



CARBIDE - CBN - DIAMOND

CBN Grade for Cast Iron /
Sintered Alloy Machining

SUMIBORON ^{NEW} BN7125 /BN7115

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



General-purpose machining
of cast iron and sintered alloy

BN7125

New Grade BN7125
Lineup of 117 items

Finishing of sintered alloy

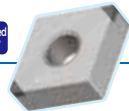
BN7115



■ 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.

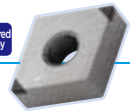
BN7125 ^{NEW}



General-purpose Grade for Cast Iron / Sintered Alloy Machining

- High-efficiency machining of sintered alloy with the standard cutting edge + 3 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.

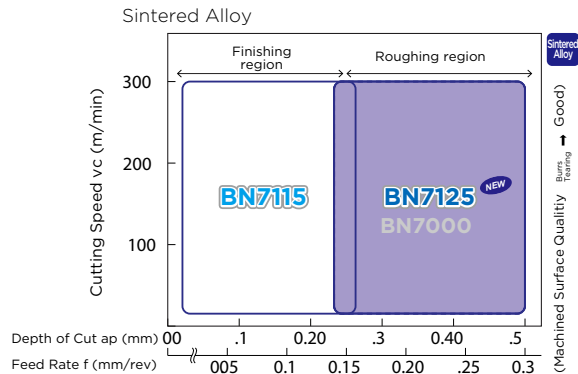
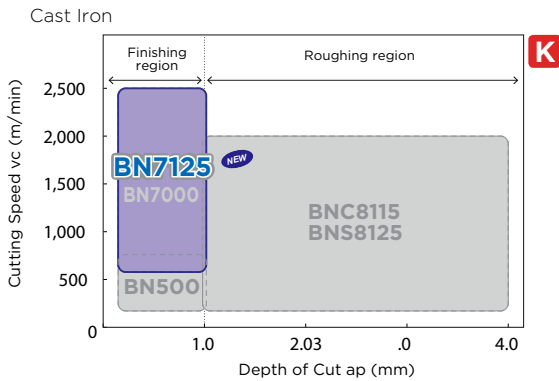
BN7115



Grade for Finishing Sintered Alloy

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

■ Application Range for BN7125 / BN7115



■ Recommended Cutting Conditions

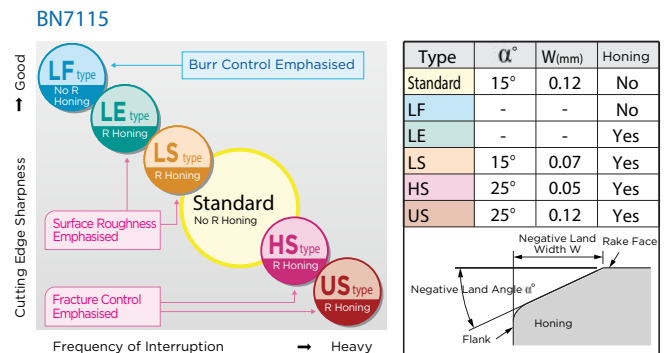
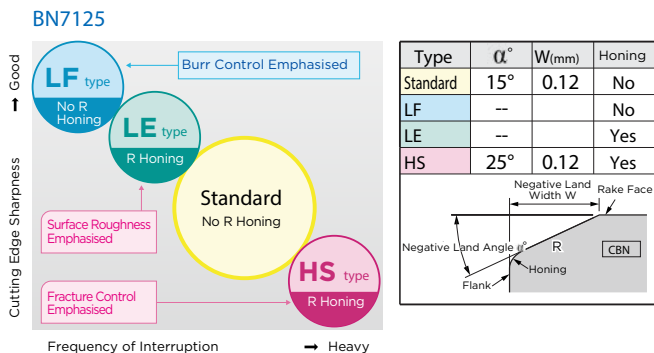
Cast Iron

