	1/2	3/16	1/32	.015	.2031
NU-CNMA433	NU-CNMA120412										•	•	1/2	3/16	3/64	.015	.2031
NU-CNMA432F	NS-CNMA120408F												1/2	3/16	1/32	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.  
 W = Wiper insert  
 F = No edge preparation

General Info	Insert Hole		Dimensions (Inches)														
	—	No Breaker	Solid CBN		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BNS800		BNX10	BNX20	BN250	BN300	BN600	BN700	BNC80	BNC150					
Sumitomo Cat. No.	New ISO Cat. No.																
CNGA432	CNGA120408	•											1/2	3/16	1/32	.150	.2031
CNGA433	CNGA120412	•											1/2	3/16	3/64	.150	.2031
2NU-CNGA431	2NU-CNGA120404					•	•	•					1/2	3/16	1/64	.015	.2031
2NU-CNGA431F	2NU-CNGA120404F					•	•	•					1/2	3/16	1/64	.015	.2031
2NU-CNGA431T	2NU-CNGA120404T					•	•	•					1/2	3/16	1/64	.015	.2031
2NU-CNGA432	2NU-CNGA120408					•	•	•					1/2	3/16	1/32	.015	.2031
2NU-CNGA432F	2NU-CNGA120408F					•	•	•					1/2	3/16	1/32	.015	.2031
2NU-CNGA432T	2NU-CNGA120408T					•	•	•					1/2	3/16	1/32	.015	.2031
2NU-CNGA432W	2NU-CNGA120408W					•	•	•					1/2	3/16	1/32	.015	.2031
2NU-CNGA433	2NU-CNGA120412					•	•	•					1/2	3/16	3/64	.015	.2031
2NU-CNGA433T	2NU-CNGA120412T					•	•	•					1/2	3/16	3/64	.015	.2031
2NC-CNGA432	2NC-CNGA120408										•		1/2	3/16	1/32	.015	.2031
2NC-CNGA433	2NC-CNGA120412										•		1/2	3/16	3/64	.015	.2031
4NC-CNGA431	4NC-CNGA120404										•		1/2	3/16	1/64	.015	.2031
4NC-CNGA432	4NC-CNGA120408										•		1/2	3/16	1/32	.015	.2031
4NC-CNGA433	4NC-CNGA120412										•		1/2	3/16	3/64	.015	.2031
4NC-CNGA431W	4NC-CNGA120404W										•		1/2	3/16	1/64	.015	.2031
4NC-CNGA432W	4NC-CNGA120408W										•		1/2	3/16	1/32	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.  
 W = Wiper insert  
 F = No edge preparation  
 T = .004"-.006" X -25° with hone



Wiper inserts allow you to double the feed rate and maintain the same surface finish quality.

# Cubic Boron Nitride (PCBN) Inserts

General Info	Insert Hole		Dimensions (Inches)														
	—	No Breaker	Solid CBN		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BNS800		BNX20	BN300	BNX20	BN300	BNX20	BN300	BNX20	BN300					
Sumitomo Cat. No.	New ISO Cat. No.																
CNGX433	CNGX120412	•											1/2	3/16	3/64	.150	—
CNGX434	CNGX120416	•											1/2	3/16	1/16	.150	—

General Info	Insert Hole		Dimensions (Inches)														
	—	No Breaker	Solid CBN		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BNS800		BNX20	BN300	BNX20	BN300	BNX20	BN300	BNX20	BN300					
Sumitomo Cat. No.	New ISO Cat. No.																
CNG322	CNGN090308	•											3/8	1/8	1/32	.150	—
CNG322F	CNGN090308F	•											3/8	1/8	1/32	.150	—
CNG323	CNGN090312	•											3/8	1/8	3/64	.150	—
CNG323F	CNGN090312F	•											3/8	1/8	3/64	.150	—
CNG432	CNGN120408	•											1/2	3/16	1/32	.150	—
CNG433	CNGN120412	•											1/2	3/16	3/64	.150	—
CNG434	CNGN120416	•											1/2	3/16	1/16	.150	—

F = No edge preparation

General Info	Insert Hole		Dimensions (Inches)																							
	—	No Breaker	Full Tip		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter									
			BN100	BNX20	BN250	BN300	BN500	BN600	BNX20	BN250	BN300	BNX20						BN250	BN300	BNX20	BN250	BN300	BNX20	BN250	BN300	BNX20
Sumitomo Cat. No.	New ISO Cat. No.																									
DNMA431	DNMA150404	•	•	•	•								1/2	3/16	1/64	.020	.2031									
DNMA432	DNMA150408	•	•	•	•								1/2	3/16	1/32	.020	.2031									
DNMA433	DNMA150412	•	•	•	•								1/2	3/16	3/64	.020	.2031									
2MD-DNMA431	2MD-DNMA150404					•	•						1/2	3/16	1/64	.020	.2031									
2MD-DNMA432	2MD-DNMA150408					•	•						1/2	3/16	1/32	.020	.2031									
2MD-DNMA433	2MD-DNMA150412					•	•						1/2	3/16	3/64	.020	.2031									
NS-DNMA431	NS-DNMA150404										•		1/2	3/16	1/64	.015	.2031									
NS-DNMA432	NS-DNMA150408										•		1/2	3/16	1/32	.015	.2031									
NS-DNMA433	NS-DNMA150412										•		1/2	3/16	3/64	.015	.2031									
NU-DNMA431	NU-DNMA150404										•	•	1/2	3/16	1/64	.015	.2031									
NU-DNMA432	NU-DNMA150408										•	•	1/2	3/16	1/32	.015	.2031									
NU-DNMA433	NU-DNMA150412										•	•	1/2	3/16	3/64	.015	.2031									
NU-DNMA432F	NU-DNMA150408F												1/2	3/16	1/32	.015	.2031									

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.  
 F = No edge preparation

- = USA stocked item
- ★ = Worldwide Warehouse item
- ▲ = USA limited availability item



Wiper style CBN should not be applied to concave or convex surfaces. For best results, use a 5° lead toolholder or boring bar.

# Cubic Boron Nitride (PCBN) Inserts

General Info	DNGA		Insert Hole						Dimensions (Inches)			
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
Negative Inserts	2NU-DNGA431	2NU-DNGA150404						1/2	3/16	1/64	.015	.2031
	2NU-DNGA431F	2NU-DNGA150404F						1/2	3/16	1/64	.015	.2031
	2NU-DNGA431T	2NU-DNGA150404T						1/2	3/16	1/64	.015	.2031
Positive Inserts	2NU-DNGA432	2NU-DNGA150408						1/2	3/16	1/32	.015	.2031
	2NU-DNGA432F	2NU-DNGA150408F						1/2	3/16	1/32	.015	.2031
	2NU-DNGA432T	2NU-DNGA150408T						1/2	3/16	1/32	.015	.2031
	2NU-DNGA433	2NU-DNGA150412						1/2	3/16	3/64	.015	.2031
	2NU-DNGA433T	2NU-DNGA150412T						1/2	3/16	3/64	.015	.2031
Ace-Fix Inserts	2NC-DNGA432	2NC-DNGA150408						1/2	3/16	1/32	.015	.2031
	2NC-DNGA433	2NC-DNGA150412						1/2	3/16	3/64	.015	.2031
	4NC-DNGA431	4NC-DNGA150404						1/2	3/16	1/64	.015	.2031
	4NC-DNGA432	4NC-DNGA150408						1/2	3/16	1/32	.015	.2031
	4NC-DNGA433	4NC-DNGA150412						1/2	3/16	3/64	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.  
 F = No edge preparation  
 T = .004"-.006" X -25° with hone

Ceramic Inserts	DNG		Insert Hole						Dimensions (Inches)			
	—	No Breaker	Solid CBN	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
PCBN & PCD Inserts	DNG322	DNGN110308	*					3/8	1/8	1/32	.150	-
	DNG322F	DNGN110308F	*					3/8	1/8	1/32	.150	-
	DNG323	DNGN110312	*					3/8	1/8	3/64	.150	-
	DNG323F	DNGN110312F	*					3/8	1/8	3/64	.150	-

F = No edge preparation

Toolholders	RNG		Insert Hole						Dimensions (Inches)			
	RNG	RNGA	Solid CBN	Full Top	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
Swiss Toolholders	RNG32	RNGN090300	*					3/8	1/8	-	.150	-
	RNG32F	RNGN090300F	*					3/8	1/8	-	.150	-
	RNG42	RNGN120300	*					1/2	1/8	-	.150	-
	RNG42F	RNGN120300F	*					1/2	1/8	-	.150	-
	RNG43	RNGN120400	*					1/2	3/16	-	.150	-
Boring Bars	RNG32B	RNGN090300B						3/8	1/8	-	.020	-
	RNG43B	RNGN120400B						1/2	3/16	-	.020	-
	RNGA094	RNGA094						.354	1/4	-	.020	-

Note: Holders available for RNG/RNGA inserts. Contact the Engineering Department.  
 F = No edge preparation  
 B = Full top

# Cubic Boron Nitride (PCBN) Inserts

General Info	SNMA		Insert Hole						Dimensions (Inches)						
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter			
													Sumitomo Cat. No.	New ISO Cat. No.	BN100
Negative Inserts	SNMA432	SNMA120408						1/2	3/16	1/32	.020	.2031			
	SNMA433	SNMA120412						1/2	3/16	3/64	.020	.2031			
	2MD-SNMA431	2MD-SNMA120404						1/2	3/16	1/64	.020	.2031			
Positive Inserts	2MD-SNMA432	2MD-SNMA120408						1/2	3/16	1/32	.020	.2031			
	2MD-SNMA433	2MD-SNMA120412						1/2	3/16	3/64	.020	.2031			
	NS-SNMA431	NS-SNMA120404						1/2	3/16	1/64	.015	.2031			
	NS-SNMA432	NS-SNMA120408						1/2	3/16	1/32	.015	.2031			
	NS-SNMA433	NS-SNMA120412						1/2	3/16	3/64	.015	.2031			
Ace-Fix Inserts	NU-SNMA431	NU-SNMA120404						1/2	3/16	1/64	.015	.2031			
	NU-SNMA432	NU-SNMA120408						1/2	3/16	1/32	.015	.2031			
	NU-SNMA433	NU-SNMA120412						1/2	3/16	3/64	.015	.2031			
	NU-SNMA433	NU-SNMA120412						1/2	3/16	3/64	.015	.2031			

