

Solid CBN

Coated  
SUMIBORON **BNC8115 /**

Uncoated  
SUMIBORON **BNS8125**

From Roughing to Finishing of Cast Iron and Hardened Steel

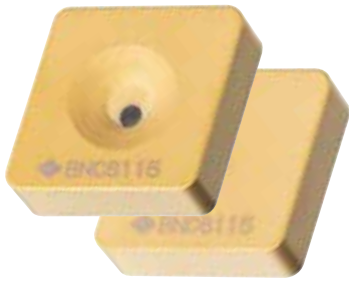
Expansion Inserts



# Coated SUMIBORON / SUMIBORON BNC8115/BNS8125

## Coated SUMIBORON

### BNC8115



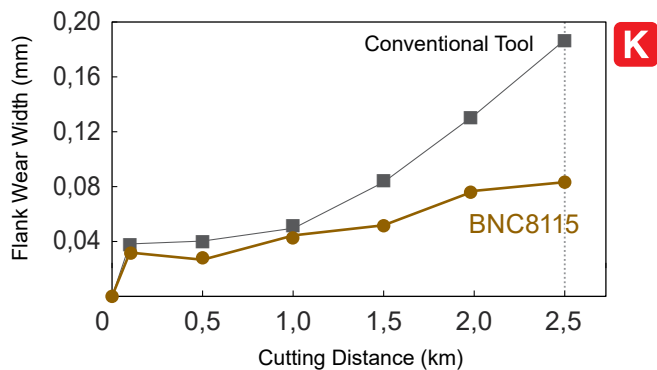
#### ■ Characteristics

PVD coating with excellent wear resistance suppresses flank wear in machining of cast iron and hardened steel. Ideal for roughing and 0,5 mm to 3,0 mm depths of cut can also be used for roughing and finishing of grey cast iron.

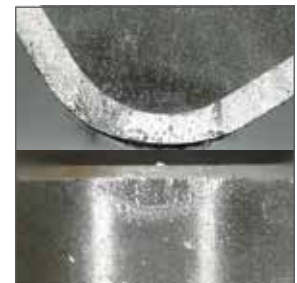
Gold-colored coating for improved visibility of used corners.

#### ■ Wear Resistance (Ductile Cast Iron Machining)

Adopts a PVD coating with excellent wear resistance in ductile cast iron machining. Significantly suppresses flank wear compared to conventional solid CBN.



**BNC8115**  
(After cutting 2,5 km)



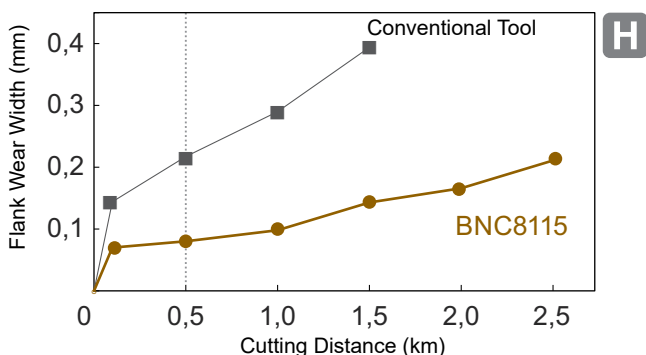
Conventional Tool  
(uncoated)  
(After cutting 2,5 km)

Work Material: GGG-40.3  
(Round Bar)  
Insert: SNGN090308

Cutting Conditions:  $v_c = 300$  m/min,  
 $f = 0,2$  mm/rev,  
 $a_p = 0,2$  mm,  
wet

#### ■ Wear Resistance (Hardened Steel Machining)

The use of PVD coating with excellent wear resistance on a high-strength solid CBN substrate realises high fracture resistance and wear resistance even in hardened steel machining.



**BNC8115**  
(After cutting 0,5 km)



Conventional Tool  
(uncoated)  
(After cutting 0,5 km)

Work Material: SUJ2 58-62 HRC  
(Round Bar)  
Insert: SNGN090308

Cutting Conditions:  $v_c = 150$  m/min,  
 $f = 0,2$  mm/rev,  
 $a_p = 0,3$  mm,  
wet

## SUMIBORON

# BNS8125

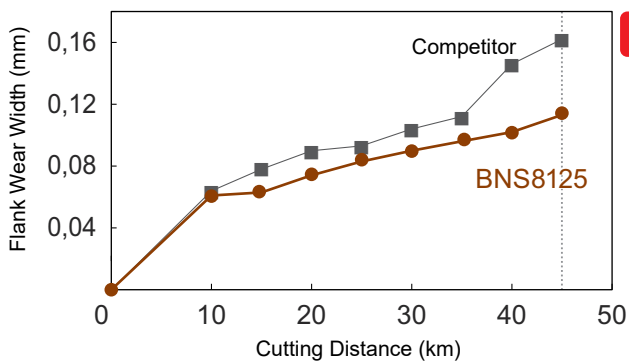


### ■ Characteristics

Optimising the particle size distribution on the CBN particles has resulted in improved chipping resistance and longer life with maintaining wear resistance during grey cast iron machining.

### ■ Wear Resistance (Grey Cast Iron Machining)

Optimises grain size distribution of CBN particles.  
Realises excellent wear resistance in high-efficiency grey cast iron machining.



**BNS8125**  
(After cutting 45 km)



Competitor  
(uncoated)  
(After cutting 45 km)

Work Material: GGG-30  
(Round Bar)  
Insert: SNGN090308

Cutting Conditions:  $v_c = 800$  m/min,  
 $f = 0,1$  mm/rev,  
 $a_p = 0,2$  mm,  
wet

### ■ Fracture Resistance (Ductile Cast Iron Machining)

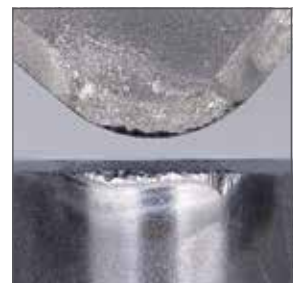
Use of high-strength solid CBN substrate improves fracture resistance.  
Suppresses chipping to realise longer tool life.



Improved  
cutting edge  
line chipping



**BNS8125**  
(After cutting 9,0 km)



Conventional Tool  
(uncoated)  
(After cutting 9,0 km)

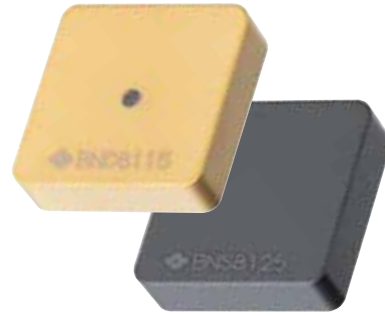
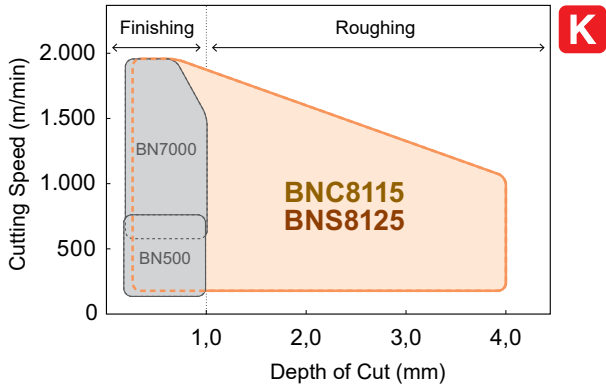
Work Material: GGG-40.3  
(Round Bar with 2 V-grooves)  
Insert: SNGN120408

Cutting Conditions:  $v_c = 200$  m/min,  
 $f = 0,2$  mm/rev,  
 $a_p = 0,5$  mm,  
wet