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

Sintered Alloy

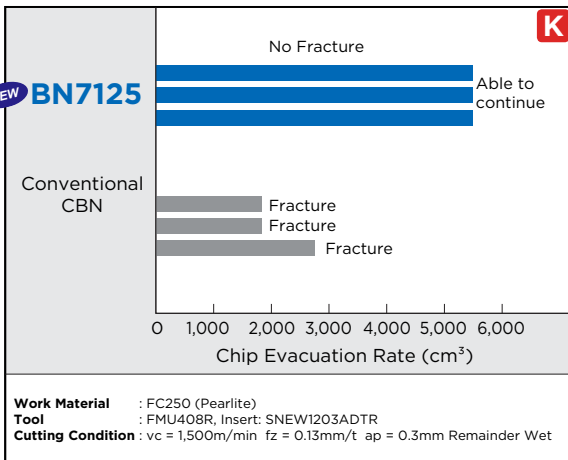
Work Material	Grade	Recommended Cutting Conditions Min. - Optimum - Max.		
		Cutting Speed v_c (m/min)	Feed Rate f (mm/rev)	Depth of Cut a_p (mm)
General	BN7115	10 - 150 - 300	0.01 - 0.08 - 0.15	0.05 - 0.13 - 0.25
Sintered Alloy	BN7125	10 - 150 - 300	0.01 - 0.15 - 0.30	0.05 - 0.25 - 0.50
High-density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

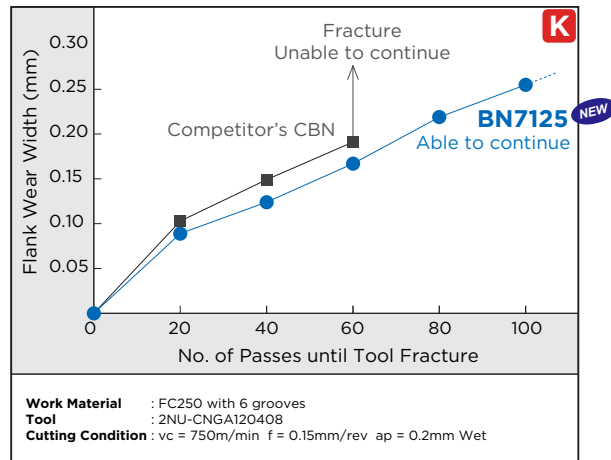


Cutting Performance (Cast Iron)

BN7125 Milling (Fracture Resistance)

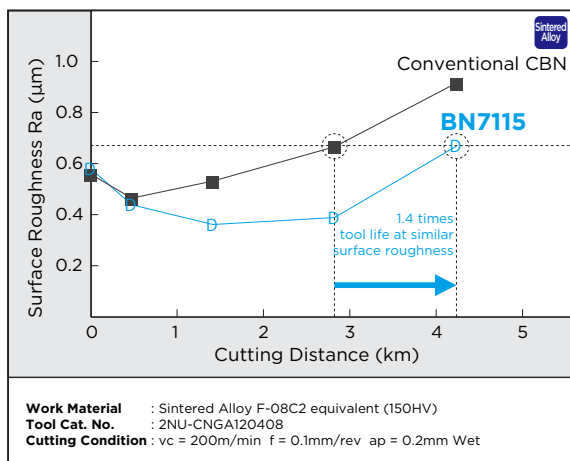


BN7125 Interrupted Cutting (Fracture Resistance)

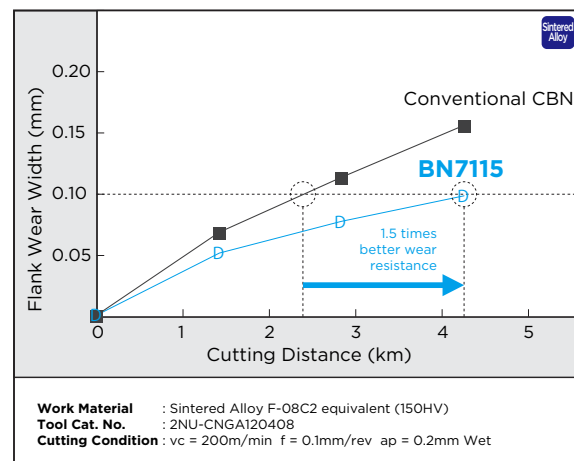


Cutting Performance (Sintered Alloy)

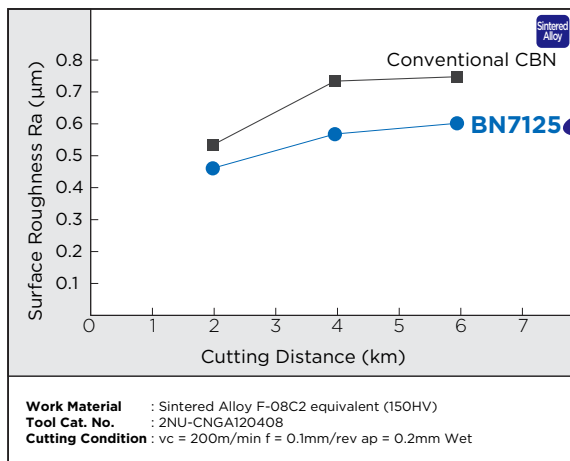
BN7115 Continuous Cutting (Surface Roughness)



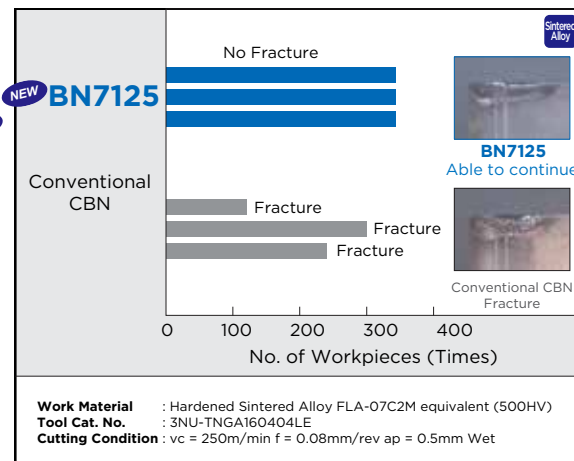
BN7115 Continuous Cutting (Wear Resistance)




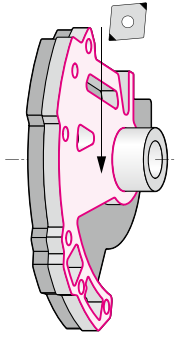
BN7125 Continuous Cutting (Surface Roughness)

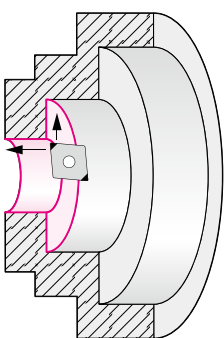



BN7125 Interrupted Cutting (Fracture Resistance)


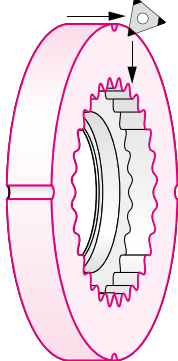
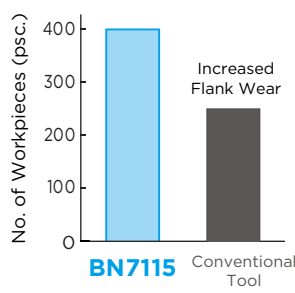

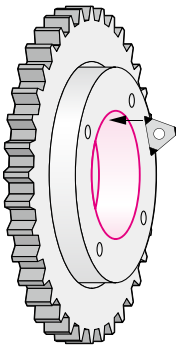
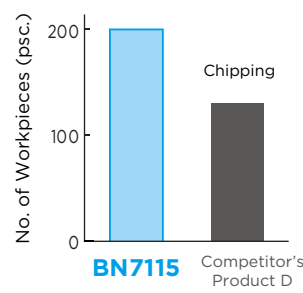



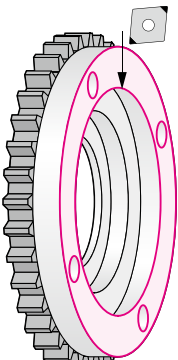
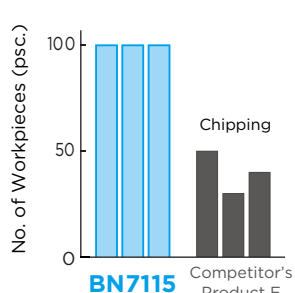

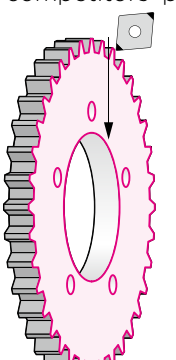
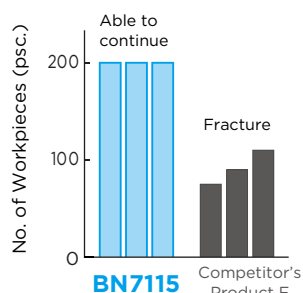
■ Application Examples of **BN7125** ^{NEW}

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 data-bbox="462 443 766 795"> <p>Tool Life Determinant: Surface Roughness</p> <p>Able to continue</p> <table border="1"> <caption>No. of Workpieces (psc.)</caption> <thead> <tr> <th>Tool</th> <th>No. of Workpieces (psc.)</th> </tr> </thead> <tbody> <tr> <td>BN7125</td> <td>200</td> </tr> <tr> <td>Conventional Tool</td> <td>125 (Fracture)</td> </tr> </tbody> </table> </div>	Tool	No. of Workpieces (psc.)	BN7125	200	Conventional Tool	125 (Fracture)	<p>BN7125 exhibits excellent fracture resistance compared to competitors' CBN, achieving twice the tool life of competitors' products</p>  <div data-bbox="1141 443 1444 795"> <p>Tool Life Determinant: Surface Roughness</p> <table border="1"> <caption>No. of Workpieces (psc.)</caption> <thead> <tr> <th>Tool</th> <th>No. of Workpieces (psc.)</th> </tr> </thead> <tbody> <tr> <td>BN7125</td> <td>180</td> </tr> <tr> <td>Competitor's Product A</td> <td>90 (Fracture)</td> </tr> </tbody> </table> </div>	Tool	No. of Workpieces (psc.)	BN7125	180	Competitor's Product A	90 (Fracture)
Tool	No. of Workpieces (psc.)												
BN7125	200												
Conventional Tool	125 (Fracture)												
Tool	No. of Workpieces (psc.)												
BN7125	180												
Competitor's Product A	90 (Fracture)												
<p>Tool: SNE1504ADTR (BN7125) Milling Cutter: FM5125R (10 Teeth) Cutting Conditions: vc=800m/min fz=0.1mm/t ap=0.3mm Remainder Wet</p>	<p>Tool: 2NU-CNGA120408 (BN7125) Cutting Conditions: vc=700m/min f=0.2mm/rev ap=0.5mm 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 competitors' CBN, achieving 1.5 times the tool life</p>  <div data-bbox="462 1142 766 1500"> <p>Tool Life Determinant: Surface Roughness</p> <table border="1"> <caption>No. of Workpieces (psc.)</caption> <thead> <tr> <th>Tool</th> <th>No. of Workpieces (psc.)</th> </tr> </thead> <tbody> <tr> <td>BN7125</td> <td>450</td> </tr> <tr> <td>Competitor's Product B</td> <td>300 (Wear/Fracture)</td> </tr> </tbody> </table> </div>	Tool	No. of Workpieces (psc.)	BN7125	450	Competitor's Product B	300 (Wear/Fracture)	<p>BN7125 has excellent fracture resistance compared to competitors' CBN, achieving 2 times the tool life</p>  <div data-bbox="1141 1142 1444 1500"> <p>Tool Life Determinant: Dimensions</p> <table border="1"> <caption>No. of Workpieces (psc.)</caption> <thead> <tr> <th>Tool</th> <th>No. of Workpieces (psc.)</th> </tr> </thead> <tbody> <tr> <td>BN7125</td> <td>3000</td> </tr> <tr> <td>Competitor's Product C</td> <td>1500 (Fracture)</td> </tr> </tbody> </table> </div>	Tool	No. of Workpieces (psc.)	BN7125	3000	Competitor's Product C	1500 (Fracture)
Tool	No. of Workpieces (psc.)												
BN7125	450												
Competitor's Product B	300 (Wear/Fracture)												
Tool	No. of Workpieces (psc.)												
BN7125	3000												
Competitor's Product C	1500 (Fracture)												
<p>Tool: 2NU-CNGA120408 (BN7125) Cutting Conditions: vc=170m/min f=0.2mm/rev ap=0.3mm Wet</p>	<p>Tool: 3NU-TPGW160408LF (BN7125) Cutting Conditions: vc=300m/min f=0.10mm/rev ap=0.06mm Wet</p>												

