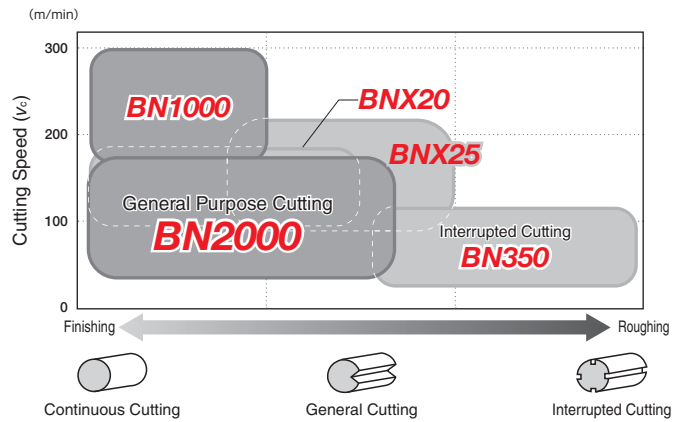
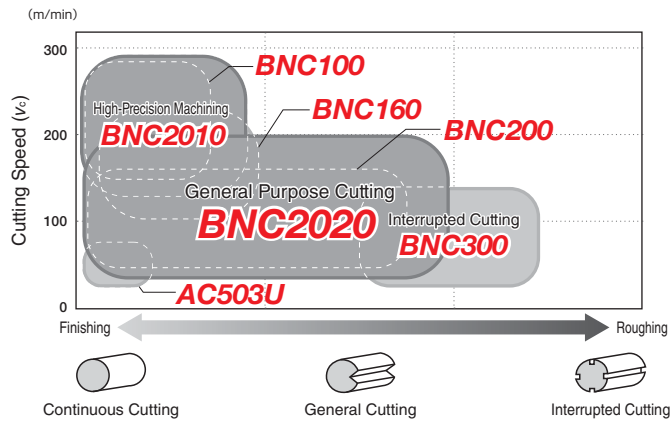




Grades

● Coated SUMIBORON, Coated Carbide

● Uncoated SUMIBORON

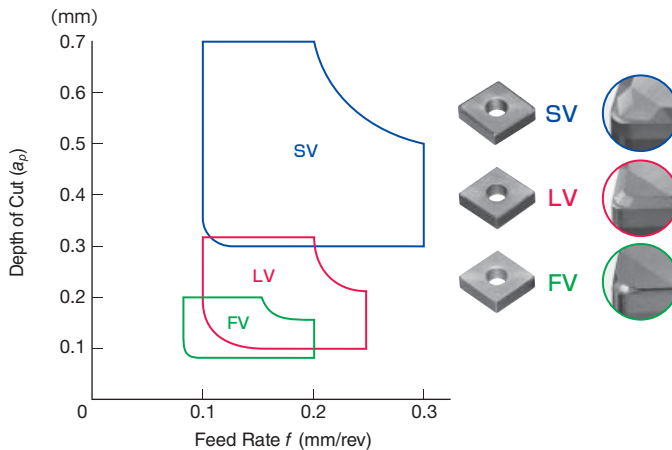


CBN SUMIBORON ... Page L2

Chipbreakers

LV Type / FV Type Chipbreaker : For chip control during finishing of hardened steel

SV Type Chipbreaker : For chip control during carburized layer removal



CBN SUMIBORON Break Master ... Page L26



Recommended Cutting Conditions

(Red text indicates 1st recommendation.)

Cutting Process	Grades	Cutting Conditions		
		Depth of Cut a_p (mm)	Feed Rate f (mm/rev)	Cutting Speed V_c (m/min)
Continuous Cutting	BNC2010	0.03- 0.20 -0.35	0.03- 0.10 -0.20	120- 200 -300
	BNC100	0.03- 0.20 -0.30	0.03- 0.10 -0.20	120- 200 -300
	BN1000	0.03- 0.15 -0.20	0.03- 0.10 -0.15	100- 150 -300
	BNX10	0.03- 0.10 -0.20	0.03- 0.10 -0.15	120- 180 -300
	AC503U	0.03- 0.50 -1.00	0.02- 0.05 -0.10	40- 70 -100
General Turning	BNC2020	0.03- 0.30 -0.50	0.03- 0.20 -0.40	50- 130 -220
	BNC160	0.03- 0.20 -0.35	0.03- 0.10 -0.25	120- 180 -220
	BNC200	0.03- 0.30 -0.50	0.03- 0.10 -0.30	50- 130 -220
	BN2000	0.03- 0.20 -0.30	0.03- 0.10 -0.20	50- 100 -200
	BNX20	0.03- 0.20 -0.35	0.03- 0.15 -0.30	70- 130 -170
Interrupted Cutting	BNC300	0.03- 0.20 -0.30	0.03- 0.10 -0.20	50- 100 -150
	BN350	0.03- 0.20 -0.30	0.03- 0.10 -0.20	50- 100 -150
	BNX25	0.03- 0.20 -0.50	0.03- 0.15 -0.30	120- 160 -220

Grades **BNC2010 / BNC2020 / BN1000 / BN2000**

BNC2010 : For high-precision finishing requiring good surface roughness and dimensional accuracy. Enables stable machining and provides excellent surface roughness thanks to coating and CBN substrate with excellent notch wear resistance.

BNC2020 : General purpose grade suitable for typical hardened steel machining applications. Achieves long tool life thanks to highly-wear-resistant and highly-adhesive coating and tough CBN substrate with excellent wear resistance and bonding strength.

