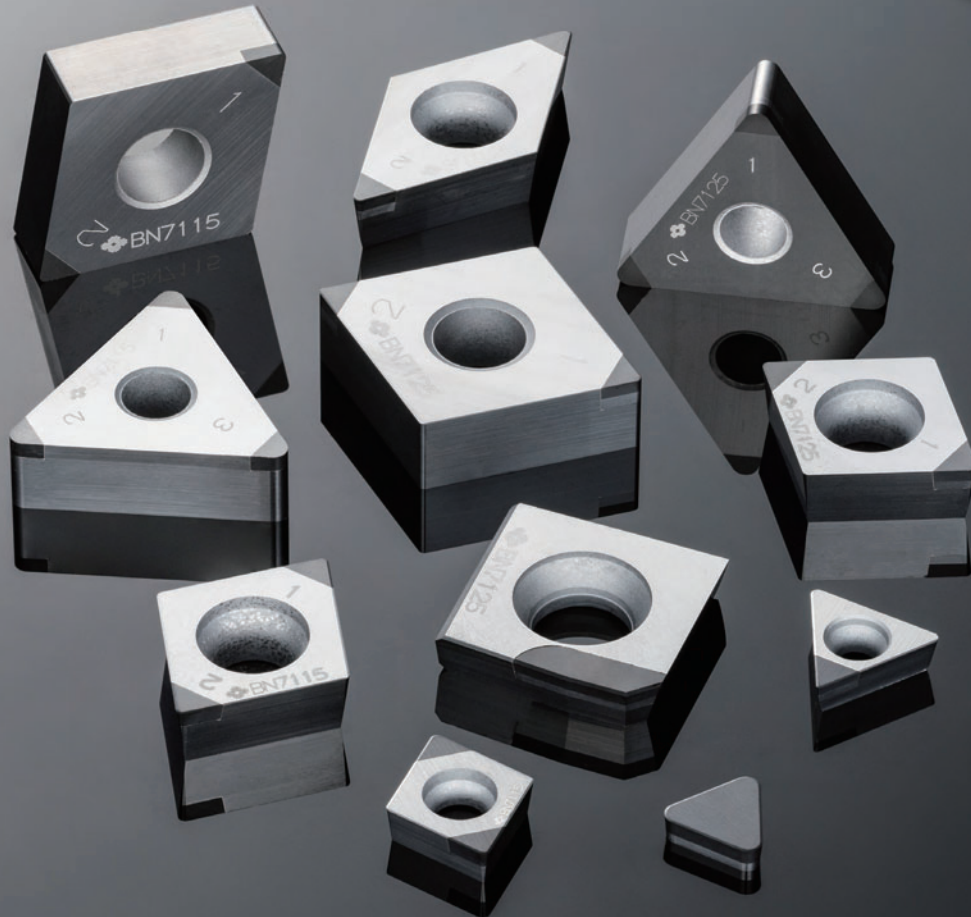


CBN Grades for Cast Iron /
Sintered Alloy Machining

SUMIBORON **BN7125^{New} / BN7115**

**Excellent stability in
high-speed machining of
cast iron and sintered alloy**



LINEUP

General-purpose machining
of cast iron and sintered alloy

Finishing of sintered alloy

^{New} **BN7125** **K** Sintered Alloy

BN7115 Sintered Alloy

^{New} **New Grade BN7125
Lineup of
117 items**

BN7125 ^{New} / BN7115



■ Features

Improved wear resistance through high CBN content.

Further, with improved CBN particle/binder boundary strength due to the special binder and improved binding strength between CBN particles thanks to our proprietary sintering process, excellent fracture resistance is achieved.

Provides stable performance for high-speed machining of cast iron and sintered alloy.



BN7125



BN7115

BN7125 ^{New}



General-purpose Grade for Cast Iron/Sintered Alloy Machining

- Achieves high-efficiency machining of sintered alloy with a standard + 3 types of cutting edge variations
- Excellent thermal crack resistance in high-speed finishing of cast iron
- Also supports the machining of exotic alloys such as rolls, HSS, heat-resistant alloys, etc.

BN7115

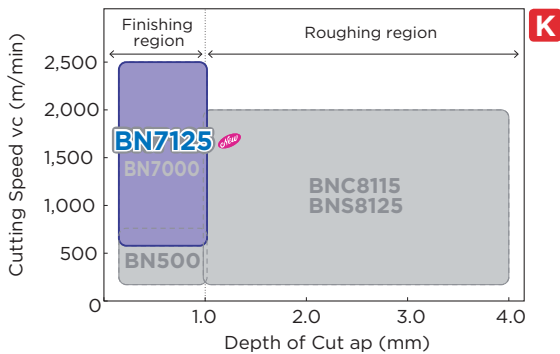


Grade for Finishing of Sintered Alloy

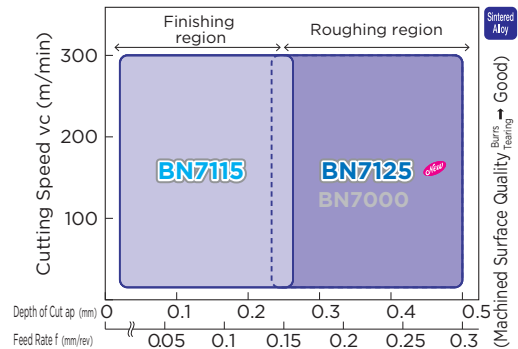
- Exhibits both excellent cutting edge sharpness and fracture resistance
- Stable edge sharpness suppresses burrs and tearing

