

CBN Grade for Cast Iron /  
Sintered Alloy Machining

SUMIBORON <sup>NEW</sup> **BN7125 / BN7115**

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



General-purpose machining  
of cast iron and sintered alloy

**BN7125** 

Finishing of sintered alloy

**BN7115** 

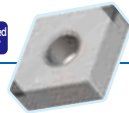
**New Grade BN7125**  
**Lineup of 117 items**



## ■ 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.

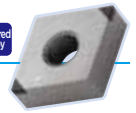
### BN7125 <sup>NEW</sup>



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.

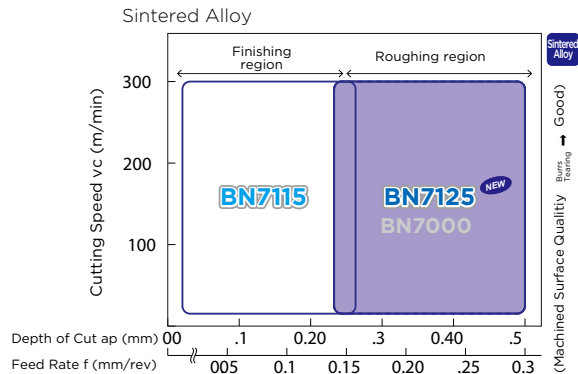
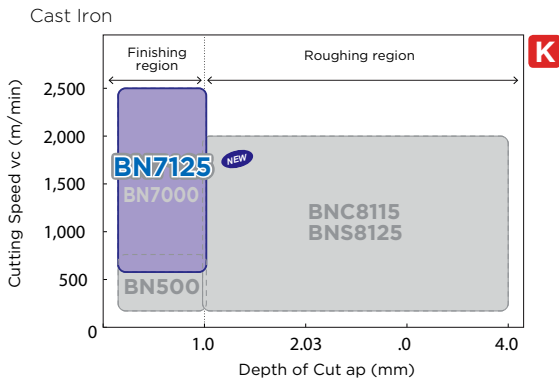
### BN7115



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

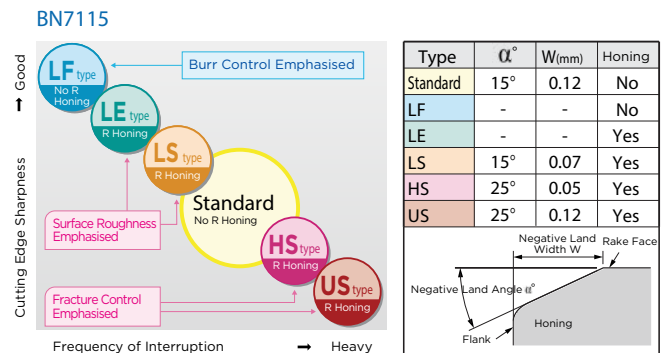
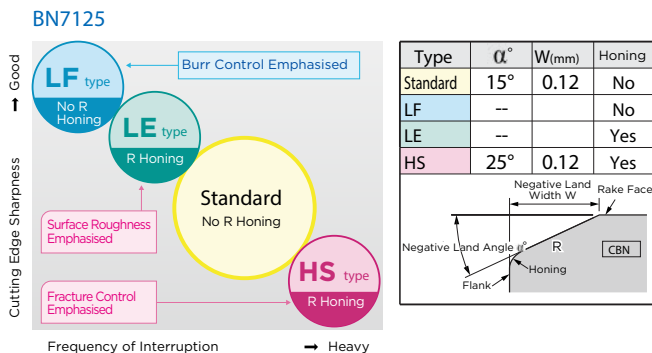
Cast Iron

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	<b>BN7125</b>	100-1,000-2,500	0.05-0.30-0.60	0.05-0.50-1.00

Sintered Alloy

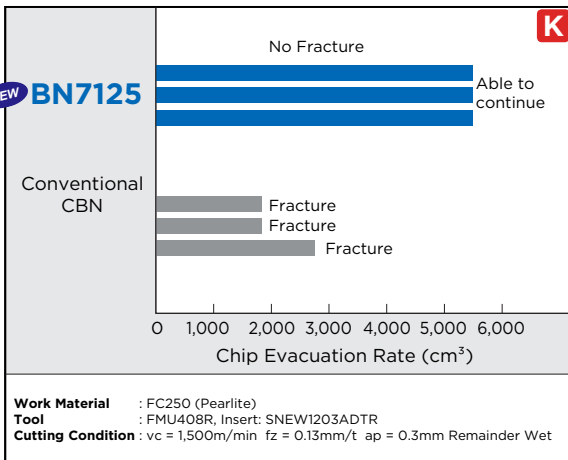
Work Material	Grade	Recommended Cutting Conditions Min. - Optimum - Max.		
		Cutting Speed $v_c$ (m/min)	Feed Rate $f$ (mm/rev)	Depth of Cut $a_p$ (mm)
General	<b>BN7115</b>	10 - 150 - 300	0.01 - 0.08 - 0.15	0.05 - 0.13 - 0.25
Sintered Alloy	<b>BN7125</b>	10 - 150 - 300	0.01 - 0.15 - 0.30	0.05 - 0.25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