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Ceramic Inserts	SNGA		Insert Hole						Dimensions (Inches)			
	—	No Breaker	Solid CBN	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
PCBN & PCD Inserts	SNGA432	SNGA120408	*					1/2	3/16	1/32	.150	-
	SNGA433	SNGA120412	*					1/2	3/16	3/64	.150	-
	2NU-SNGA431	2NU-SNGA120404						1/2	3/16	1/64	.015	.2031
	2NU-SNGA432	2NU-SNGA120408						1/2	3/16	1/32	.015	.2031
	2NU-SNGA432T	2NU-SNGA120408T						1/2	3/16	1/32	.015	.2031
	2NU-SNGA433	2NU-SNGA120412						1/2	3/16	3/64	.015	.2031
	2NU-SNGA433T	2NU-SNGA120412T						1/2	3/16	3/64	.015	.2031
	2NC-SNGA432	2NC-SNGA120408						1/2	3/16	1/32	.015	.2031
	2NC-SNGA433	2NC-SNGA120412						1/2	3/16	3/64	.015	.2031

T = .004"-.006" X -25° with hone

Toolholders	SNGX		Insert Hole						Dimensions (Inches)			
	—	No Breaker	Solid CBN	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
Swiss Toolholders	SNGX433	SNGX120412	*					1/2	3/16	3/64	.150	-
	SNGX434	SNGX120416	*					1/2	3/16	1/16	.150	-

● = USA stocked item  
 ★ = Worldwide Warehouse item  
 ▲ = USA limited availability item

# Cubic Boron Nitride (PCBN) Inserts

General Info	SNG		Insert Hole						Dimensions (Inches)							
	Sumitomo Cat. No.	New ISO Cat. No.	BNS800	Solid CBN	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Full Tip	BNS20	BNS500	BNS600	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
Negative Inserts	SNG322	SNGN090308	•									3/8	1/8	1/32	.150	-
Positive Inserts	SNG322F	SNGN090308F	★									3/8	1/8	1/32	.150	-
	SNG323	SNGN090312	•									3/8	1/8	3/64	.150	-
Ace-Fix Inserts	SNG323F	SNGN090312F	★									3/8	1/8	3/64	.150	-
	SNG422	SNGN120308	•									1/2	3/16	1/32	.150	-
Threading, Grooving, & Cut-Off Inserts	SNG422F	SNGN120308F	★									1/2	3/16	1/32	.150	-
	SNG423	SNGN120312	•									1/2	3/16	3/64	.150	-
Ceramic Inserts	SNG423F	SNGN120312F	★									1/2	3/16	3/64	.150	-
	SNG424	SNGN120316	•									1/2	3/16	1/16	.150	-
PCBN & PCD Inserts	SNG432	SNGN120408	•									1/2	3/16	1/32	.150	-
	SNG433	SNGN120412	•									1/2	3/16	1/32	.150	-
Toolholders	SNG434	SNGN120416	•									1/2	3/16	1/16	.150	-
	SNG432	SNGN120408							★	★		1/2	3/16	1/32	.020	-
Swiss Toolholders	SNG432B	SNGN120408-B								★		1/2	3/16	1/32	.020	-

F = No edge preparation  
B = Full top

General Info	TNMA		Insert Hole						Dimensions (Inches)													
	Sumitomo Cat. No.	New ISO Cat. No.	BN100	BNX20	BN250	BN300	BN500	BN600	BN250	BN300	BNX10	BNX20	BNX25	BN250	BN300	BN500	BN600	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
Negative Inserts	TNMA330.5	TNMA160402	•															3/8	3/16	1/128	.020	.150
Positive Inserts	TNMA331	TNMA160404	•	•	•	•	•	•										3/8	3/16	1/64	.020	.150
	TNMA332	TNMA160408	•	•	•	•	•	•										3/8	3/16	1/32	.020	.150
Ace-Fix Inserts	TNMA333	TNMA160412	•	•	•	•	•	•										3/8	3/16	3/64	.020	.150
	TNMA431	TNMA220404	•															1/2	3/16	1/64	.020	.2031
Ceramic Inserts	TNMA432	TNMA220408	•	•	•	•	•	•										1/2	3/16	1/32	.020	.2031
	TNMA433	TNMA220412	•	•	•	•	•	•										1/2	3/16	3/64	.020	.2031
PCBN & PCD Inserts	3MD-TNMA331	3MD-TNMA160404							•	•								3/8	3/16	1/64	.020	.150
	3MD-TNMA332	3MD-TNMA160408							•	•								3/8	3/16	1/32	.020	.150
Toolholders	3MD-TNMA333	3MD-TNMA160412							•	•								3/8	3/16	3/64	.020	.150
	NS-TNMA331	NS-TNMA160404																3/8	3/16	1/64	.015	.150
Swiss Toolholders	NS-TNMA332	NS-TNMA160408																3/8	3/16	1/32	.015	.150
	NS-TNMA333	NS-TNMA160412																3/8	3/16	3/64	.015	.150
Boring Bars	NU-TNMA331	NU-TNMA160404									•	•	•	•	•	•	•	3/8	3/16	1/64	.015	.150
	NU-TNMA331F	NU-TNMA160404F									•	•	•	•	•	•	•	3/8	3/16	1/64	.015	.150
Technical Info	NU-TNMA332	NU-TNMA160408									•	•	•	•	•	•	•	3/8	3/16	1/32	.015	.150
	NU-TNMA332F	NU-TNMA160408F									•	•	•	•	•	•	•	3/8	3/16	1/32	.015	.150
ALMT	NU-TNMA333	NU-TNMA160412									•	•	•	•	•	•	•	3/8	3/16	3/64	.015	.150
	NU-TNMA431	NU-TNMA220404									•	•	•	•	•	•	•	1/2	3/16	1/64	.015	.2031
ALMT	NU-TNMA432	NU-TNMA220408									•	•	•	•	•	•	•	1/2	3/16	1/32	.015	.2031
	NU-TNMA433	NU-TNMA220412									•	•	•	•	•	•	•	1/2	3/16	3/64	.015	.2031

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

F = No edge preparation

- = USA stocked item
- ★ = Worldwide Warehouse item
- ▲ = USA limited availability item

# Cubic Boron Nitride (PCBN) Inserts

General Info	TNGA		Insert Hole						Dimensions (Inches)													
	Sumitomo Cat. No.	New ISO Cat. No.	BNS800	Solid CBN	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Full Tip	BNS20	BNS25	BNS500	BNS600	BNS700	BNC80	BNC150	BNC200	BNC300	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
Negative Inserts	TNGA332	TNGA160408	★															3/8	3/16	1/32	.150	.150
Positive Inserts	TNGA333	TNGA160412	★															3/8	3/16	3/64	.150	.150
	3NS-TNGA331	3NS-TNGA160404								★								3/8	3/16	1/64	.015	.150
Ace-Fix Inserts	3NS-TNGA332	3NS-TNGA160408								★								3/8	3/16	1/32	.015	.150
	3NU-TNGA331	3NU-TNGA160404								★	•	•						3/8	3/16	1/64	.015	.150
Ceramic Inserts	3NU-TNGA331F	3NU-TNGA160404F								★	•	•						3/8	3/16	1/64	.015	.150
	3NU-TNGA331T	3NU-TNGA160404T								★	•	•						3/8	3/16	1/64	.015	.150
PCBN & PCD Inserts	3NU-TNGA332	3NU-TNGA160408								★								3/8	3/16	1/32	.015	.150
	3NU-TNGA332F	3NU-TNGA160408F								★								3/8	3/16	1/32	.015	.150
Toolholders	3NU-TNGA332T	3NU-TNGA160408T								★								3/8	3/16	1/32	.015	.150
	3NU-TNGA333	3NU-TNGA160412								★	★	•						3/8	3/16	3/64	.015	.150
Swiss Toolholders	6NC-TNGA331	6NC-TNGA160404												•	•	•	•	3/8	3/16	1/64	.015	.150
	6NC-TNGA332	6NC-TNGA160408												•	•	•	•	3/8	3/16	1/32	.015	.150
Boring Bars	6NC-TNGA333	6NC-TNGA160412												•	•	•	•	3/8	3/16	3/64	.015	.150

F = No edge preparation

T = .004"-.006" X -25° with hone

General Info	TNG		Insert Hole						Dimensions (Inches)					
	Sumitomo Cat. No.	New ISO Cat. No.	BNS800	Solid CBN	Full Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	BNX20	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
Negative Inserts	TNG222	TNGN110308	•											
Positive Inserts	TNG222F	TNGN110312	★											
	TNG223	TNGN160408	•											
Ace-Fix Inserts	TNG223F	TNGN160412	★											
	TNG332	TNGN160416	•											
Ceramic Inserts	TNG333	TNGN110308F	•											
	TNG334	TNGN110312F	★											
PCBN & PCD Inserts	TNG332	TNGN160416												

F = No edge preparation

# Cubic Boron Nitride (PCBN) Inserts

General Info	VNMA		Insert Hole										Dimensions (Inches)				
	—	No Breaker	Full Tip		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BN100	BN250	BN300	BN500	BN600	BNX20	BN250	BN300	BNX10	BNX20					
Negative Inserts	Sumitomo Cat. No.	New ISO Cat. No.															
Positive Inserts	VNMA331	VNMA160404	•	•	•	•	•										3/8
	VNMA332	VNMA160408	•	•	•	•	•										3/8
	VNMA333	VNMA160412	•	•	•	•	•										3/8
	2MD-VNMA331	2MD-VNMA160404						•	•								3/8
	2MD-VNMA332	2MD-VNMA160408						•	•								3/8
	2MD-VNMA333	2MD-VNMA160412						•	•								3/8
	NS-VNMA331	NS-VNMA160404															3/8
	NS-VNMA332	NS-VNMA160408															3/8
	NU-VNMA331	NU-VNMA160404															3/8
	NU-VNMA332	NU-VNMA160408															3/8
	NU-VNMA333	NU-VNMA160412															3/8

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Threading, Grooving, & Cut-Off Inserts	VNGA		Insert Hole										Dimensions (Inches)				
	—	No Breaker	Full Tip		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BNX20	BN250	BN300	BN700	BNC80	BNC150	BNC200	BNC300	BNX20	BN250					
Ceramic Inserts	Sumitomo Cat. No.	New ISO Cat. No.															
	2NS-VNGA331	2NS-VNGA160404															3/8
	2NS-VNGA332	2NS-VNGA160408															3/8
	2NU-VNGA331	2NU-VNGA160404															3/8
	2NU-VNGA332	2NU-VNGA160408															3/8
	2NU-VNGA332F	2NU-VNGA160408F															3/8
	2NU-VNGA332T	2NU-VNGA160408T															3/8
	2NC-VNGA332	2NC-VNGA160408															3/8
	4NC-VNGA331	4NC-VNGA160404															3/8
	4NC-VNGA332	4NC-VNGA160408															3/8
	4NC-VNGA333	4NC-VNGA160412															3/8

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

F = No edge preparation  
T = .004"-.006" X -25° with hone

Swiss Toolholders	WNMA		Insert Hole										Dimensions (Inches)				
	—	No Breaker	Full Tip		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BNX20	BN250	BN600	BNX20	BN250	BN600									
Boring Bars	Sumitomo Cat. No.	New ISO Cat. No.															
	WNMA432	WNMA080408	•														1/2
	NU-WNMA431	NU-WNMA080404															1/2
	NU-WNMA432	NU-WNMA080408															1/2
	NU-WNMA433	NU-WNMA080412															1/2

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

- = USA stocked item
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- ▲ = USA limited availability item

# Cubic Boron Nitride (PCBN) Inserts

General Info	WNGA		Insert Hole										Dimensions (Inches)				
	—	No Breaker	Full Tip		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BN700	BNC80	BNC150	BNC200	BNX20	BN250	BN600								
Negative Inserts	Sumitomo Cat. No.	New ISO Cat. No.															
Positive Inserts	3NU-WNGA432	3NU-WNGA080408															1/2
	3NU-WNGA433	3NU-WNGA080412															1/2
	6NC-WNGA432	6NC-WNGA080408															1/2

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

## POSITIVE POLYCRYSTALLINE CUBIC BORON NITRIDE INSERTS

General Info	CCGA		Insert Hole										Dimensions (Inches)				
	—	No Breaker	Full Tip		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BN700	BNC80	BNC150	BNC200	BNX20	BN250	BN600								
Negative Inserts	Sumitomo Cat. No.	New ISO Cat. No.															
Positive Inserts	2NU-CCGA21.50.5	2NU-CCGW060202															1/4
	2NU-CCGA21.51	2NU-CCGW060204															1/4
	2NU-CCGA21.52	2NU-CCGW060208															1/4
	2NU-CCGA32.51	2NU-CCGW09T304															3/8
	2NU-CCGA32.51W	2NU-CCGW09T304W															3/8
	2NU-CCGA32.52	2NU-CCGW09T308															3/8
	2NU-CCGA431	2NU-CCGW120404															1/2
	2NU-CCGA432	2NU-CCGW120408															1/2
	NC-CCGA21.51	NC-CCGW060204															1/4
	2NC-CCGA21.50.5	2NC-CCGW060202															1/4
	2NC-CCGA21.51	2NC-CCGW060204															1/4
	2NC-CCGA32.50.5	2NC-CCGW09T302															3/8
	2NC-CCGA32.51	2NC-CCGW09T304															3/8
	2NC-CCGA32.52	2NC-CCGW09T308															3/8
	NU-CCGA21.50.5	NU-CCGW060202															1/4
	NU-CCGA21.50.5F	NU-CCGW060202F															1/4
	NU-CCGA21.50.5S	NU-CCGW060202S															1/4
	NU-CCGA21.51	NU-CCGW060204															1/4
	NU-CCGA32.50.5	NU-CCGW09T302															3/8
	NU-CCGA32.51	NU-CCGW09T304															3/8

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

F = No edge preparation  
W = Wiper insert

General Info	CCGE		Insert Hole										Dimensions (Inches)				
	—	No Breaker	Full Tip		Multi Mid-Tip		Multi Mini-Tip		Coated Mini-Tip		Mini-Tip		Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
			BN250	BN600	BNX20	BN250	BN600										
Negative Inserts	Sumitomo Cat. No.	New ISO Cat. No.															
Positive Inserts	NU-CCGE621	NU-CCGW040104															3/16
	NU-CCGE622	NU-CCGW040108															3/16

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

# Cubic Boron Nitride (PCBN) Inserts

General Info	CPGA		Insert Hole						Dimensions (Inches)										
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter							
Negative Inserts	Sumitomo Cat. No.	New ISO Cat. No.																	
Positive Inserts	2NU-CPGA32.51	NU-CPGW09T304						3/8	5/32	1/64	.015	.1732							
	2NU-CPGA32.52	NU-CPGW09T308								1/32	.015								
	NU-CPGA2.51.50.5	NU-CPGW080202								1/128	.015								
	NU-CPGA2.51.51	NU-CPGW080204						5/16	3/32	1/64	.015	.134							
	NU-CPGA2.51.52	NU-CPGW080208								1/32	.015								
	NU-CPGA320.5	NU-CPGW090302								1/128	.015								
	NU-CPGA321	NU-CPGW090304						3/8	1/8	1/64	.015	.1732							
	NU-CPGA322	NU-CPGW090308								1/32	.015								

General Info	SPG		Insert Hole						Dimensions (Inches)									
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter						
Negative Inserts	Sumitomo Cat. No.	New ISO Cat. No.																
Positive Inserts	SPG221	SPGN060304						1/4	1/8	1/64	.020	—						
	SPG321	SPGN090304								1/64	.020							
	SPG322	SPGN090308						3/8	1/8	1/32	.020	—						
	SPG323	SPGN090312								3/64	.020							
	SPG421	SPGN120304								1/64	.020							
	SPG422	SPGN120308						1/2	1/8	1/32	.020	—						
	SPG423	SPGN120312								3/64	.020							
	NU-SPG321	NU-SPGN090304						3/8	1/8	1/64	.015	—						
	NU-SPG322	NU-SPGN090308								1/32	.015							