■ **Application Examples of BN7115**

<p>Sintered Ferrous Alloy FLA-07C2M (500HV) Gear Turning </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>Tool: 3NU-TNGA160404HS (BN7115) Cutting Conditions: $vc=180\text{m/min}$ $f=0.1\text{mm/rev}$ $ap=0.2\text{mm}$ Wet</p>	<p>Sintered Ferrous Alloy FLA-07C2M (500HV) Gear Turning </p> <p>Excellent chipping resistance maintains surface quality during machining for the long term</p>  <p>Tool Life Determinant: Surface Roughness</p>  <p>Tool: 3NU-TNGA160404US (BN7115) Cutting Conditions: $vc=200\text{m/min}$ $f=0.1\text{mm/rev}$ $ap=0.1\text{m}$ Wet</p>
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<p>Sintered Ferrous Alloy F-08C2 (450HV) Gear Turning </p> <p>BN7115 and cutting edge treated US type suppress fractures, realising stable machining</p>  <p>Tool Life Determinant: Surface Roughness</p>  <p>Tool: 2NU-CNGA120404US (BN7115) Cutting Conditions: $vc=170\text{m/min}$ $f=0.08\text{mm/rev}$ $ap=0.10\text{mm}$ Wet</p>	<p>Sintered Ferrous Alloy F-08C2 (450HV) Gear Turning </p> <p>Excellent fracture resistance for sharp edges as well, achieving stable tool life at least twice that of competitors' products</p>  <p>Tool Life Determinant: Tool Fracture</p>  <p>Tool: 3NU-TPGW160408LF (BN7125) Cutting Conditions: $vc=200\text{m/min}$ $f=0.1\text{mm/rev}$ $ap=0.2\text{mm}$ Dry</p>
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■ Stock Table for ISO Turning Inserts

● Multi-Cornered One-Use Insert Negative

Shape	Cat. No.	BN7125	BN7115	No. of corners	Dimensions (mm)				
					CBN Cutting Edge	Inscribed circle	Thickness	Screw hole Ø	Nose radius
	CNGA 120404 NU2	●	○	2	2,5	12,7	4,76	5,16	0,4
	120408 NU2	●	●	2	2,4	12,7	4,76	5,16	0,8
	120412 NU2	●	○	2	2,3	12,7	4,76	5,16	1,2
	CNGA 120404 LF NU2	○	○	2	2,5	12,7	4,76	5,16	0,4
	120408 LF NU2	○	○	2	2,4	12,7	4,76	5,16	0,8
	CNGA 120404 LE NU2	○	○	2	2,5	12,7	4,76	5,16	0,4
	120408 LE NU2	○	○	2	2,4	12,7	4,76	5,16	0,8
	CNGA 120404 LS NU2	○	○	2	2,5	12,7	4,76	5,16	0,4
	CNGA 120404 HS NU2	○	○	2	2,5	12,7	4,76	5,16	0,4
120408 HS NU2	○	○	2	2,4	12,7	4,76	5,16	0,8	
120412 HS NU2	○	○	2	2,3	12,7	4,76	5,16	1,2	
CNGA 120404 US NU2	○	○	2	2,5	12,7	4,76	5,16	0,4	
	DNGA 150404 NU2	○	○	2	2,5	12,7	4,76	5,16	0,4
	150408 NU2	○	○	2	2,1	12,7	4,76	5,16	0,8
	150412 NU2	○	○	2	2,0	12,7	4,76	5,16	1,2
	DNGA 150404 LF NU2	○	○	2	2,5	12,7	4,76	5,16	0,4
	150408 LF NU2	○	○	2	2,1	12,7	4,76	5,16	0,8
	DNGA 150404 LE NU2	○	○	2	2,5	12,7	4,76	5,16	0,4
	150408 LE NU2	○	○	2	2,1	12,7	4,76	5,16	0,8
	DNGA 150404 HS NU2	○	○	2	2,5	12,7	4,76	5,16	0,4
	150408 HS NU2	○	○	2	2,1	12,7	4,76	5,16	0,8
	SNGA 120404 NU2	○	○	2	2,5	12,7	4,76	5,16	0,4
	120408 NU2	○	○	2	2,3	12,7	4,76	5,16	0,8
	120412 NU2	○	○	2	2,1	12,7	4,76	5,16	1,2
	TNGA 160404 NU3	○	○	3	2,3	9,525	4,76	3,81	0,4
	160408 NU3	○	○	3	2,0	9,525	4,76	3,81	0,8
	160412 NU3	○	○	3	2,0	9,525	4,76	3,81	1,2
	TNGA 160404 LF NU3	○	○	3	2,3	9,525	4,76	3,81	0,4
	160408 LF NU3	○	○	3	2,0	9,525	4,76	3,81	0,8
	TNGA 160404 LE NU3	○	○	3	2,3	9,525	4,76	3,81	0,4
	160408 LE NU3	○	○	3	2,0	9,525	4,76	3,81	0,8
	TNGA 160404 LS NU3	○	○	3	2,3	9,525	4,76	3,81	0,4
	TNGA 160404 HS NU3	○	○	3	2,3	9,525	4,76	3,81	0,4
160408 HS NU3	○	○	3	2,0	9,525	4,76	3,81	0,8	
160416 HS NU3	●	○	3	3,3	9,525	4,76	3,81	1,6	
TNGA 160404 US NU3	○	○	3	2,3	9,525	4,76	3,81	0,4	
	VNGA 160404 NU2	○	●	2	2,8	9,525	4,76	3,81	0,4
	160408 NU2	○	●	2	2,0	9,525	4,76	3,81	0,8
	VNGA 160408 HS NU2	○	○	2	2,0	9,525	4,76	3,81	0,8

● Negative (Without Hole) Full-top CBN Type

	SNGN 090308 B	○	○	4	9,5	9,525	3,18	-	0,8
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● Positive (Without Hole) Full-top CBN Type

	TBGN 060104 B	○	○	3	6,3	3,97	1,59	-	0,4
	060108 B	○	○	3	5,7	3,97	1,59	-	0,8

● Part Number Suffix Code

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

● Multi-Cornered One-Use Insert Positive

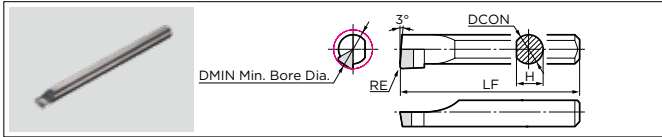
Shape	Relief angle	Cat. No.	BN7125	BN7115	No. of corners	Dimensions (mm)				
						CBN Cutting Edge	Inscribed circle	Thickness	Screw hole Ø	Nose radius
	7°	CCGW 060202 NU2	○	○	2	2,5	6,35	2,38	2,8	0,2
		060204 NU2	○	●	2	2,5	6,35	2,38	2,8	0,4
		CCGW 09T302 NU2	○	○	2	2,5	9,525	3,97	4,4	0,2
		09T304 NU2	○	●	2	2,5	9,525	3,97	4,4	0,4
		09T308 NU2	○	●	2	2,4	9,525	3,97	4,4	0,8
		CCGW 09T308 HS NU2	○	●	2	2,4	9,525	3,97	4,4	0,8
		CCGW 09T302 LF NU2	○	○	2	2,5	9,525	3,97	4,4	0,2
		09T304 LF NU2	○	○	2	2,5	9,525	3,97	4,4	0,4
		09T308 LF NU2	○	○	2	2,4	9,525	3,97	4,4	0,8
		CCGW 09T302 LE NU2	○	○	2	2,5	9,525	3,97	4,4	0,2
		09T304 LE NU2	○	○	2	2,5	9,525	3,97	4,4	0,4
		09T308 LE NU2	○	○	2	2,4	9,525	3,97	4,4	0,8
	7°	DCGW 070202 NU2	○	○	2	2,7	6,35	2,38	2,8	0,2
		070204 NU2	○	○	2	2,5	6,35	2,38	2,8	0,4
		070208 NU2	○	●	2	2,1	6,35	2,38	2,8	0,8
		DCGW 070208 HS NU2	○	●	2	2,1	6,35	2,38	2,8	0,8
		DCGW 11T302 NU2	○	○	2	2,7	9,525	3,97	4,4	0,2
		11T304 NU2	○	○	2	2,5	9,525	3,97	4,4	0,4
		11T308 NU2	○	●	2	2,1	9,525	3,97	4,4	0,8
		DCGW 11T302 LF NU2	○	○	2	2,7	9,525	3,97	4,4	0,2
		11T304 LF NU2	○	○	2	2,5	9,525	3,97	4,4	0,4
		11T308 LF NU2	○	●	2	2,1	9,525	3,97	4,4	0,8
		DCGW 11T302 LE NU2	○	○	2	2,7	9,525	3,97	4,4	0,2