## ■ Recommended Cutting Edge Treatment

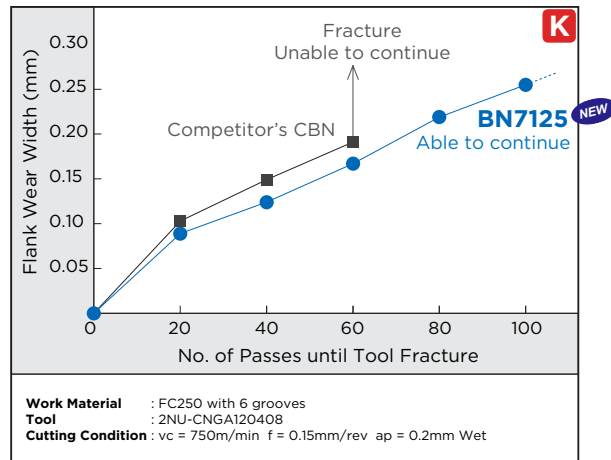


**Cutting Performance (Cast Iron)**

**BN7125 Milling (Fracture Resistance)**

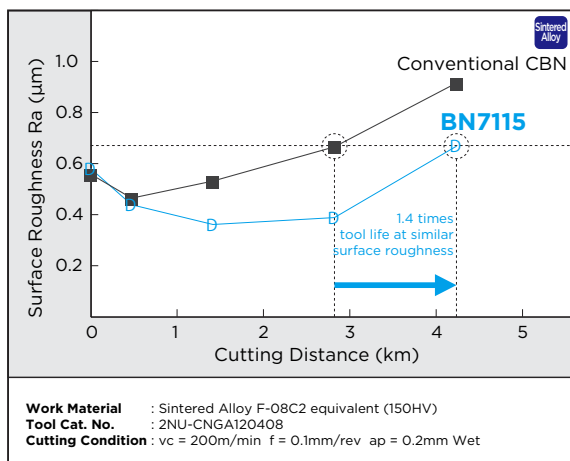


**BN7125 Interrupted Cutting (Fracture Resistance)**

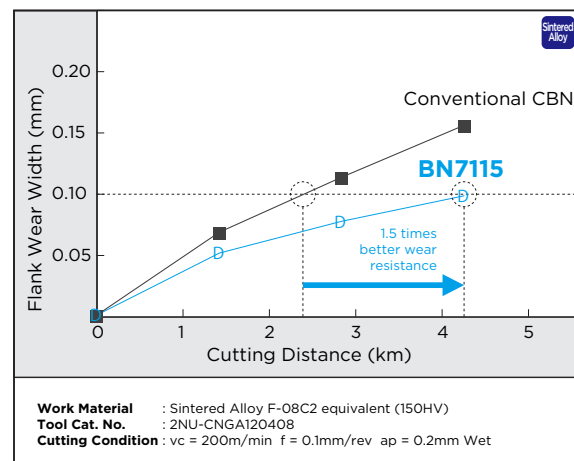


**Cutting Performance (Sintered Alloy)**

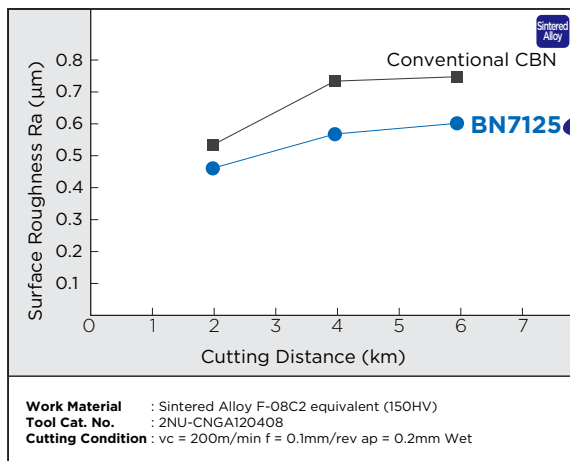
**BN7115 Continuous Cutting (Surface Roughness)**