BN1000 : For high speed machining. Provides the highest wear resistance of all uncoated SUMIBORON grades. Features improved fracture resistance while still placing a priority on wear resistance.

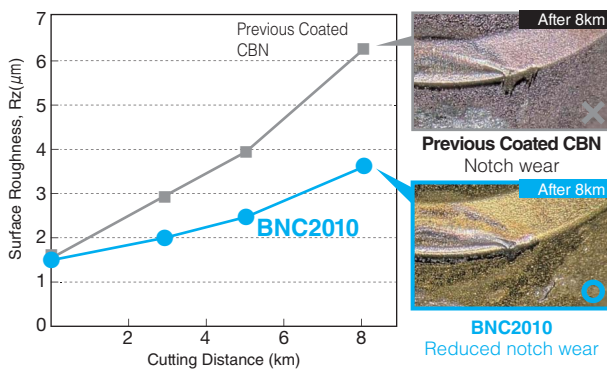
BN2000 : General purpose grade suitable for typical hardened steel machining applications. Provides a high degree of fracture and wear resistance.



BNC2010 / BNC2020

BNC2010 Cutting Performance

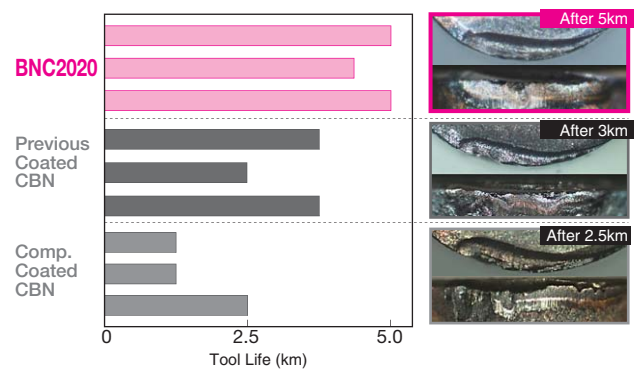
Continuous Cutting of Hardened Steel



Work Material : SCM415 58-62HRC (Continuous)
 Insert : 4NC-DNGA150408 Edge Treatment : S01225
 Cutting Conditions : $v_c=160\text{m/min}$ $f=0.08\text{mm/rev}$ $a_p=0.1\text{mm}$ Wet

BNC2020 Cutting Performance

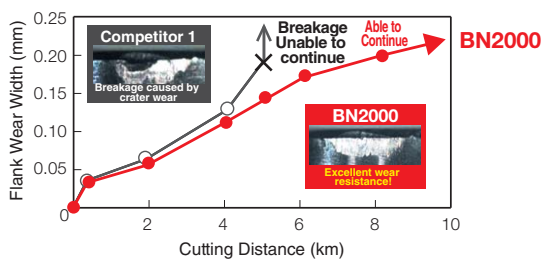
Interrupted Cutting of Hardened Steel



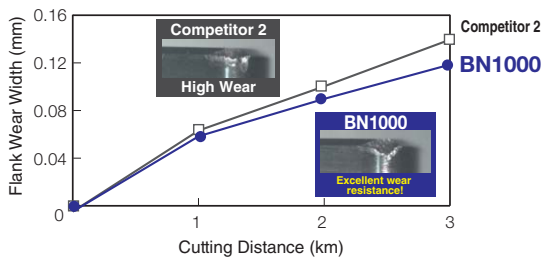
Work Material : SCM415-5V 58-62HRC (Interrupted Cutting)
 Insert : 4NC-CNGA120412 Edge Treatment : S01225
 Cutting Conditions : $v_c=130\text{m/min}$ $f=0.1\text{mm/rev}$ $a_p=0.6\text{mm}$ Dry

BN1000 / BN2000 Cutting Performance

Wear Resistance (Continuous Cutting)



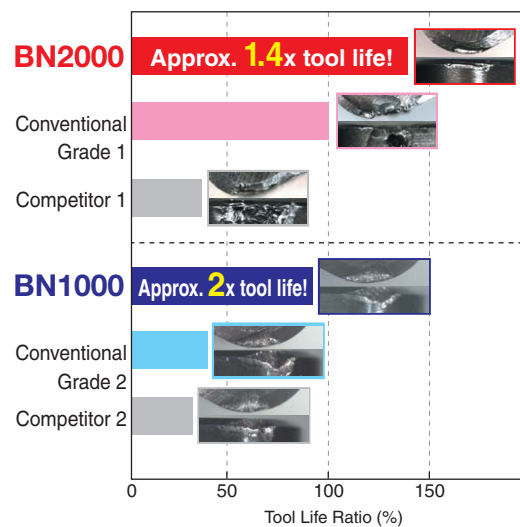
Work Material: SCM415H Round Bar (58-62HRC)
 Cutting Conditions : $v_c=100\text{m/min}$ $f=0.1\text{mm/rev}$ $a_p=0.2\text{mm}$ Dry



Work Material: SUJ2 Round Bar (58-62HRC)
 Cutting Conditions : $v_c=150\text{m/min}$ $f=0.1\text{mm/rev}$ $a_p=0.2\text{mm}$ Dry

Chipping Resistance (Interrupted Cutting)

(Comparison based on conventional BN2000 as 100%.)



Work Material: SCM415H 8V Grooved Material (58-62HRC)
 Insert: 2NU-CNGA120408
 Cutting Conditions : $v_c=150\text{m/min}$ $f=0.1\text{mm/rev}$ $a_p=0.2\text{mm}$ Dry