# Coated SUMIBORON / SUMIBORON BNC8115/BNS8125

## Application Range

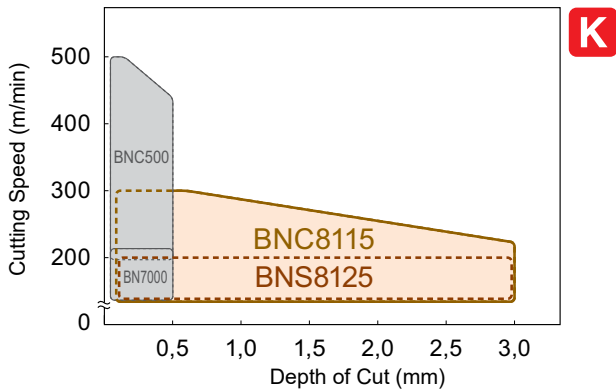
### ● Grey Cast Iron



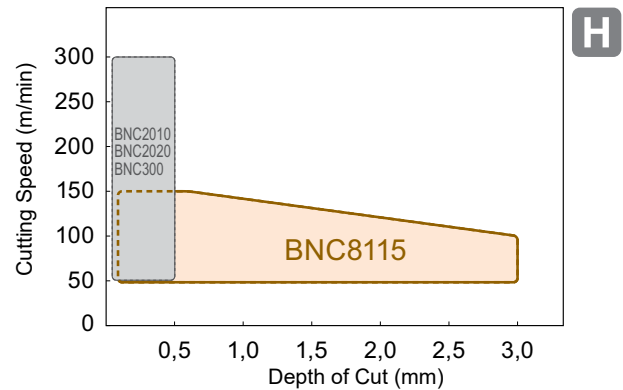
100% Solid CBN Structure

Wet machining is recommended for grey cast iron.  
In case of dry machining, our 1st recommendation are BNC8115/  
BNS8125 for both roughing and finishing.

### ● Ductile Cast Iron



### ● Hardened Steel



## Choosing between BNC8115 and BNS8125 (Cast Iron/Hardened Steel)

Work Material	Coated SUMIBORON <b>BNC8115</b>		SUMIBORON <b>BNS8125</b>		SUMIBORON BN7000		Coated SUMIBORON BNC500		Coated SUMIBORON BNC2020	
	Turning	Milling	Turning	Milling	Turning	Milling	Turning		Turning	
<b>K</b> Grey Cast Iron	○	Best	○	Best Economical	○	Depth of cut ≤ 1,0 mm High-speed-finishing	×	Not available	×	Not available
	○	Depth of cut ≥ 0,5 mm	○	Interrupted machining	○	Depth of cut ≤ 0,5 mm Low-speed-machining	○	Depth of cut ≤ 0,5 mm	×	Not available
<b>H</b> Hardened Steel	○	Depth of cut ≥ 0,5 mm	×	Not available	×	Not available	×	Not available	○	Depth of cut ≤ 0,5 mm High-speed-machining

○ Recommendation      × Not available

### Stock Items

#### Solid Inserts / Negative (Without Hole)

Shape	Cat. No.	Stock		Dimensions (mm)			
		BNC8115	BNS8125	Inscribed Circle	Thickness	Hole Diam.	Nose Radius
	CNGN 090308	●	●	9,525	3,18	-	0,8
	090312	●	●				1,2
	CNGN 120408	●	●	12,7	4,76	-	0,8
	120412	●	●				1,2
	120416	●	●				1,6
	DNGN 110308	●	●	9,525	3,18	-	0,8
	110312	●	●				1,2
	RNGN 090300	●	●	9,525	3,18	-	-
	120300	●	●	12,7	3,18	-	-
	120400	●	●	12,7	4,76	-	-
	SNGN 090308W*	●	●	9,525	3,18	-	0,8
	SNGN 090308	●	●	9,525	3,18	-	0,8
	090312	●	●				1,2
	SNGN 120308	●	●	12,7	3,18	-	0,8
	120312	●	●				1,2
	SNGN 120408	●	●				0,8
	120412	●	●	12,7	4,76	-	1,2
	120416	●	●				1,6
120420	●	●	2,0				
	TNGN 110308	●	●	6,35	3,18	-	0,8
	110312	●	●				1,2
	TNGN 160408	●	●	9,525	4,76	-	0,8
	160412	●	●				1,2
	160416	●	●				1,6
160420	●	●	2,0				

\* Can be used with SUMIBORON cutter for high-speed cast iron machining RM type.  
W: Wiper insert

#### Solid Inserts / Negative (Dimple Lock)

Shape	Cat. No.	Stock		Dimensions (mm)			
		BNC8115	BNS8125	Inscribed Circle	Thickness	Hole Diam.	Nose Radius
	CNGX 120412	●	●	12,7	4,76	-	1,2
	120416	●	●				1,6
	SNGX 120412	●	●	12,7	4,76	-	1,2
	120416	●	●				1,6

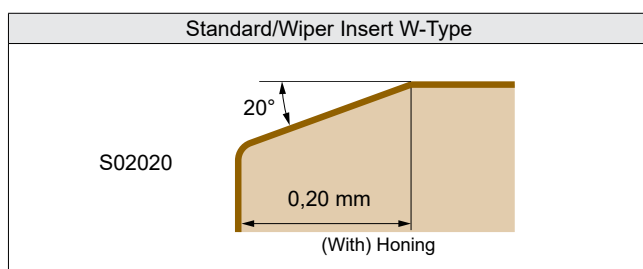
For the above products, use tool holder for solid SUMIBORON XCLN type/XSBN type (dimple lock).