■ Application Range for BN7125 / BN7115

● Cast Iron



● Sintered Alloy



■ Recommended Cutting Conditions

● Cast Iron



Work Material	Grade	Recommended Cutting Conditions Min. - Optimum - Max.		
		Cutting Speed vc (m/min)	Feed Rate f (mm/rev)	Depth of Cut ap (mm)
Cast Iron	BN7125	100-1,000-2,500	0.05-0.30-0.60	0.05-0.50-1.00

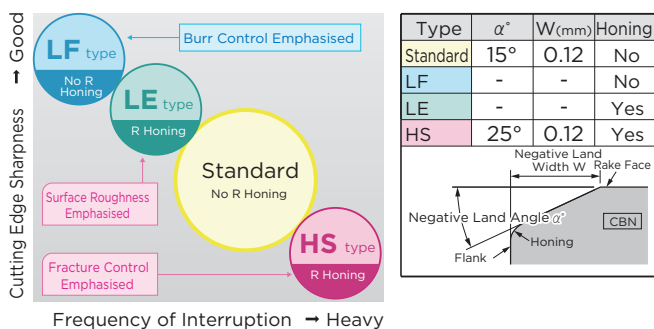
● Sintered Alloy



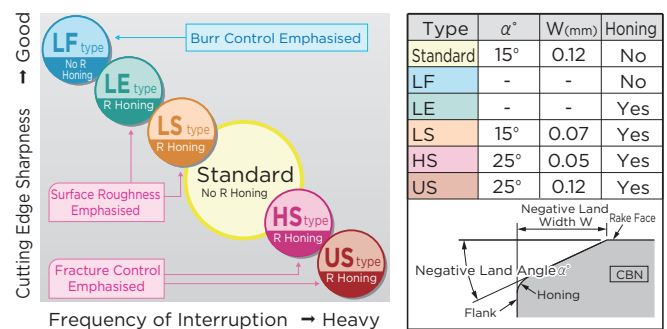
Work Material	Grade	Recommended Cutting Conditions Min. - Optimum - Max.		
		Cutting Speed vc (m/min)	Feed Rate f (mm/rev)	Depth of Cut ap (mm)
General	BN7115	10 - 150 - 300	0.01-0.08-0.15	0.05-0.13-0.25
Sintered Alloy	BN7125	10 - 150 - 300	0.01-0.15-0.30	0.05-0.25-0.50
High-density	BN7115	10 - 100 - 200	0.01-0.06-0.12	0.05-0.10-0.20
Sintered Alloy	BN7125	10 - 100 - 200	0.01-0.15-0.30	0.05-0.25-0.50

■ Recommended Cutting Edge Treatment

BN7125



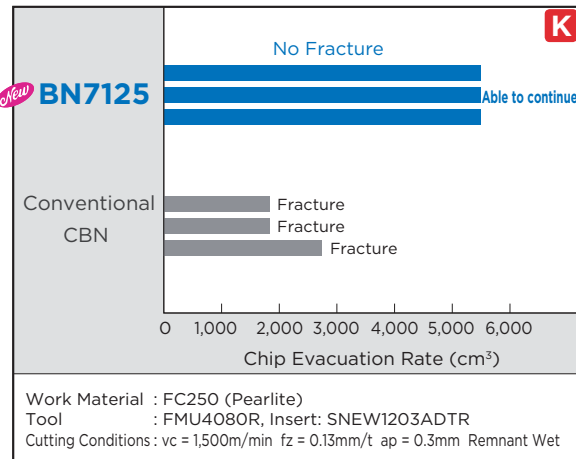
BN7115



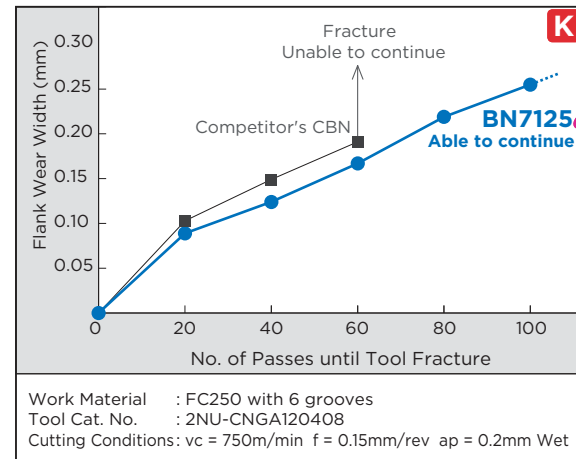
BN7125 *New* / BN7115

■ Cutting Performance (Cast Iron)

BN7125 Milling (Fracture Resistance)

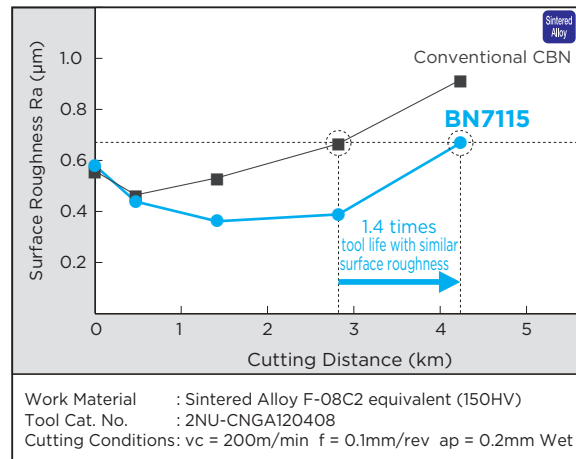


BN7125 Interrupted Cutting (Fracture Resistance)

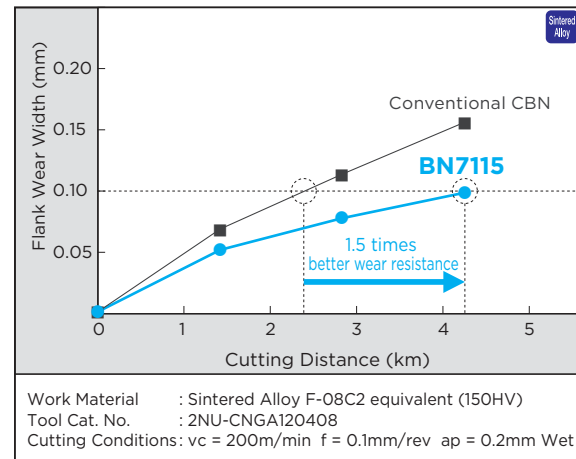


■ Cutting Performance (Sintered Alloy)

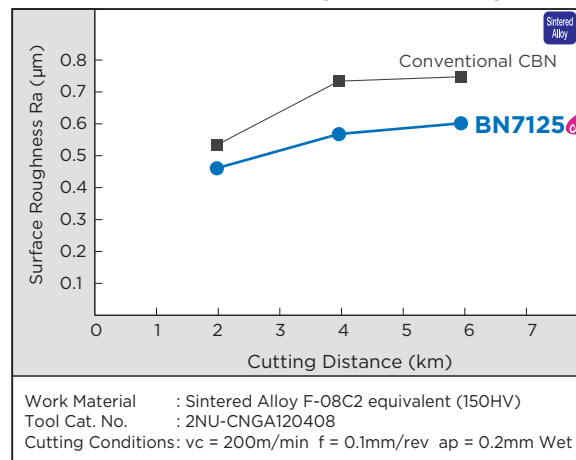
BN7115 Continuous Cutting (Surface Roughness)



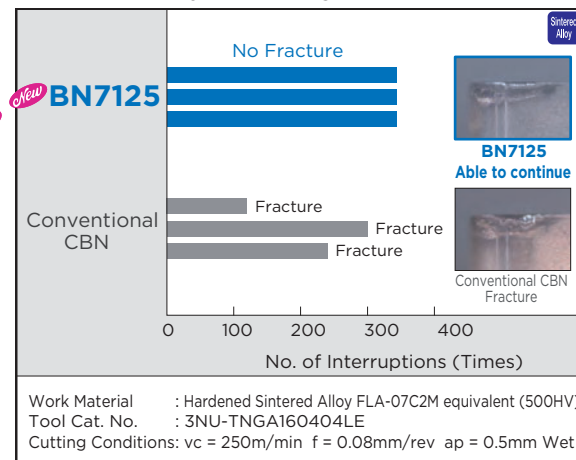
BN7115 Continuous Cutting (Wear Resistance)



BN7125 Continuous Cutting (Surface Roughness)


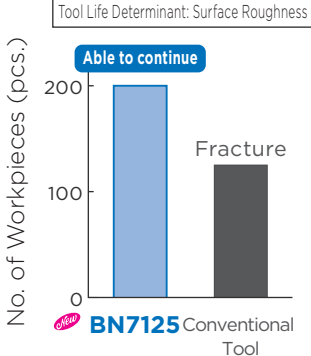
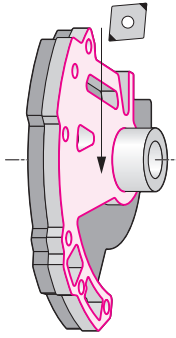
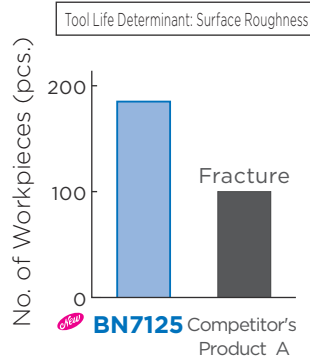


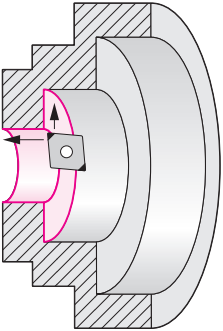
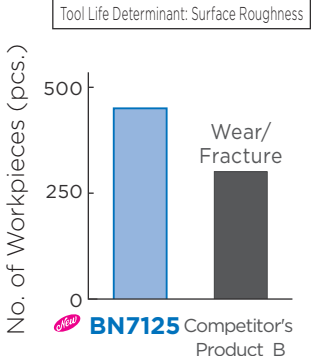
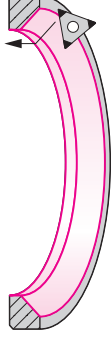
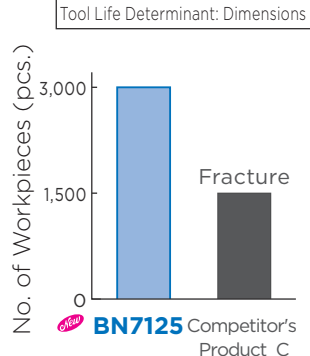
BN7125 Interrupted Cutting (Fracture Resistance)



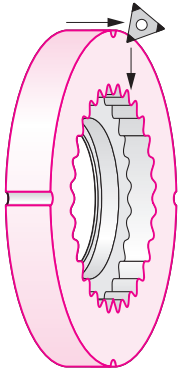
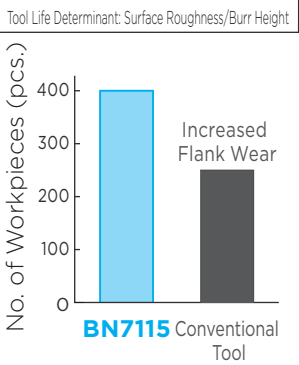
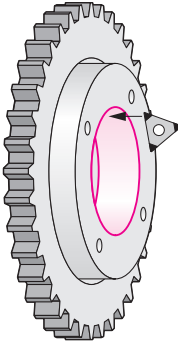
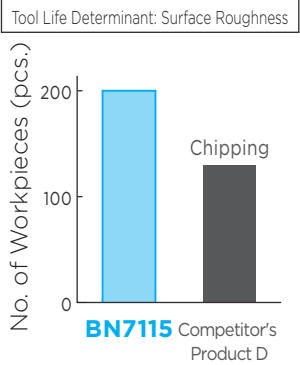
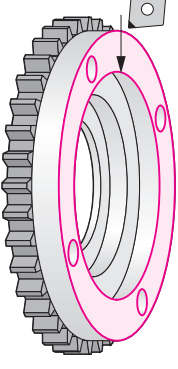
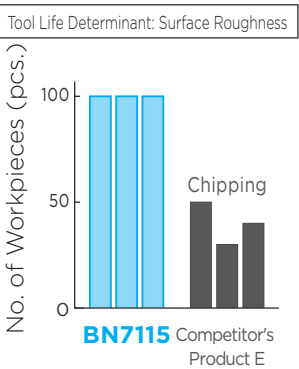
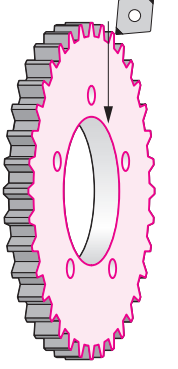
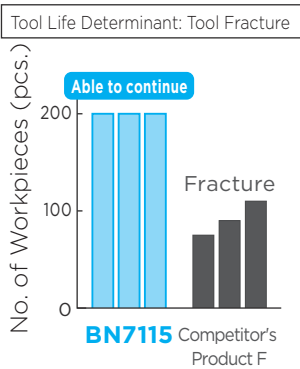
BN7125 ^{New} / BN7115

Application Examples of BN7125

Grey Cast Iron Cylinder Block Milling K	Grey Cast Iron Oil Pump Turning K
<p>BN7125 suppresses cracking due to heat damage, exhibiting excellent heat damage resistance</p>  <div style="text-align: right;"> <p>Tool Life Determinant: Surface Roughness</p>  <p>BN7125 Conventional Tool</p> </div>	<p>BN7125 exhibits excellent fracture resistance compared to competitor's CBN, achieving twice the tool life of competitor's product</p>  <div style="text-align: right;"> <p>Tool Life Determinant: Surface Roughness</p>  <p>BN7125 Competitor's Product A</p> </div>
<p>Tool: SNEN1504ADTR (BN7125) Milling Cutter: FM5125R (10 Teeth) Cutting Conditions: $v_c=800\text{m/min}$ $f_z=0.1\text{mm/t}$ $a_p=0.3\text{mm}$ Remnant Wet</p>	<p>Tool: 2NU-CNGA120408 (BN7125) Cutting Conditions: $v_c=700\text{m/min}$ $f=0.2\text{mm/rev}$ $a_p=0.5\text{mm}$ Dry</p>