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

General Info	DCGA		Insert Hole						Dimensions (Inches)									
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter						
Ace-Fix Inserts	Sumitomo Cat. No.	New ISO Cat. No.																
Threading, Grooving, & Cut-Off Inserts	2NU-DCGA21.50.5	2NU-DCGW070202						1/4	3/32	1/128	.015	.110						
	2NU-DCGA21.51	2NU-DCGW070204								1/64	.015							
	2NU-DCGA21.52	2NU-DCGW070208								1/32	.015							
	2NU-DCGA32.51	2NU-DCGW11T304						3/8	5/32	1/64	.015	.1732						
	2NU-DCGA32.52	2NU-DCGW11T308								1/32	.015							
PCBN & PCD Inserts	2NC-DCGA21.50.5	2NC-DCGW070202						1/4	3/32	1/128	.015	.110						
	2NC-DCGA21.51	2NC-DCGW070204								1/64	.015							
	2NC-DCGA32.50.5	2NC-DCGW11T302						3/8	5/32	1/128	.015	.1732						
	2NC-DCGA32.51	2NC-DCGW11T304								1/64	.015							
	2NC-DCGA32.52	2NC-DCGW11T308								1/32	.015							
Toolholders	NU-DCGA21.50.5	NU-DCGW070202						1/4	3/32	1/128	.015	.110						
	NU-DCGA21.50.5F	NU-DCGW070202F								1/128	.015							
	NU-DCGA21.51	NU-DCGW070204								1/64	.015							
	NU-DCGA21.51F	NU-DCGW070204F								1/64	.015							
	NU-DCGA32.50.5	NU-DCGW11T302						3/8	5/32	1/128	.015	.1732						
	NU-DCGA32.50.5F	NU-DCGW11T302F								1/128	.015							
	NU-DCGA32.51	NU-DCGW11T304								1/64	.015							
	NU-DCGA32.51F	NU-DCGW11T304F								1/64	.015							

General Info	SPGA		Insert Hole						Dimensions (Inches)									
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter						
Ceramic Inserts	Sumitomo Cat. No.	New ISO Cat. No.																
PCBN & PCD Inserts	SPGA321	SPGW090304						3/8	1/8	1/64	.020	.130						
	SPGA322	SPGW090308								1/32	.020							
	SPGA323	SPGW090312								3/64	.020							

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut. F = No edge preparation

General Info	RCGA RCGX		Insert Hole						Dimensions (Inches)									
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter						
Boring Bars	Sumitomo Cat. No.	New ISO Cat. No.																
Technical Info	RCGA094	RCGA0906MO						.354	.250	—	.040	—						
	RCGX102	RCGX102						1/4	.309	—	.040	—						
	RCGX103	RCGX103						3/8	.309	—	.040	—						
	RCGX104	RCGX104						1/2	.312	—	.040	—						
	RCGX105	RCGX105						5/8	.388	—	.040	—						

General Info	TBGE		Insert Hole						Dimensions (Inches)									
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter						
Toolholders	Sumitomo Cat. No.	New ISO Cat. No.																
Swiss Toolholders	TBGE520.5B	TBGE060102B						5/32	1/16	1/128	.020	—						
	TBGE520.5BSN	TBGE060102-BSN								1/128	.020							
	TBGE521B	TBGE060104B								1/64	.020							
	TBGE521BSN	TBGE060104-BSN								1/64	.020							
	TBGE522B	TBGE060108B								1/32	.020							
	TBGE522BSN	TBGE060108-BSN								1/32	.020							

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

General Info	TPEE TPGE		Insert Hole						Dimensions (Inches)									
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter						
Boring Bars	Sumitomo Cat. No.	New ISO Cat. No.																
Technical Info	TPEE632B	TPEE080208B						3/16	3/32	1/32	.020	—						
	TPEE632BH	TPEE080208BH								1/32	.020							
	TPGE1.81.51	TPGN090204						7/32	3/32	1/64	.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

# Cubic Boron Nitride (PCBN) Inserts

General Info	TCGA		Insert Hole						Dimensions (Inches)				
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter	
		Sumitomo Cat. No.											New ISO Cat. No.
Negative Inserts	3NU-TCGA21.51	3NU-TCGW110204			●			1/4	3/32	1/64	.015	.110	
	3NU-TCGA21.52	3NU-TCGW110208			●					1/32	.015		
Positive Inserts	NC-TCGA21.51	NC-TCGW110204				●●●		1/4	3/32	1/64	.015	.110	
	NC-TCGA21.52	NC-TCGW110208				●●●				1/32	.015		

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

Ace-Fix Inserts	TPG		Insert Hole										Dimensions (Inches)				
	—	No Breaker	Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter					
		Sumitomo Cat. No.											New ISO Cat. No.				
Threading, Grooving, & Cut-Off Inserts	TPG221	TPGN110304	●	●	●	●			1/4	1/8	1/64	.020	-				
	TPG222	TPGN110308	●	●	●	●					1/32	.020					
Ceramic Inserts	TPG321	TPGN160304	●	●	●	●			3/8	1/8	1/64	.020	-				
	TPG322	TPGN160308	●	●	●	●					1/32	.020					
	TPG323	TPGN160312			●	●					3/64	.020					
PCBN & PCD Inserts	TPG432	TPGN220408	●						1/2	3/16	1/32	.020	-				
	3NU-TPG221	3NU-TPGN110304			●				1/4	1/8	1/64	.015	-				
	3NU-TPG222	3NU-TPGN110308			●						1/32	.015					
	3NU-TPG321	3NU-TPGN160304			●				3/8	1/8	1/64	.015	-				
	3NU-TPG322	3NU-TPGN160308			●						1/32	.015					
	NU-TPG221	NU-TPGN110304					●●●★●●		1/4	1/8	1/64	.015	-				
	NU-TPG222	NU-TPGN110308					●●●★●●			1/32	.015						
	NU-TPG321	NU-TPGN160304					●●●★●●		3/8	1/8	1/64	.015	-				
NU-TPG322	NU-TPGN160308					●●●★●●			1/32	.015							

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

- = USA stocked item
- ★ = Worldwide Warehouse item
- ▲ = USA limited availability item

Swiss Toolholders

Boring Bars

Technical Info

ALMT



BNS800 can take a maximum depth of cut of 0.150" in gray cast iron. For chilled iron, the depth of cut should not exceed 0.080".

# Cubic Boron Nitride (PCBN) Inserts

TPGA	Insert Hole	Insert Types																Dimensions (Inches)					General Info					
	No Breaker	Full Tip				Multi Mid-Tip				Multi Mini-Tip				Coated Mini-Tip				Mini-Tip				Inscribed Circle		Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter	
		Sumitomo Cat. No.	New ISO Cat. No.	BN100	BNX20	BN250	BN300	BN500	BN600	BN700	BN700	BN700	BN700	BN700	BN700	BN700	BN700	BN700	BN700	BN700	BN700							
TPGA221	TPGW110304	•	•	•	•	•	•															1/4	1/8	1/64	.020	.130	Negative Inserts	
TPGA222	TPGW110308	•	•	•	•	•	•																1/32	.020				
TPGA331	TPGW160404	•	•	•	•	•	•																3/8	3/16	1/32	.020	.1693	Positive Inserts
TPGA332	TPGW160408	•	•	•	•	•	•																3/8	3/16	1/32	.020	.1693	
TPGA333	TPGW160412	•	•	•	•	•	•																3/8	3/16	3/64	.020	.1693	Ace-Fix Inserts
3NU-TPGA21.51	3NU-TPGW110204																						1/4	3/32	1/64	.015	.110	
3NU-TPGA21.52	3NU-TPGW110208																						1/4	3/32	1/32	.015	.110	Threading, Grooving, & Cut-Off Inserts
3NU-TPGA220.5	3NU-TPGW110302																						1/4	1/8	1/128	.015	.130	
3NU-TPGA221	3NU-TPGW110304																						1/4	1/8	1/64	.015	.130	Ceramic Inserts
3NU-TPGA222	3NU-TPGW110308																						1/4	1/8	1/32	.015	.130	
3NU-TPGA331	3NU-TPGW160404																						3/8	3/16	1/64	.015	.1693	PCBN & PCD Inserts
3NU-TPGA332	3NU-TPGW160408																						3/8	3/16	1/32	.015	.1693	
NC-TPGA221	NC-TPGW110304																						1/4	1/8	1/64	.015	.130	Toolholders
NC-TPGA222	NC-TPGW110308																						1/4	1/8	1/32	.015	.130	
3NC-TPGA331	3NC-TPGW160404																						3/8	3/16	1/64	.015	.1693	Swiss Toolholders
3NC-TPGA332	3NC-TPGW160408																						3/8	3/16	1/32	.015	.1693	
NS-TPGA221	NS-TPGW110304																						1/4	1/8	1/64	.015	.130	Boring Bars
NS-TPGA222	NS-TPGW110308																						1/4	1/8	1/32	.015	.130	
NS-TPGA331	NS-TPGW160404																						3/8	3/16	1/64	.015	.1693	Technical Info
NS-TPGA332	NS-TPGW160408																						3/8	3/16	1/32	.015	.1693	
NU-TPGX630.5	NU-TPGW080202																						3/32	3/16	1/128	.015	.090	ALMT
NU-TPGX631	NU-TPGW080204																						3/32	3/16	1/64	.015	.090	
NU-TPGX21.50.5	NU-TPGW110202																						1/4	3/32	1/128	.015	.110	ALMT
NU-TPGX21.51	NU-TPGW110204																						1/4	3/32	1/64	.015	.110	
NU-TPGX21.51S	NU-TPGW110204S																						1/4	3/32	1/64	.015	.110	ALMT
NU-TPGA630.5	NU-TPGW080202																						3/32	3/16	1/128	.015	.090	
NU-TPGA630.5S	NU-TPGW080202S																						3/32	3/16	1/128	.015	.090	ALMT
NU-TPGA631	NU-TPGW080204																						3/32	3/16	1/64	.015	.090	
NU-TPGA631F	NU-TPGW080204F																						3/32	3/16	1/64	.015	.090	ALMT
NU-TPGA631S	NU-TPGW080204S																						3/32	3/16	1/64	.015	.090	
NU-TPGA632	NU-TPGW080208																						7/32	3/32	1/32	.015	.102	ALMT
NU-TPGA1.81.50.5	NU-TPGW090202																						7/32	3/32	1/128	.015	.102	
NU-TPGA1.81.51	NU-TPGW090204																						7/32	3/32	1/64	.015	.102	ALMT
NU-TPGA220.5	NU-TPGA110302																						1/4	1/8	1/128	.015	.130	
NU-TPGA220.5F	NU-TPGA110302F																						1/4	1/8	1/128	.015	.130	ALMT
NU-TPGA220.5S	NU-TPGA110302S																						1/4	1/8	1/128	.015	.130	
NU-TPGA221	NU-TPGA110304																						1/4	1/8	1/64	.015	.130	ALMT
NU-TPGA221F	NU-TPGW110304F																						1/4	1/8	1/64	.015	.130	
NU-TPGA221S	NU-TPGW110304S																						1/4	1/8	1/64	.015	.130	ALMT
NU-TPGA222	NU-TPGW110308																						1/4	1/8	1/32	.015	.130	
NU-TPGA222F	NU-TPGW110308F																						1/4	1/8	1/32	.015	.130	ALMT
NU-TPGA222S	NU-TPGW110308S																						1/4	1/8	1/32	.015	.130	
NU-TPGA321	NU-TPGW160304																						3/8	1/8	1/64	.015	.1693	ALMT
NU-TPGA322	NU-TPGW160308																						3/8	1/8	1/32	.015	.1693	
NU-TPGA331	NU-TPGW160404																						3/8	1/8	1/64	.015	.1693	ALMT
NU-TPGA331F	NU-TPGW160404F																						3/8	1/8	1/64	.015	.1693	
NU-TPGA331S	NU-TPGW160404S																						3/8	1/8	1/64	.015	.1693	ALMT
NU-TPGA332	NU-TPGW160408																						3/8	1/8	1/32	.015	.1693	
NU-TPGA332S	NU-TPGW160408S																						3/8	1/8	1/32	.015	.1693	

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.  
 F = No edge preparation  
 S = Edge preparation for hardened steel boring

# Cubic Boron Nitride (PCBN) Inserts

General Info

Negative Inserts

Positive Inserts

Ace-Fix Inserts

Threading, Grooving, & Cut-Off Inserts

Ceramic Inserts

PCBN & PCD Inserts

Toolholders

Swiss Toolholders

Boring Bars

Technical Info

ALMT

VBGA	Insert Hole						Dimensions (Inches)				
		Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
—	No Breaker										
Sumitomo Cat. No.	New ISO Cat. No.										
2NU-VBGA221	2NU-VBGW110304			●			1/4	1/8	1/64	.015	.134
2NU-VBGA222	2NU-VBGW110308			●			1/4	1/8	1/32	.015	.134
2NC-VBGA221	2NC-VBGW110304				●●●		1/4	1/8	1/64	.015	.134
2NC-VBGA222	2NC-VBGW110308				●●●		1/4	1/8	1/32	.015	.134

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

VCGA	Insert Hole						Dimensions (Inches)				
		Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
—	No Breaker										
Sumitomo Cat. No.	New ISO Cat. No.										
NU-VCGA220.5	NU-VCGW110302				●●●	★	3/8	3/16	1/64	.015	.1732
NU-VCGA221	NU-VCGW110304				●●●	★	3/8	3/16	1/32	.015	.1732
2NC-VCGA331	2NC-VCGW160404				★●●		1/4	1/8	1/128	.015	.134
2NC-VCGA332	2NC-VCGW160408				★●●		1/4	1/8	1/64	.015	.134

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

VCMA	Insert Hole						Dimensions (Inches)				
		Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
—	No Breaker										
Sumitomo Cat. No.	New ISO Cat. No.										
VCM331	VCMW160404	★					3/8	3/16	1/64	.020	.1732
VCM332	VCMW160408	★					3/8	3/16	1/32	.020	.1732

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

ZNEX	Insert Hole						Dimensions (Inches)				
		Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Inscribed Circle	Thickness	Nose Radius	Max. Depth of Cut	Insert Hole Diameter
—	No Breaker										
Sumitomo Cat. No.	New ISO Cat. No.										
NU-ZNEX620.5	NU-ZNEX040102					★	3/16	1/16	1/128	.015	.090
NU-ZNEX621	NU-ZNEX040104					★	3/16	1/16	1/64	.015	.090

Note: Maximum depth of cut is based on hardened steel applications. Other materials may allow for increased maximum depths of cut.

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# Cubic Boron Nitride (PCBN) Inserts

## GROOVING INSERTS

BNGNT	Insert Hole						Dimensions (mm)				
		Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	W	I	R	L	S
—	No Breaker										
Sumitomo Cat. No.	New ISO Cat. No.										
BNGNT0200L	-----	●					2.0	4.0	0.2	25.0	6.0
BNGNT0200R	-----	●●●					2.0	4.0	0.2	25.0	6.0
BNGNT0250L	-----	●					2.5	4.0	0.2	25.0	6.0
BNGNT0250R	-----	●●●					2.5	4.0	0.2	25.0	6.0
BNGNT0300L	-----	●					3.0	5.0	0.4	25.0	6.0
BNGNT0300R	-----	●●●					3.0	5.0	0.4	25.0	6.0
BNGNT0400L	-----	●					4.0	6.0	0.4	26.0	6.0
BNGNT0400R	-----	●●●					4.0	6.0	0.4	26.0	6.0
BNGNT0500L	-----	●					5.0	6.0	0.4	26.0	6.0
BNGNT0500R	-----	●●●					5.0	6.0	0.4	26.0	6.0
BNGNT0600L	-----	●					6.0	7.0	0.4	27.0	6.0
BNGNT0600R	-----	●●●					6.0	7.0	0.4	27.0	6.0

## THREADING INSERTS

BNTT	Insert Hole						Dimensions (mm)			
		Full Tip	Multi Mid-Tip	Multi Mini-Tip	Coated Mini-Tip	Mini-Tip	Pitch	R	L	S
—	No Breaker									
Sumitomo Cat. No.	New ISO Cat. No.									
BNTT1020R	-----	●●					1.0 ~ 2.0	0.13	25.0	2.0
BNTT1530R	-----	●●					1.5 ~ 3.0	0.20	25.0	2.0