#### Solid Inserts / Negative (With Hole)

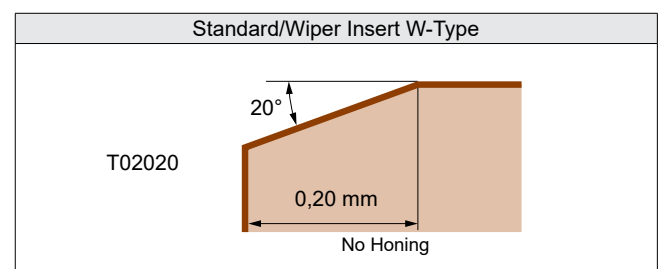
Shape	Cat. No.	Stock		Dimensions (mm)			
		BNC8115	BNS8125	Inscribed Circle	Thickness	Hole Diam.	Nose Radius
	CNGA 120408	○	○	12,7	4,76	5,16	0,8
	120412	○	○				1,2
	SNGA 120408	○	○	12,7	4,76	5,16	0,8
	120412	○	○				1,2
	TNGA 160408	○	○	9,525	4,76	3,81	0,8
	160412	○	○				1,2

### Cutting Edge Specification

#### BNC8115

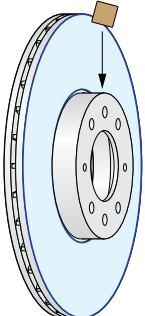
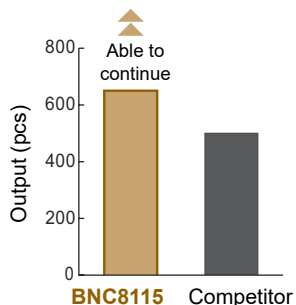
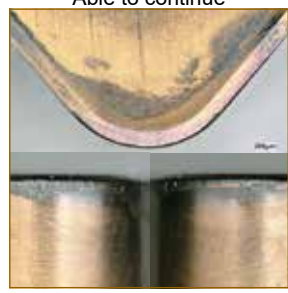
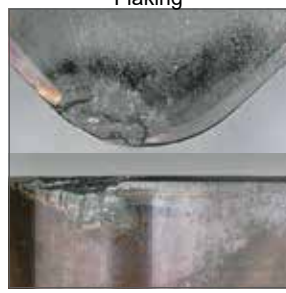


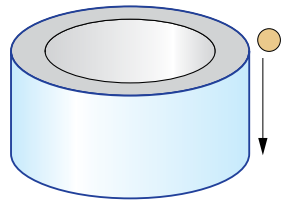


#### BNS8125



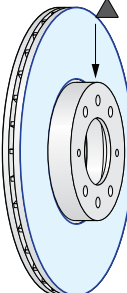
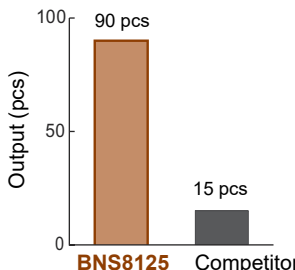

# Coated SUMIBORON / SUMIBORON BNC8115/BNS8125

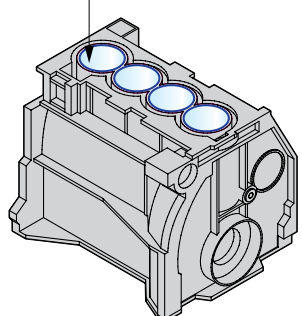

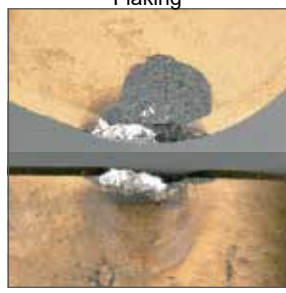
## Application Examples **BNC8115**

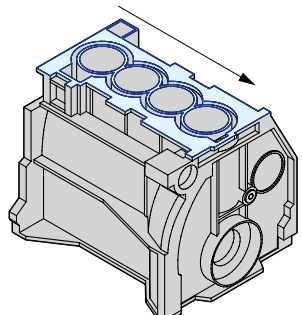


GG-25, Brake Disc		Turning <b>K</b>	
High fracture resistance suppresses flaking, achieving 1,3x or longer tool life compared with competitor's CBN.			
			
		<p><b>BNC8115</b> After machining 650 pcs</p>	<p>Competitor After machining 500 pcs</p>
<p>Work Material: GG-25 Insert: SNGN120416</p>	<p>Cutting Conditions: <math>v_c = 230</math> m/min, <math>f = 0,4</math> mm/rev, <math>a_p = 2,0-3,0</math> mm, wet</p>		

SNCM (Heat-treated) Large Bearing		Turning <b>H</b>	
High-wear resistance coating suppresses flank wear, achieving twice or longer tool life compared with competitor's CBN.			
			
		<p><b>BNC8115</b> After 2 passes</p>	<p>Competitor After 1 pass</p>
<p>Work Material: Insert: RNGN120400</p>	<p>Cutting Conditions: <math>v_c = 150</math> m/min, <math>f = 0,3</math> mm/rev, <math>a_p = 2,5</math> mm, wet</p>		

## Application Examples **BNS8125**

GG-25, Brake Disc		Turning	<b>K</b>
6x tool more life compared with ceramic tools; good wear resistance			
			
Work Material: GG-25 Insert: TNGN160416	Cutting Conditions: $v_c = 250$ m/min, $f = 0,4$ mm/rev, $a_p = 1,0$ mm, wet		

Centrifugal Cast Iron Cylinder Bore		Milling	<b>K</b>
High fracture resistance suppresses flaking, achieving 1,2x or longer tool life compared with competitor's CBN.			
			
Insert: SNGN090312 Cutter: Special Boring Cutter	Cutting Conditions: $v_c = 950$ m/min, $v_f = 2.000$ mm/min $f_z = 0,6$ mm/t, $a_p = 0,045$ mm, wet		

GG-25, Cylinder Block		Milling	<b>K</b>
High fracture resistance suppresses flaking, achieving 1,5x or longer tool life compared with competitor's CBN.			
			
Work Material: GG-25 Insert: SNGN120412 Cutter: $\varnothing 125$ mm (10-flute)	Cutting Conditions: $v_c = 1.000$ m/min, $v_f = 2.550$ mm/min $f_z = 0,3$ mm/t, $a_p = 1,0$ mm, Remainder wet		

# Coated SUMIBORON / SUMIBORON BNC8115/BNS8125

## Recommended Cutting Conditions (Turning)

### ● Cast Iron

Min.–Optimum–Max.



Work Material	Grade	Cutting Conditions		
		Depth of Cut (mm)	Feed Rate (mm/rev)	Cutting Speed (m/min)
Grey Cast Iron	<b>BNC8115 / BNS8125</b>	≤ 4,0	0,10– <b>0,50</b> –1,00	200– <b>1.000</b> –2.000
Ductile Cast Iron	<b>BNC8115</b>	≤ 3,0	0,10– <b>0,30</b> –0,50	80– <b>160</b> –300
	<b>BNS8125</b>	≤ 3,0	0,10– <b>0,30</b> –0,50	80– <b>120</b> –200

Coolant: dry/wet

### ● Hardened Steel

Min.–Optimum–Max.



Work Material	Grade	Cutting Conditions		
		Depth of Cut (mm)	Feed Rate (mm/rev)	Cutting Speed (m/min)
Hardened Steel	<b>BNC8115</b>	≤ 3,0	0,10– <b>0,25</b> –0,40	50– <b>100</b> –150

Coolant: wet

## Recommended Cutting Conditions (Milling)

### ● Cast Iron

Min.–Optimum–Max.



Work Material	Grade	Cutting Conditions		
		Depth of Cut (mm)	Feed Rate (mm/rev)	Cutting Speed (m/min)
Grey Cast Iron	<b>BNC8115 / BNS8125</b>	≤ 4,0	0,10– <b>0,50</b> –1,00	800– <b>1.400</b> –2.000

Coolant: dry



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