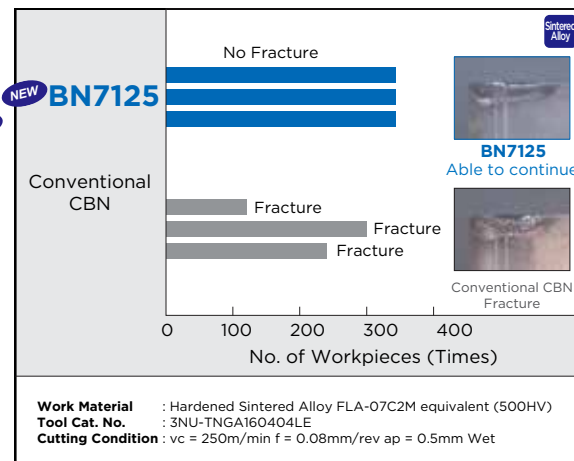
**BN7115 Continuous Cutting (Wear Resistance)**




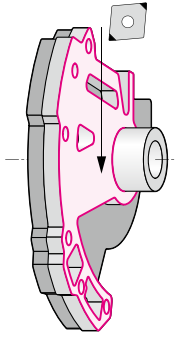
**BN7125 Continuous Cutting (Surface Roughness)**

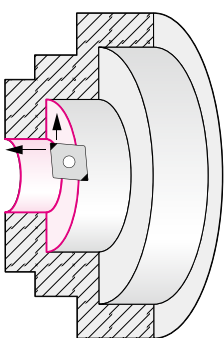



**BN7125 Interrupted Cutting (Fracture Resistance)**

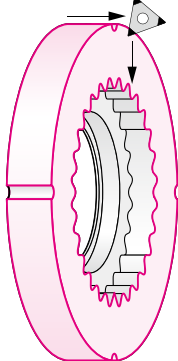
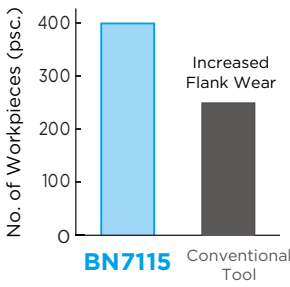
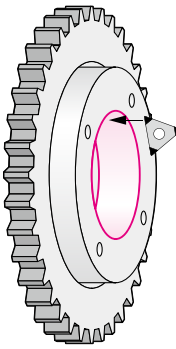
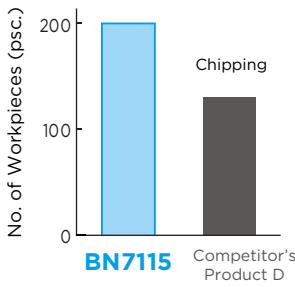


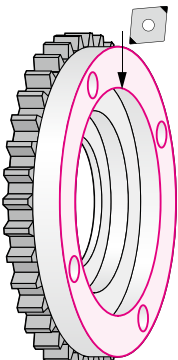
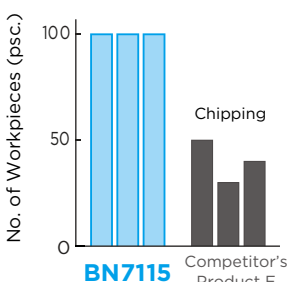
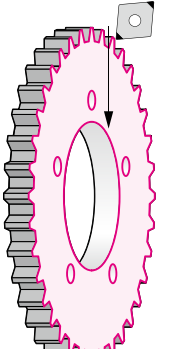
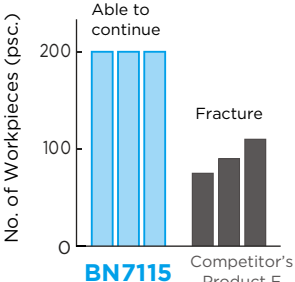
■ Application Examples of **BN7125** <sup>NEW</sup>

<b>Grey Cast Iron Cylinder Block</b> <span>Milling</span> <span>K</span>	<b>Grey Cast Iron Oil Pump</b> <span>Turning</span> <span>K</span>												
<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><b>Tool:</b> SNE1504ADTR (BN7125) Milling Cutter: FM5125R (10 Teeth)  <b>Cutting Conditions:</b> vc=800m/min fz=0.1mm/t ap=0.3mm Remainder Wet</p>	<p><b>Tool:</b> 2NU-CNGA120408 (BN7125)  <b>Cutting Conditions:</b> vc=700m/min f=0.2mm/rev ap=0.5mm Dry</p>												

<b>Sintered Ferrous Alloy F-08C2 (450HV) Carrier</b> <span>Turning</span> <span>Sintered Alloy</span>	<b>Sintered Ferrous Alloy (700HV) Valve Seat Ring</b> <span>Turning</span> <span>Sintered Alloy</span>												
<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 1494"> <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 1494"> <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><b>Tool:</b> 2NU-CNGA120408 (BN7125)  <b>Cutting Conditions:</b> vc=170m/min f=0.2mm/rev ap=0.3mm Wet</p>	<p><b>Tool:</b> 3NU-TPGW160408LF (BN7125)  <b>Cutting Conditions:</b> vc=300m/min f=0.10mm/rev ap=0.06mm Wet</p>												