		11T304 LE NU2	○	○	2	2,5	9,525	3,97	4,4	0,4
		11T308 LE NU2	○	○	2	2,1	9,525	3,97	4,4	0,8
		DCGW 11T302 LS NU2	○	○	2	2,7	9,525	3,97	4,4	0,2
		11T304 LS NU2	○	○	2	2,5	9,525	3,97	4,4	0,4
		11T308 LS NU2	○	○	2	2,1	9,525	3,97	4,4	0,8
		DCGW 11T304 HS NU2	○	●	2	2,5	9,525	3,97	4,4	0,4
		11T308 HS NU2	○	●	2	2,1	9,525	3,97	4,4	0,8
	11°	TPGW 080202 NU3	○	○	3	2,6	4,76	2,38	2,4	0,2
		080204 NU3	○	○	3	2,5	4,76	2,38	2,4	0,4
		TPGW 090202 NU3	○	○	3	2,6	5,56	2,38	2,8	0,2
		090204 NU3	○	○	3	2,5	5,56	2,38	2,8	0,4
		TPGW 110202 NU3	○	○	3	2,5	6,35	2,38	2,8	0,2
		110204 NU3	○	○	3	2,3	6,35	2,38	2,8	0,4
		110208 NU3	○	○	3	2,0	6,35	2,38	2,8	0,8
		TPGW 110302 NU3	○	○	3	2,6	6,35	3,18	3,4	0,2
		110304 NU3	○	○	3	2,5	6,35	3,18	3,4	0,4
		110308 NU3	○	○	3	2,2	6,35	3,18	3,4	0,8
		TPGW 160404 NU3	○	○	3	2,5	9,525	4,76	4,4	0,4
		160408 NU3	○	○	3	2,2	9,525	4,76	4,4	0,8
		TPGW 080204 LF NU3	○	○	3	2,5	4,76	2,38	2,4	0,4
		TPGW 110204 LF NU3	○	○	3	2,3	6,35	2,38	2,8	0,4
		TPGW 110302 LF NU3	○	○	3	2,6	6,35	3,18	3,4	0,2
		110304 LF NU3	○	○	3	2,5	6,35	3,18	3,4	0,4
		110308 LF NU3	○	○	3	2,2	6,35	3,18	3,4	0,8
		TPGW 160404 LF NU3	○	○	3	2,5	9,525	4,76	4,4	0,4
160408 LF NU3	○	○	3	2,5	9,525	4,76	4,4	0,8		
TPGW 110204 LE NU3	○	○	3	2,3	6,35	2,38	2,8	0,4		
TPGW 110302 LE NU3	○	○	3	2,6	6,35	3,18	3,4	0,2		
110304 LE NU3	○	○	3	2,5	6,35	3,18	3,4	0,4		
110308 LE NU3	○	○	3	2,2	6,35	3,18	3,4	0,8		
	5°	VBGW 110302 NU2	○	○	2	3,2	6,35	3,18	2,8	0,2
		110304 NU2	○	○	2	2,8	6,35	3,18	2,8	0,4
		VBGW 160404 NU2	○	○	2	3,3	9,525	4,76	4,4	0,4
		160408 NU2	○	○	2	2,5	9,525	4,76	4,4	0,8
	7°	VBGW 160408 LE NU2	○	○	2	2,5	9,525	4,76	4,4	0,8
		VCGW 160404 NU2	○	○	2	2,8	9,525	4,76	4,4	0,4

● One-Use Insert Positive

	7°	CCEW 03X102 LF NU	○	○	1	1,2	3,5	1,4	1,9	0,2
		04X102 LF NU	○	○	1	2,0	4,3	1,8	2,3	0,2
	11°	TPGW 160404 NU	○	○	1	2,5	9,525	4,76	4,3	0,4
			○	○	1	1,3	3,97	1,59	2,2	0,2

Stock Table for Turning

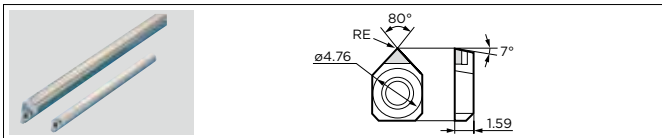
SUMIBORON Small Hole Boring Bars BNBX series



● Holders

Cat. No.	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

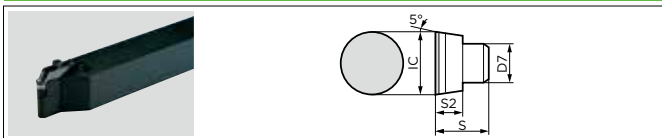
For SUMIBORON Small Hole Boring Bars BNZ series



● Insert

Appearance	Cat. No.	BN7125	Dimensions (mm)			
			Inscribed circle	Thickness	Hole Dia.	Corner Radius
	ZNEX 040102 NU	○	4,76	1,59	2,3	0,2
	ZNEX 040104 NU	○	4,76	1,59	2,3	0,4

For SUMIBORON Tool Holder for Roll Turning BNRN type

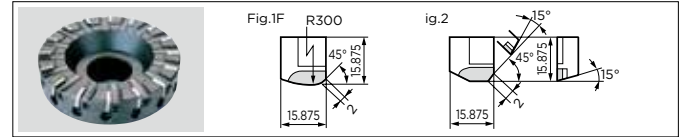


● Insert

Appearance	Cat. No.	BN7125	Dimensions (mm)			
			Inscribed circle	Shank Diameter	Thickness	Thickness
	RBG 08-B	○	8,0	4,0	4,0	6,5
	RBG 10-B	○	10,0	5,0	5,0	9,0
	RBG 12-B		12,0	6,0	6,0	11,0
	RBG 16-B		16,0	8,0	8,0	13,0
	RBG 20-B		20,0	10,0	10,0	15,0
	RBG 26-B		26,0	14,0	10,0	15,0

Stock Table for Milling

For SUMIBORON BN Finish Mill FM series / FMF series

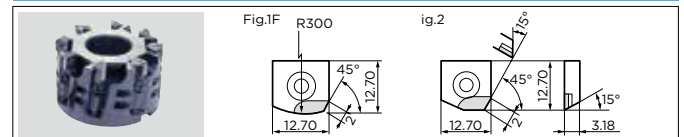


● Insert

Appearance	Cat. No.	BN7125	Dimensions (mm)		
			Overall Length	Thick-ness	Fig
	SNEN 1504ADTR		15,875	4,76	1
	SNEN 1504ADTR-S		15,875	4,76	0,2

*Part Number Suffix S: Low Cutting Force Insert

For SUMIBORON BN Finish Mill EASY FMU type

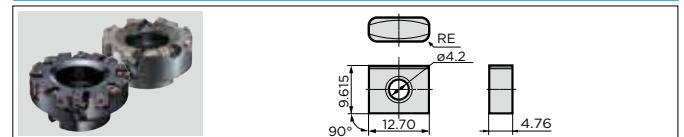


● Insert

Appearance	Cat. No.	BN7125	Dimensions (mm)		
			Overall Length	Thick-ness	Fig
	SNEW 1203ADTR		12,70	3,18	1
	SNEW 1203ADTR-S	○	12,70	3,18	0,2

*Part Number Suffix S: Low Cutting Force Insert

For SEC-Goal MILL GFX13000 type / GFXC13000 type



● Insert

Cat. No.	BN7125	Dimensions (mm)		
		Overall Length	Thick-ness	Corner Radius
LNGX 130516PNTN-W	○	12,70	4,76	1,6



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