Sintered Ferrous Alloy F-08C2 (450HV) Carrier Turning Sintered Alloy	Sintered Ferrous Alloy (700HV) Valve Seat Ring Turning Sintered Alloy
<p>BN7125 has excellent wear resistance and fracture resistance compared to competitor's CBN, achieving 1.5 times the tool life</p>  <div style="text-align: right;"> <p>Tool Life Determinant: Surface Roughness</p>  <p>BN7125 Competitor's Product B</p> </div>	<p>BN7125 has excellent fracture resistance compared to competitor's CBN, achieving 2 times the tool life</p>  <div style="text-align: right;"> <p>Tool Life Determinant: Dimensions</p>  <p>BN7125 Competitor's Product C</p> </div>
<p>Tool: 2NU-CNGA120408 (BN7125) Cutting Conditions: $v_c=170\text{m/min}$ $f=0.2\text{mm/rev}$ $a_p=0.3\text{mm}$ Wet</p>	<p>Tool: 3NU-TPGW160408LF (BN7125) Cutting Conditions: $v_c=300\text{m/min}$ $f=0.10\text{mm/rev}$ $a_p=0.06\text{mm}$ Wet</p>

Application Examples of BN7115

<p>Sintered Ferrous Alloy FLA-07C2M (500HV) Gear Turning <small>Sintered Alloy</small></p> <p>Excellent wear resistance helps maintain excellent surface roughness At least 1.5 times longer tool life than conventional tools</p>  <p>Tool Life Determinant: Surface Roughness/Burr Height</p>  <p>No. of Workpieces (pcs.)</p> <p>400 250</p> <p>BN7115 Conventional Tool</p> <p>Increased Flank Wear</p> <p>Tool: 3NU-TNGA160404HS (BN7115) Cutting Conditions: $v_c=180\text{m/min}$ $f=0.1\text{mm/rev}$ $a_p=0.2\text{mm}$ Wet</p>	<p>Sintered Ferrous Alloy FLA-07C2M (500HV) Gear Turning <small>Sintered Alloy</small></p> <p>Excellent chipping resistance maintains surface quality during machining for an extended period</p>  <p>Tool Life Determinant: Surface Roughness</p>  <p>No. of Workpieces (pcs.)</p> <p>200 130</p> <p>BN7115 Competitor's Product D</p> <p>Chipping</p> <p>Tool: 3NU-TNGA160404US (BN7115) Cutting Conditions: $v_c=200\text{m/min}$ $f=0.1\text{mm/rev}$ $a_p=0.1\text{mm}$ Wet</p>
<p>Sintered Ferrous Alloy F-08C2 (450HV) Gear Turning <small>Sintered Alloy</small></p> <p>BN7115 with US type cutting edge treatment suppress fractures, realising stable machining</p>  <p>Tool Life Determinant: Surface Roughness</p>  <p>No. of Workpieces (pcs.)</p> <p>100 50</p> <p>BN7115 Competitor's Product E</p> <p>Chipping</p> <p>Tool: 2NU-CNGA120404US (BN7115) Cutting Conditions: $v_c=170\text{m/min}$ $f=0.08\text{mm/rev}$ $a_p=0.10\text{mm}$ Wet</p>	<p>Sintered Ferrous Alloy F-08C2 (450HV) Gear Turning <small>Sintered Alloy</small></p> <p>Excellent fracture resistance even with sharp edge, achieving stable tool life at least twice that of competitors' products</p>  <p>Tool Life Determinant: Tool Fracture</p>  <p>No. of Workpieces (pcs.)</p> <p>200 100</p> <p>BN7115 Competitor's Product F</p> <p>Fracture</p> <p>Able to continue</p> <p>Tool: 2NU-CNGA120408LF (BN7115) Cutting Conditions: $v_c=200\text{m/min}$ $f=0.1\text{mm/rev}$ $a_p=0.2\text{mm}$ Dry</p>

BN7125 New / BN7115

Stock Table for ISO Turning Inserts

Negative type Multi-Cornered One-Use Insert

Appearance	Cat. No.	Stock		No. of Cutting Edges	Dimensions (mm)				
		BN7125 <small>New</small>	BN7115		CBN Cutting Edge Length	Inscribed Circle	Thickness	Hole Dia.	Corner Radius
	2NU-CNGA120404	●	●	2	2.5				0.4
	2NU-CNGA120408	●	●	2	2.4	12.7	4.76	5.16	0.8
	2NU-CNGA120412	●	●	2	2.3				1.2
	2NU-CNGA120404LF	●	●	2	2.5				0.4
	2NU-CNGA120408LF	●	●	2	2.4	12.7	4.76	5.16	0.8
	2NU-CNGA120404LE	●	●	2	2.5				0.4
	2NU-CNGA120408LE	●	●	2	2.4	12.7	4.76	5.16	0.8
	2NU-CNGA120404LS	—	●	2	2.5	12.7	4.76	5.16	0.4
	2NU-CNGA120404HS	●	●	2	2.5				0.4
	2NU-CNGA120408HS	●	●	2	2.4	12.7	4.76	5.16	0.8
	2NU-CNGA120412HS	●	●	2	2.3				1.2
	2NU-CNGA120404US	—	●	2	2.5	12.7	4.76	5.16	0.4
	2NU-DNGA150404	●	●	2	2.5				0.4
	2NU-DNGA150408	●	●	2	2.1	12.7	4.76	5.16	0.8
	2NU-DNGA150412	●	●	2	2.0				1.2
	2NU-DNGA150404LF	●	●	2	2.5				0.4
	2NU-DNGA150408LF	●	●	2	2.1	12.7	4.76	5.16	0.8
	2NU-DNGA150404LE	●	●	2	2.5				0.4
	2NU-DNGA150408LE	●	●	2	2.1	12.7	4.76	5.16	0.8
	2NU-DNGA150404HS	●	●	2	2.5				0.4
	2NU-DNGA150408HS	●	●	2	2.1	12.7	4.76	5.16	0.8
	2NU-SNGA120404	●	●	2	2.5				0.4
	2NU-SNGA120408	●	●	2	2.3	12.7	4.76	5.16	0.8
	2NU-SNGA120412	●	●	2	2.1				1.2
	3NU-TNGA160404	●	●	3	2.3				0.4
	3NU-TNGA160408	●	●	3	2.0	9.525	4.76	3.81	0.8
	3NU-TNGA160412	●	●	3	2.0				1.2
	3NU-TNGA160404LF	●	●	3	2.3				0.4
	3NU-TNGA160408LF	●	●	3	2.0	9.525	4.76	3.81	0.8
	3NU-TNGA160404LE	●	●	3	2.3				0.4
	3NU-TNGA160408LE	●	●	3	2.0	9.525	4.76	3.81	0.8
	3NU-TNGA160404LS	—	●	3	2.3	9.525	4.76	3.81	0.4
	3NU-TNGA160404HS	●	●	3	2.3				0.4
	3NU-TNGA160408HS	●	●	3	2.0	9.525	4.76	3.81	0.8
	3NU-TNGA160404US	—	●	3	2.3	9.525	4.76	3.81	0.4
	2NU-VNGA160404	●	●	2	2.8				0.4
	2NU-VNGA160408	●	●	2	2.0	9.525	4.76	3.81	0.8
	2NU-VNGA160408HS	●	●	2	2.0	9.525	4.76	3.81	0.8

Negative type (Without Hole) Full-top CBN Insert

Appearance	Cat. No.	Stock	No. of Cutting Edges	CBN Cutting Edge Length	Inscribed Circle	Thickness	Hole Dia.	Corner Radius
	SNGN090308-B	●	4	9.5	9.525	3.18	-	0.8

Part Number Suffix Code

Detailed Cutting Edge Specifications P2

Type	Symbol	Cutting Edge Treatment Specification
Standard type	No	No Honing
High-precision type		Low Resistance + Without Honing
		Low Resistance + With Honing
		Low Resistance + Negative Land + With Honing
Strong-edged type		Strong Edge + Negative Land + With Honing
		Strong Edge + Negative Land + With Honing (Emphasis on Fracture Resistance)

Positive type Multi-Cornered One-Use Insert

Appearance	Relief Angle	Cat. No.	Stock		No. of Cutting Edges	Dimensions (mm)				
			BN7125 <small>New</small>	BN7115		CBN Cutting Edge Length	Inscribed Circle	Thickness	Hole Dia.	Corner Radius
	7°	2NU-CCGW060202	●	●	2	2.5				0.2
		2NU-CCGW060204	●	●	2	2.5	6.35	2.38	2.8	0.4
		2NU-CCGW09T302	●	●	2	2.5				0.2
		2NU-CCGW09T304	●	●	2	2.5	9.525	3.97	4.4	0.4
		2NU-CCGW09T308	●	●	2	2.4				0.8
	7°	2NU-CCGW09T302LF	●	●	2	2.5				0.2
		2NU-CCGW09T304LF	●	●	2	2.5	9.525	3.97	4.4	0.4
		2NU-CCGW09T308LF	●	●	2	2.4				0.8
	7°	2NU-CCGW09T302LE	●	●	2	2.5				0.2
		2NU-CCGW09T304LE	●	●	2	2.5	9.525	3.97	4.4	0.4
		2NU-CCGW09T308LE	●	●	2	2.4				0.8
	7°	2NU-DCGW070202	●	●	2	2.7				0.2
		2NU-DCGW070204	●	●	2	2.5	6.35	2.38	2.8	0.4
		2NU-DCGW070208	●	●	2	2.7				0.8
		2NU-DCGW11T302	●	●	2	2.1				0.2
		2NU-DCGW11T304	●	●	2	2.5	9.525	3.97	4.4	0.4
	7°	2NU-DCGW11T308	●	●	2	2.1				0.8
		2NU-DCGW11T302LF	●	●	2	2.7				0.2
		2NU-DCGW11T304LF	●	●	2	2.5	9.525	3.97	4.4	0.4
	7°	2NU-DCGW11T308LF	●	●	2	2.1				0.8
		2NU-DCGW11T302LE	●	●	2	2.7				0.2
		2NU-DCGW11T304LE	●	●	2	2.5	9.525	3.97	4.4	0.4
	7°	2NU-DCGW11T308LE	●	●	2	2.1				0.8
		2NU-DCGW11T302LS	—	●	2	2.7				0.2
		2NU-DCGW11T304LS	—	●	2	2.5	9.525	3.97	4.4	0.4
		2NU-DCGW11T308LS	—	●	2	2.1				0.8
	11°	3NU-TPGW080202	●	●	3	2.6				0.2
		3NU-TPGW080204	●	●	3	2.5	4.76	2.38	2.4	0.4
		3NU-TPGW090202	●	●	3	2.6				0.2
		3NU-TPGW090204	●	●	3	2.5	5.56	2.38	2.8	0.4
		3NU-TPGW110202	●	●	3	2.5				0.2
	11°	3NU-TPGW110204	●	●	3	2.3	6.35	2.38	2.8	0.4
		3NU-TPGW110208	●	●	3	2.0				0.8
		3NU-TPGW110302	●	●	3	2.6				0.2
	11°	3NU-TPGW110304	●	●	3	2.5	6.35	3.18	3.4	0.4
		3NU-TPGW110308	●	●	3	2.2				0.8
		3NU-TPGW160404	●	●	3	2.5	9.525	4.76	4.4	0.4
		3NU-TPGW160408	●	●	3	2.2				0.8
		3NU-TPGW080204LF	●	●	3	2.5	4.76	2.38	2.4	0.4
	11°	3NU-TPGW110204LF	●	●	3	2.3	6.35	2.38	2.8	0.4
		3NU-TPGW110302LF	●	●	3	2.6				0.2
		3NU-TPGW110304LF	●	●	3	2.5	6.35	3.18	3.4	0.4
	11°	3NU-TPGW110308LF	●	●	3	2.2				0.8
		3NU-TPGW160404LF	●	●	3	2.5	9.525	4.76	4.4	0.4
		3NU-TPGW160408LF	●	●	3	2.5				0.8
	5°	2NU-VBGW110302	●	●	2	3.2				0.2
		2NU-VBGW110304	●	●	2	2.8	6.35	3.18	2.8	0.4
		2NU-VBGW160404	●	●	2	3.3				0.4
	7°	2NU-VBGW160408	●	●	2	2.5	9.525	4.76	4.4	0.8
		2NU-VCGW160404	●	●	2	2.8	9.525	4.76	4.4	0.4

Positive type One-Use Insert

Appearance	Relief Angle	Cat. No.	Stock	No. of Cutting Edges	CBN Cutting Edge Length	Inscribed Circle	Thickness	Hole Dia.	Corner Radius	
	7°	NU-CCEW03X102LF	●	●	1	1.2	3.5	1.4	1.9	0.2
		NU-CCEW04X102LF	●	●	1	2.0	4.3	1.8	2.3	0.2
	5°	NU-WBEW060102L-LF	●	●	1	1.3	3.97	1.59	2.2	0.2

Positive type (Without Hole) Full-top CBN Insert

Appearance	Relief Angle	Cat. No.	Stock	No. of Cutting Edges	CBN Cutting Edge Length	Inscribed Circle	Thickness	Hole Dia.	Corner Radius	
	5°	TBGN060104B	●	●	3	6.3	3.97	1.59	-	0.4
		TBGN060108B	●	●	3	5.7				0.8

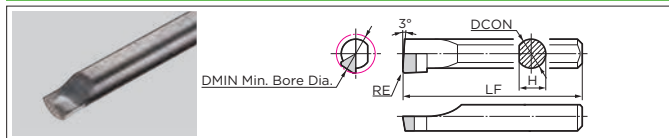
Regarding cutting edge specifications not stated above, please contact us to confirm whether manufacturing is possible.

●● marks: 1-pc and 10-pc packs in stock (new products marked with ●) ●● marks: 1-pc in stock only (new products marked with ●) Blank: Made-to-order item
 — mark: Not available

BN7125 *New* / BN7115

Stock Table for Turning Tools

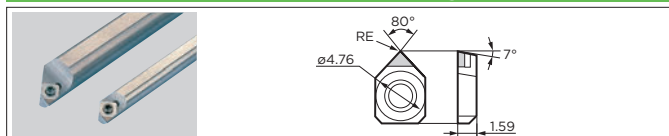
SUMIBORON Small Hole Boring Bars BNBX series



HOLDERS

Cat. No.	Stock BN7125	Dimensions (mm)				
		Min. Bore Dia. DMIN	Shank Diameter DCON	Height H	Overall Length LF	Corner Radius RE
BNBX020R	●	2.5	2.0	1.8	40	0.2
BNBX025R	●	3.0	2.5	2.2	40	0.2
BNBX030R	●	3.5	3.0	2.7	40	0.2
BNBX035R	●	4.0	3.5	3.2	40	0.2
BNBX040R	●	4.5	4.0	3.7	40	0.2
BNBX045R	●	5.0	4.5	4.2	40	0.2
BNBX050R	●	5.5	5.0	4.7	60	0.2
BNBX055R	●	6.0	5.5	5.2	60	0.2
BNBX060R	●	6.5	6.0	5.7	60	0.2

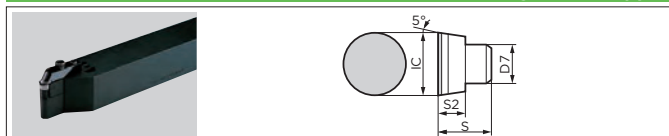
For SUMIBORON Small Hole Boring Bars BNZ series



INSERT

Appearance	Cat. No.	Stock BN7125	Dimensions (mm)			
			Inscribed Circle IC	Thickness S	Hole Dia. D1	Corner Radius RE
	NU-ZNEX 040102	●	4.76	1.59	2.3	0.2
	NU-ZNEX 040104	●				0.4

For SUMIBORON Tool Holder for Roll Turning BNRN type

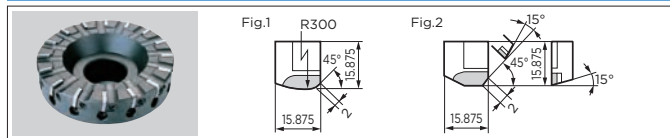


INSERT

Appearance	Cat. No.	Stock BN7125	Dimensions (mm)			
			Inscribed Circle IC	Shank Diameter D7	Thickness S2	Thickness S
	RBG08-B	●	8.0	4.0	4.0	6.5
	RBG10-B	●	10.0	5.0	5.0	9.0
	RBG12-B	●	12.0	6.0	6.0	11.0
	RBG16-B	●	16.0	8.0	8.0	13.0
	RBG20-B	●	20.0	10.0	10.0	15.0
	RBG26-B	●	26.0	14.0	10.0	15.0

Stock Table for Milling Tools

For SUMIBORON BN Finish Mill FM series / FMF series

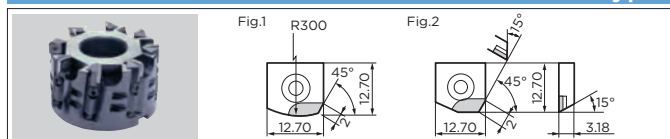


INSERT

Appearance	Cat. No.	Stock BN7125	Dimensions (mm)		
			Overall Length L	Thickness S	Fig
	SNEN1504ADTR	●	15.875	4.76	1
	SNEN1504ADTR-S	●	15.875	4.76	2

*Part Number Suffix S: Low Cutting Force Insert

For SUMIBORON BN Finish Mill EASY FMU type

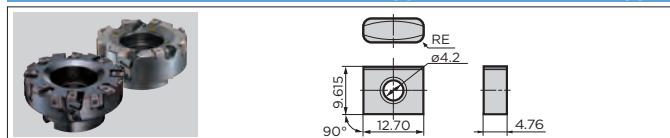


INSERT

Appearance	Cat. No.	Stock BN7125	Dimensions (mm)		
			Overall Length L	Thickness S	Fig
	SNEW1203ADTR	●	12.70	3.18	1
	SNEW1203ADTR-S	●	12.70	3.18	2

*Part Number Suffix S: Low Cutting Force Insert

For SEC-Goal MILL GFX13000 type / GFXC13000 type



INSERT

Cat. No.	Stock BN7125	Dimensions (mm)		
		Overall Length L	Thickness S	Corner Radius RE
LNGX130516PNTN-W	●	12.70	4.76	1.6

Refer to the General Catalogue for details on the holders and cutters of the products indicated on this page.

● mark: Standard stocked item (new product)



- 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.

< SAFETY NOTES >

- 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.**

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