■ **Application Examples of BN7115**

<p><b>Sintered Ferrous Alloy FLA-07C2M (500HV) Gear</b> 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><b>Tool:</b> 3NU-TNGA160404HS (BN7115)  <b>Cutting Conditions:</b> <math>vc=180\text{m/min}</math> <math>f=0.1\text{mm/rev}</math> <math>ap=0.2\text{mm}</math> Wet</p>	<p><b>Sintered Ferrous Alloy FLA-07C2M (500HV) Gear</b> Turning <small>Sintered Alloy</small></p> <p>Excellent chipping resistance maintains surface quality during machining for the long term</p>  <p>Tool Life Determinant: Surface Roughness</p>  <p><b>Tool:</b> 3NU-TNGA160404US (BN7115)  <b>Cutting Conditions:</b> <math>vc=200\text{m/min}</math> <math>f=0.1\text{mm/rev}</math> <math>ap=0.1\text{m}</math> Wet</p>
---	--

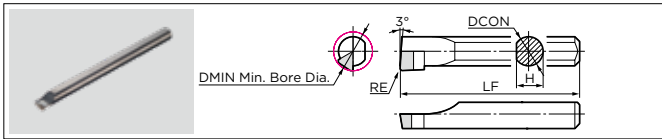
<p><b>Sintered Ferrous Alloy F-08C2 (450HV) Gear</b> Turning <small>Sintered Alloy</small></p> <p>BN7115 and cutting edge treated US type suppress fractures, realising stable machining</p>  <p>Tool Life Determinant: Surface Roughness</p>  <p><b>Tool:</b> 2NU-CNGA120404US (BN7115)  <b>Cutting Conditions:</b> <math>vc=170\text{m/min}</math> <math>f=0.08\text{mm/rev}</math> <math>ap=0.10\text{mm}</math> Wet</p>	<p><b>Sintered Ferrous Alloy F-08C2 (450HV) Gear</b> Turning <small>Sintered Alloy</small></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><b>Tool:</b> 3NU-TPGW160408LF (BN7125)  <b>Cutting Conditions:</b> <math>vc=200\text{m/min}</math> <math>f=0.1\text{mm/rev}</math> <math>ap=0.2\text{mm}</math> Dry</p>
---	--





### Stock Table for Turning

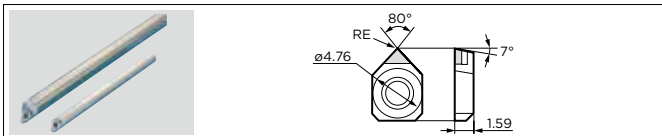
SUMIBORON Small Hole Boring Bars BNBX series



#### ● 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

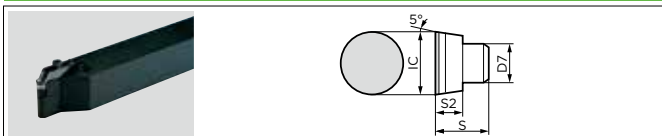
For SUMIBORON Small Hole Boring Bars BNZ series



#### ● 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					0,4

For SUMIBORON Tool Holder for Roll Turning BNRN type

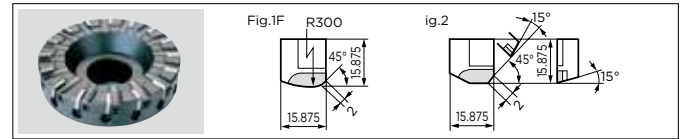


#### ● Insert

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

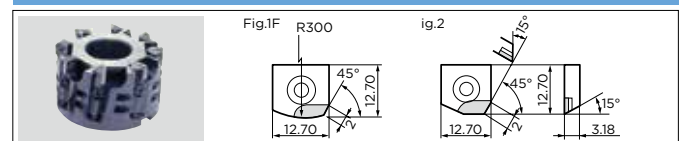


#### ● Insert

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

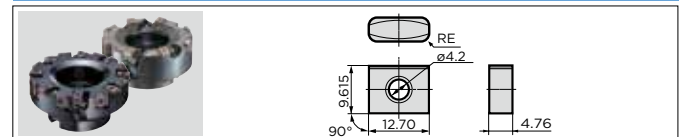


#### ● Insert

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



(Germany)  
SUMITOMO ELECTRIC Hartmetall GmbH  
Konrad-Zuse-Straße 9, 47877 Willich

Tel. +49 2154 4992-0, Fax +49 2154 4992-161  
Info@SumitomoTool.com  
www.SumitomoTool.com



(UK and Ireland)  
SUMITOMO ELECTRIC Hardmetal Ltd.  
3 Paper Mill Drive  
Redditch, B98 8QJ, UK

Tel. +44 1844 342081, Fax: +44 1844 342415  
InfoUK@SumitomoTool.com  
www.SumitomoTool.com



Distributed by: