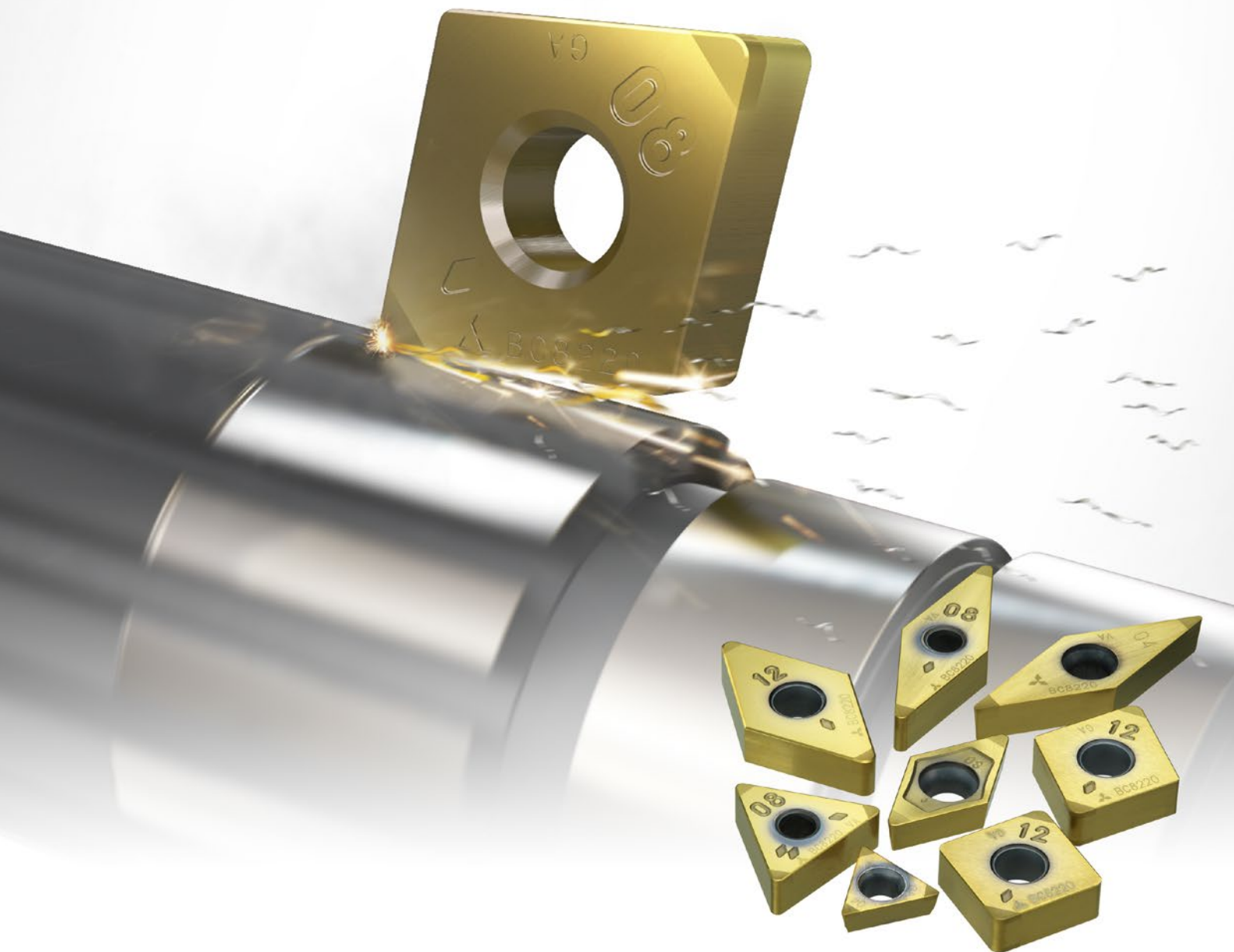


CBN Grade for Turning Hardened Steel

BC8220New
Products

Excellent Coated CBN Grade That Building New Age of Turning Hardened Steels



CBN Grade for Turning Hardened Steel

BC8220

BC8220 has excellent fracture and crater wear resistance for longer tool life when machining high-hardened steels.



Features

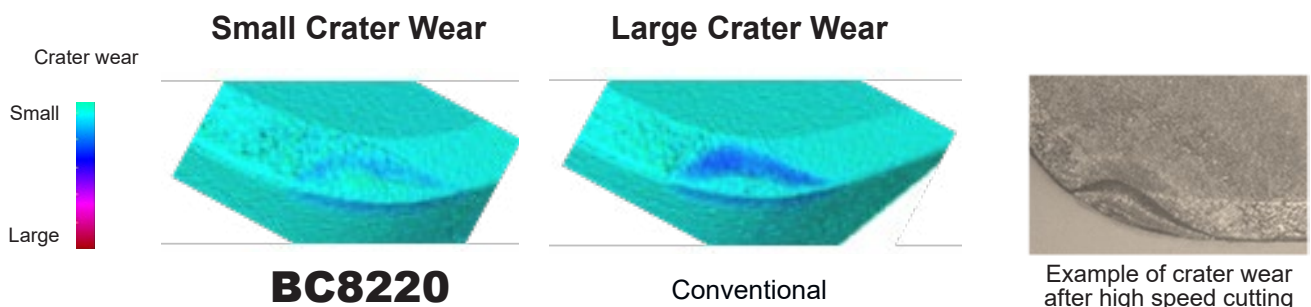
New PVD Coating with Ideal Balance of Wear and Chipping Resistance

BC8220 utilises a new specially developed, super multi-layer ceramic PVD coating. The high level of both chipping and wear resistance is achieved by a much improved adhesion between the substrate and coating. Together with the easy identification of use due to the gold coloured TiN top coating layer, BC8220 achieves high performance and reliability over a wide range of hardened steel machining applications.



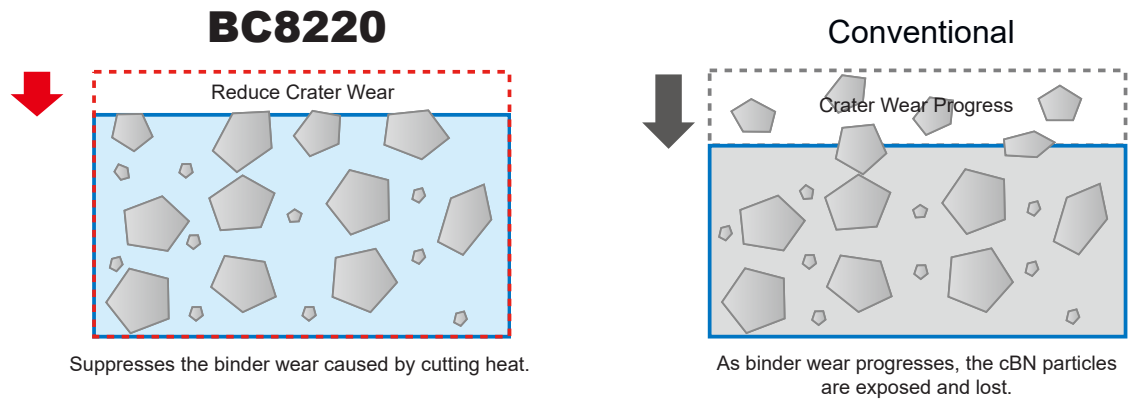
Newly developed CBN substrate featuring toughness and crater wear resistance

The new CBN substrate contains a new ultra-fine grain, heat resistant binder. This suppresses both chipping and crater wear that promotes longer tool life.



Positive Effect of the Newly Developed Heat Resistant Binder

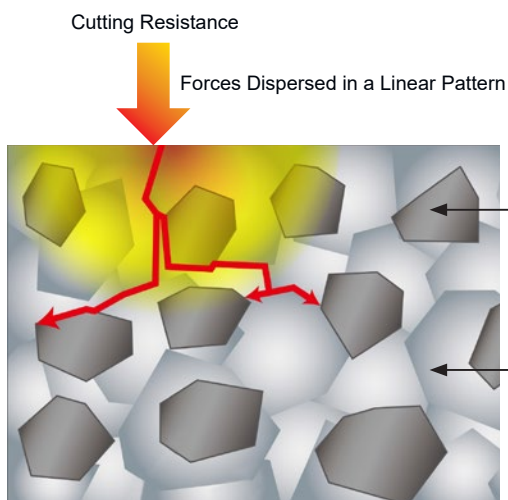
The progress of crater wear is greatly reduced due to the use of a heat resistant binder. This suppresses chipping, crater wear and fracturing.



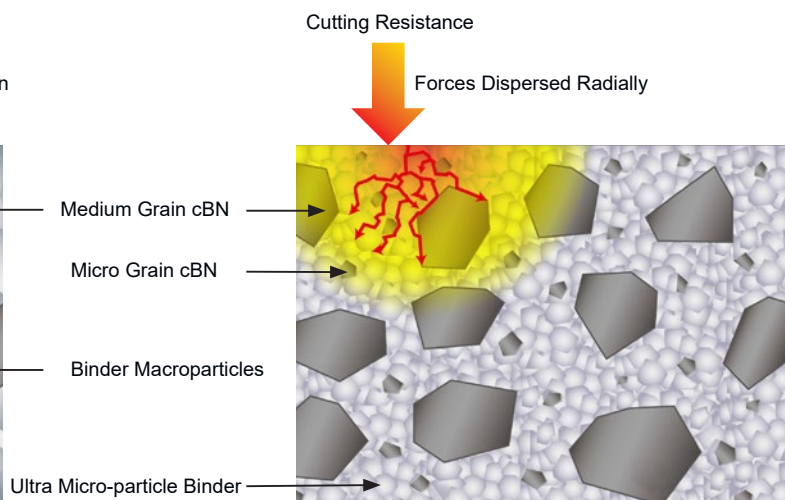
Optimised Substrate Technology - The Ultra Micro-Particles Binder -

The ultra micro-particles binder prevents linear crack development to avoid sudden fracturing.

Conventional

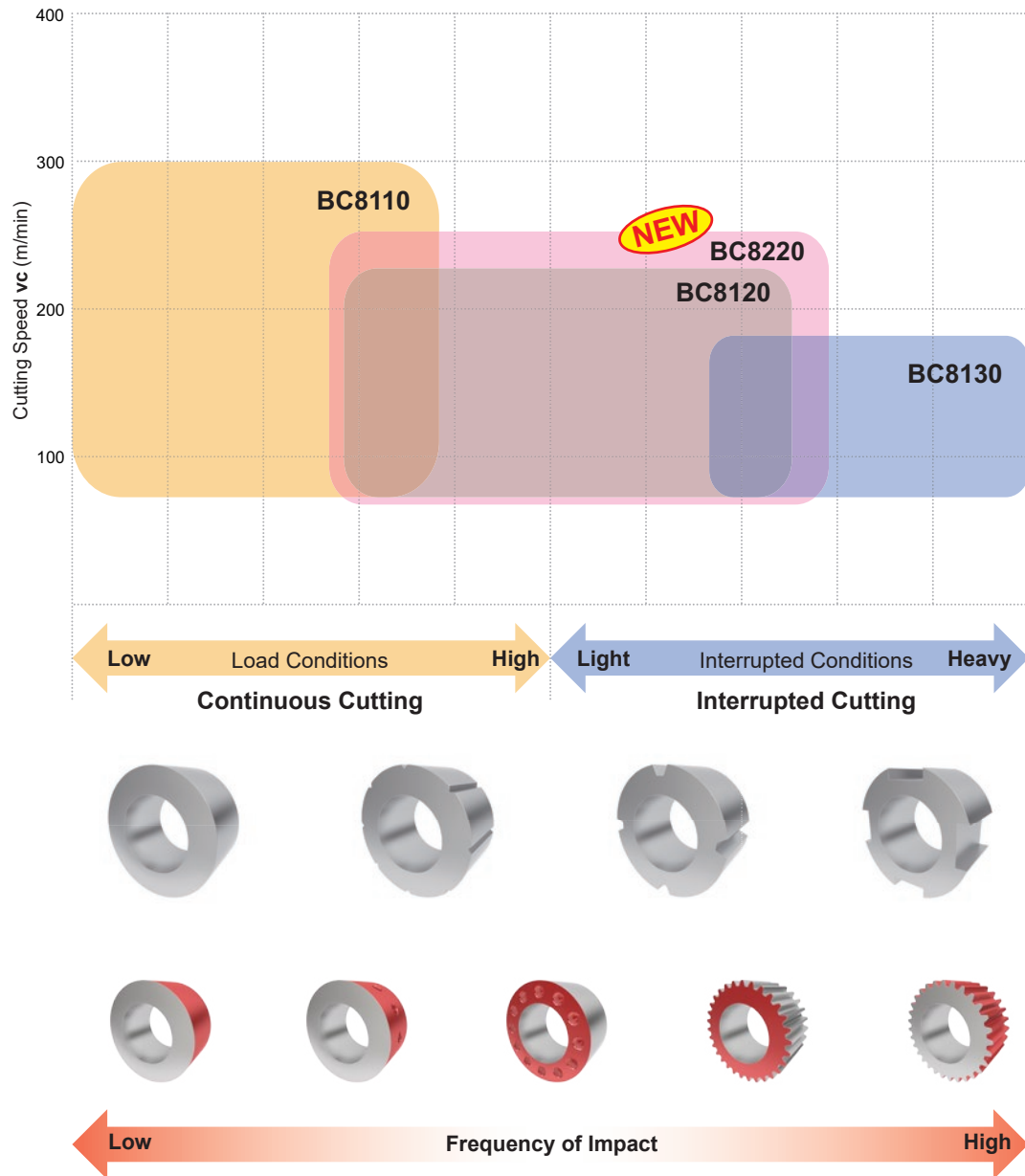


BC8220, BC8100 Series



Area of Application

BC8220 is ideal for both high speed and interrupted cutting and expands the application area of conventional grades.



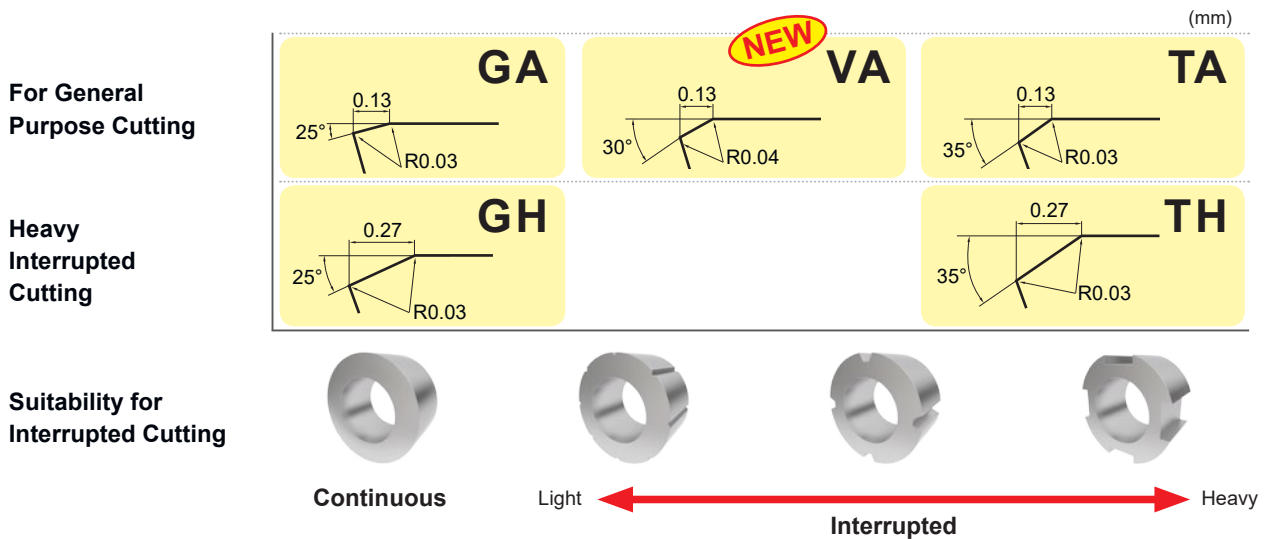
Recommended Cutting Conditions

Grade	Workpiece Material	Machining Methods	Cutting Speed v_c (m/min)						f (mm/rev)	a_p (mm)	Cutting Mode
			50	100	150	200	250	300			
BC8220	Hardened Steels	External Continuous Cutting							≤ 0.2	≤ 0.5	Dry, Wet
		External Interrupted Cutting							≤ 0.2	≤ 0.3	Dry, Wet

Features of the Insert

Edge Preparation (Honing)

New VA honing type with improved fracture resistance for high speeds and feed.



Chip Breaker

Chip breaker system for excellent chip control when finishing, removing carburized layers and high load machining.



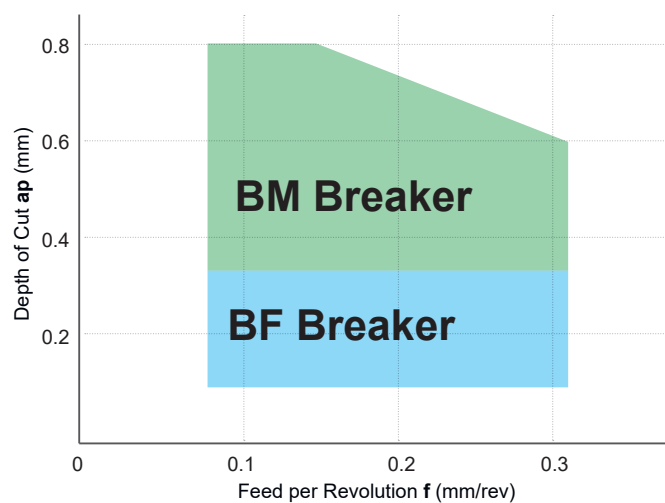
BM

Removal of Carburized Layer
For Deep Depth of Cut

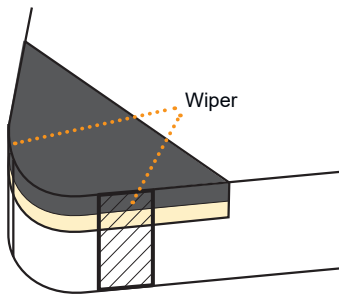


BF

Finishing Applications



Wiper Insert



Improving Surface Finish

Under the same machining conditions as conventional chip breakers, but with the feed rate increased, the surface finish of the workpiece can be improved.

Improving Efficiency

High feed rates not only shorten machining times but also make it possible to combine roughing and finishing operations.

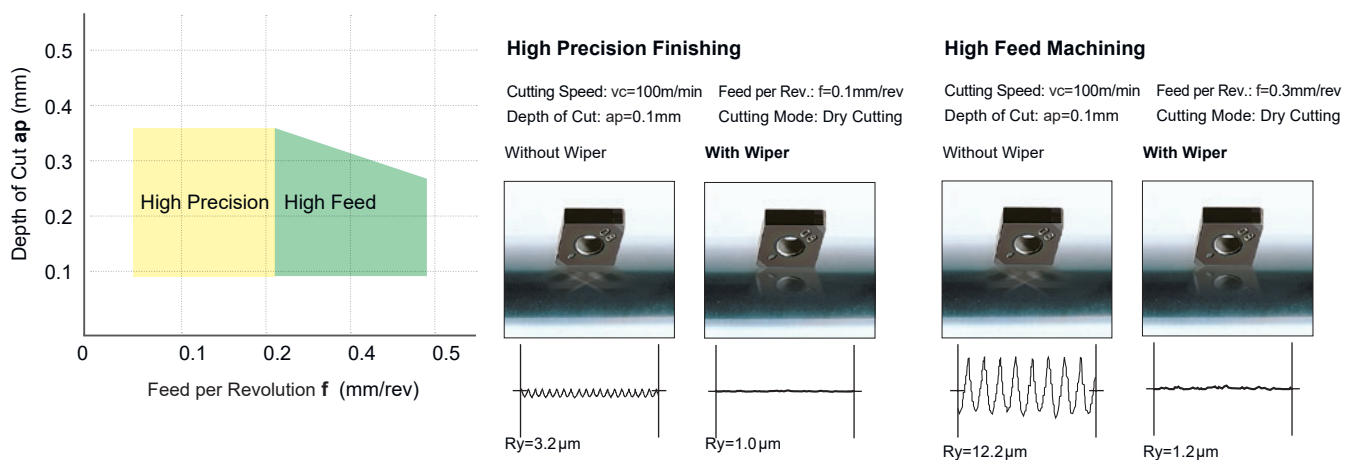
Increased Tool Life

When using at high feed conditions, the time required to cut one component is decreased, thus more parts can be machined with each insert. In addition, the high feed rate prevents rubbing, therefore, delaying the progression of wear and increasing tool life.

Improving Chip Control

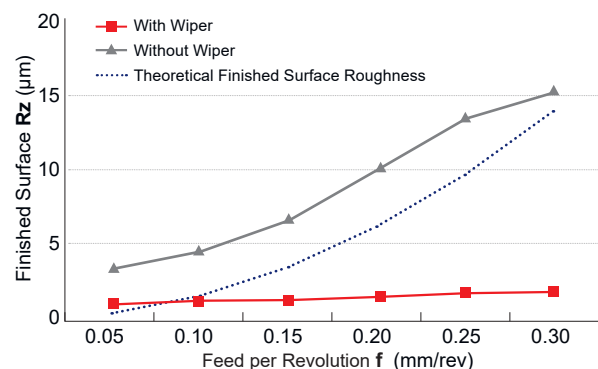
Under high feed conditions, the chips generated become thicker and are more easily broken, thus, chip control is improved.

Recommended Cutting Conditions and Performance



Cutting Performance

Insert	NP-CNGA120408
Workpiece Material	Hardened Steel (60HRC)
Machining Methods	Continuous
Cutting Speed v_c (m/min)	120
Depth of Cut a_p (mm)	0.1
Cutting Mode	Dry Cutting

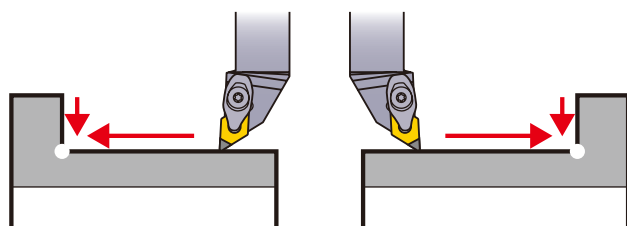


Combination of BF Breaker and WS Wiper Insert

CNGM and DNGM types are now available with new inserts that combine a BF chip breaker with a WS wiper Insert. (BF-○CNGM○●●●●●●●●TAWS2)

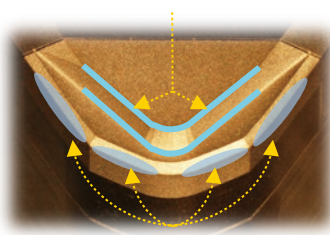
It is effective for chip control and improvement of finished surface roughness without worrying about the hand of the tool even in continuous external turning or internal turning and facing.

Effect of Chip Breaker and Wiper Insert



Demonstrates the effects of breaker and wiper Insert in both right handed and left handed cutting.

BF Chip Breaker



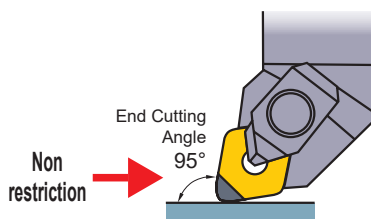
WS Wiper Insert (Neutral)

Notes for Use

In the case of using CNGM type

No Restriction for Holders

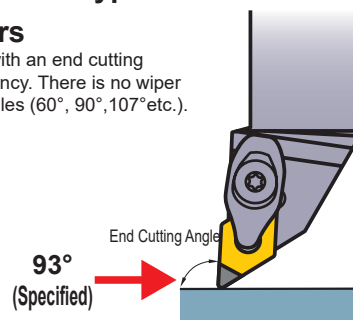
A standard holder can be used.
(*A double clamp, high rigidity tool is recommended.)



In the case of using DNGM type

Restriction for Holders

Use PDJN holder or DDJN holder with an end cutting angle 93° for improving wiper efficiency. There is no wiper efficiency with other end cutting angles (60°, 90°, 107° etc.).



Identification

BF - **CNGM120408** **TA** **WS** **2** **_ _**

Insert Geometry	
BM	With Breaker
BF	With Breaker
NP	New Petit Cut

Edge Preparation	
Symbol	Application
GA GH	General Cutting
VA	For High Speed, High Feed Cutting
TA TH	Interrupted Cutting

Wiper	
WS	For High Rigidity Workpiece Material
No Mark	Without Wiper

Cutting Direction		
Symbol	Hand	Figure
JR	Right	
JL	Left	
No mark	Neutral	

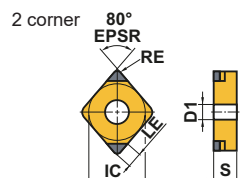
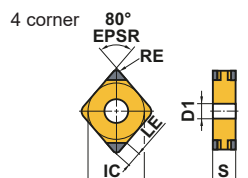
BC8220

NEW

Negative Inserts (With Hole)

G Class

CNGA, CNGM



NEW PETIT CUT	NEW PETIT CUT	NEW PETIT CUT	NEW PETIT CUT
NP_004	NP_00WS4	NP_002	NP_00WS2
			
	(With Wiper)		(With Wiper)
NEW PETIT CUT			
BF_, BM_			
			
(With Breaker)			

(mm)

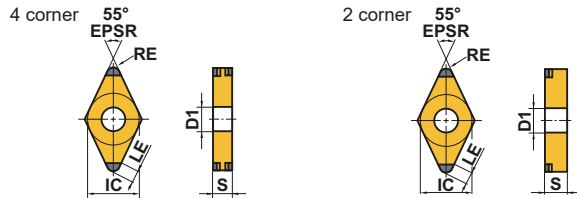
Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-CNGA120404GA4	●						4	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408GA4	●						4	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412GA4	●						4	12.7	4.76	1.2	5.16	2.2
NP-CNGA120404GH4	●						4	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408GH4	●						4	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412GH4	●						4	12.7	4.76	1.2	5.16	2.2
NP-CNGA120404VA4	●						4	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408VA4	●						4	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412VA4	●						4	12.7	4.76	1.2	5.16	2.2
NP-CNGA120404TA4	●						4	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408TA4	●						4	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412TA4	●						4	12.7	4.76	1.2	5.16	2.2
NP-CNGA120408TH4	●						4	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412TH4	●						4	12.7	4.76	1.2	5.16	2.2
NP-CNGA120404GAWS4	●						4	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408GAWS4	●						4	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412GAWS4	●						4	12.7	4.76	1.2	5.16	2.2
NP-CNGA120402GA2	●						2	12.7	4.76	0.2	5.16	1.7
NP-CNGA120404GA2	●						2	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408GA2	●						2	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412GA2	●						2	12.7	4.76	1.2	5.16	2.2
NP-CNGA120404GH2	●						2	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408GH2	●						2	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412GH2	●						2	12.7	4.76	1.2	5.16	2.2
NP-CNGA120404VA2	●						2	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408VA2	●						2	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412VA2	●						2	12.7	4.76	1.2	5.16	2.2
NP-CNGA120404TA2	●						2	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408TA2	●						2	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412TA2	●						2	12.7	4.76	1.2	5.16	2.2
NP-CNGA120408TH2	●						2	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412TH2	●						2	12.7	4.76	1.2	5.16	2.2
NP-CNGA120404GAWS2	●						2	12.7	4.76	0.4	5.16	1.8
NP-CNGA120408GAWS2	●						2	12.7	4.76	0.8	5.16	2.0
NP-CNGA120412GAWS2	●						2	12.7	4.76	1.2	5.16	2.2
BF-CNGM120408TAWS2	●						2	12.7	4.76	0.8	5.16	2.0
BF-CNGM120412TAWS2	●						2	12.7	4.76	1.2	5.16	2.2
BM-CNGM120404TA2	●						2	12.7	4.76	0.4	5.16	1.8
BM-CNGM120408TA2	●						2	12.7	4.76	0.8	5.16	2.0
BM-CNGM120412TA2	●						2	12.7	4.76	1.2	5.16	2.2

● : Inventory maintained in Japan. (1 insert in one case)

Negative Inserts (With Hole)

G Class

DNGA, DNGM



NEW PETIT CUT	NEW PETIT CUT	NEW PETIT CUT
NP_004	NP_00WS4	NP_002
		
	(With Wiper)	
NEW PETIT CUT	NEW PETIT CUT	
NP_00WS2	BF_, BM_	
		
(With Wiper)	(With Breaker)	

(mm)

Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-DNGA150404GA4	●						4	12.7	4.76	0.4	5.16	2.1
NP-DNGA150408GA4	●						4	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412GA4	●						4	12.7	4.76	1.2	5.16	1.8
NP-DNGA150604GA4	●						4	12.7	6.35	0.4	5.16	2.1
NP-DNGA150608GA4	●						4	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612GA4	●						4	12.7	6.35	1.2	5.16	1.8
NP-DNGA150404GH4	●						4	12.7	4.76	0.4	5.16	2.1
NP-DNGA150408GH4	●						4	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412GH4	●						4	12.7	4.76	1.2	5.16	1.8
NP-DNGA150604GH4	●						4	12.7	6.35	0.4	5.16	2.1
NP-DNGA150608GH4	●						4	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612GH4	●						4	12.7	6.35	1.2	5.16	1.8
NP-DNGA150404VA4	●						4	12.7	4.76	0.4	5.16	2.1
NP-DNGA150408VA4	●						4	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412VA4	●						4	12.7	4.76	1.2	5.16	1.8
NP-DNGA150604VA4	●						4	12.7	6.35	0.4	5.16	2.1
NP-DNGA150608VA4	●						4	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612VA4	●						4	12.7	6.35	1.2	5.16	1.8
NP-DNGA150404TA4	●						4	12.7	4.76	0.4	5.16	2.1
NP-DNGA150408TA4	●						4	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412TA4	●						4	12.7	4.76	1.2	5.16	1.8
NP-DNGA150604TA4	●						4	12.7	6.35	0.4	5.16	2.1
NP-DNGA150608TA4	●						4	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612TA4	●						4	12.7	6.35	1.2	5.16	1.8
NP-DNGA150408TH4	●						4	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412TH4	●						4	12.7	4.76	1.2	5.16	1.8
NP-DNGA150608TH4	●						4	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612TH4	●						4	12.7	6.35	1.2	5.16	1.8
NP-DNGA110408GA2	●						2	9.525	4.76	0.8	3.81	2.0
NP-DNGA150402GA2	●						2	12.7	4.76	0.2	5.16	2.2
NP-DNGA150404GA2	●						2	12.7	4.76	0.4	5.16	2.1
NP-DNGA150408GA2	●						2	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412GA2	●						2	12.7	4.76	1.2	5.16	1.8
NP-DNGA150604GA2	●						2	12.7	6.35	0.4	5.16	2.1
NP-DNGA150608GA2	●						2	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612GA2	●						2	12.7	6.35	1.2	5.16	1.8

BC8220

NEW

(mm)

Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-DNGA150404GH2	●						2	12.7	4.76	0.4	5.16	2.1
NP-DNGA150408GH2	●						2	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412GH2	●						2	12.7	4.76	1.2	5.16	1.8
NP-DNGA150604GH2	●						2	12.7	6.35	0.4	5.16	2.1
NP-DNGA150608GH2	●						2	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612GH2	●						2	12.7	6.35	1.2	5.16	1.8
NP-DNGA150404VA2	●						2	12.7	4.76	0.4	5.16	2.1
NP-DNGA150408VA2	●						2	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412VA2	●						2	12.7	4.76	1.2	5.16	1.8
NP-DNGA150604VA2	●						2	12.7	6.35	0.4	5.16	2.1
NP-DNGA150608VA2	●						2	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612VA2	●						2	12.7	6.35	1.2	5.16	1.8
NP-DNGA150404TA2	●						2	12.7	4.76	0.4	5.16	2.1
NP-DNGA150408TA2	●						2	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412TA2	●						2	12.7	4.76	1.2	5.16	1.8
NP-DNGA150604TA2	●						2	12.7	6.35	0.4	5.16	2.1
NP-DNGA150608TA2	●						2	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612TA2	●						2	12.7	6.35	1.2	5.16	1.8
NP-DNGA150408TH2	●						2	12.7	4.76	0.8	5.16	2.0
NP-DNGA150412TH2	●						2	12.7	4.76	1.2	5.16	1.8
NP-DNGA150608TH2	●						2	12.7	6.35	0.8	5.16	2.0
NP-DNGA150612TH2	●						2	12.7	6.35	1.2	5.16	1.8
NP-DNGA150404GAWS2JR	●						2	12.7	4.76	0.4	5.16	1.8
NP-DNGA150404GAWS2JL	●						2	12.7	4.76	0.4	5.16	1.8
NP-DNGA150408GAWS2JR	●						2	12.7	4.76	0.8	5.16	1.7
NP-DNGA150408GAWS2JL	●						2	12.7	4.76	0.8	5.16	1.7
NP-DNGA150604GAWS2JR	●						2	12.7	6.35	0.4	5.16	1.8
NP-DNGA150604GAWS2JL	●						2	12.7	6.35	0.4	5.16	1.8
NP-DNGA150608GAWS2JR	●						2	12.7	6.35	0.8	5.16	1.7
NP-DNGA150608GAWS2JL	●						2	12.7	6.35	0.8	5.16	1.7
BF-DNGM150408TAWs2	●						2	12.7	4.76	0.8	5.16	2.5
BF-DNGM150412TAWs2	●						2	12.7	4.76	1.2	5.16	2.6
BM-DNGM150404TA2	●						2	12.7	4.76	0.4	5.16	2.1
BM-DNGM150408TA2	●						2	12.7	4.76	0.8	5.16	2.0
BM-DNGM150412TA2	●						2	12.7	4.76	1.2	5.16	1.8

● : Inventory maintained in Japan. (1 insert in one case)

Negative Inserts (With Hole)

G Class

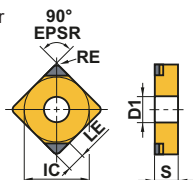
SNGA

NEW PETIT CUT

NP_002



2 corner



(mm)

Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-SNGA120408GA2	●						2	12.7	4.76	0.8	5.16	2.2
NP-SNGA120412GA2	●						2	12.7	4.76	1.2	5.16	2.5

Negative Inserts (With Hole)

G Class

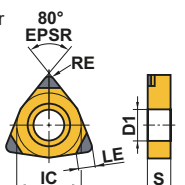
WNGA

NEW PETIT CUT

NP_003



3 corner



(mm)

Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-WNGA080408GA3	●						3	12.7	4.76	0.8	5.16	2.0
NP-WNGA080408TA3	●						3	12.7	4.76	0.8	5.16	2.0

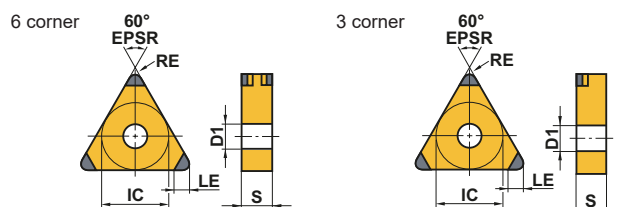
BC8220

NEW

Negative Inserts (With Hole)

G Class

TNGA



(mm)

Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-TNGA160404GA6	●						6	9.525	4.76	0.4	3.81	1.6
NP-TNGA160408GA6	●						6	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412GA6	●						6	9.525	4.76	1.2	3.81	1.9
NP-TNGA160404GH6	●						6	9.525	4.76	0.4	3.81	1.6
NP-TNGA160408GH6	●						6	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412GH6	●						6	9.525	4.76	1.2	3.81	1.9
NP-TNGA160404VA6	●						6	9.525	4.76	0.4	3.81	1.6
NP-TNGA160408VA6	●						6	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412VA6	●						6	9.525	4.76	1.2	3.81	1.9
NP-TNGA160404TA6	●						6	9.525	4.76	0.4	3.81	1.6
NP-TNGA160408TA6	●						6	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412TA6	●						6	9.525	4.76	1.2	3.81	1.9
NP-TNGA160408TH6	●						6	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412TH6	●						6	9.525	4.76	1.2	3.81	1.9
NP-TNGA160402GA3	●						3	9.525	4.76	0.2	3.81	1.5
NP-TNGA160404GA3	●						3	9.525	4.76	0.4	3.81	1.6
NP-TNGA160408GA3	●						3	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412GA3	●						3	9.525	4.76	1.2	3.81	1.9
NP-TNGA160404GH3	●						3	9.525	4.76	0.4	3.81	1.6
NP-TNGA160408GH3	●						3	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412GH3	●						3	9.525	4.76	1.2	3.81	1.9
NP-TNGA160404VA3	●						3	9.525	4.76	0.4	3.81	1.6
NP-TNGA160408VA3	●						3	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412VA3	●						3	9.525	4.76	1.2	3.81	1.9
NP-TNGA160404TA3	●						3	9.525	4.76	0.4	3.81	1.6
NP-TNGA160408TA3	●						3	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412TA3	●						3	9.525	4.76	1.2	3.81	1.9
NP-TNGA160408TH3	●						3	9.525	4.76	0.8	3.81	1.7
NP-TNGA160412TH3	●						3	9.525	4.76	1.2	3.81	1.9

Negative Inserts (With Hole)

G Class

VNGA

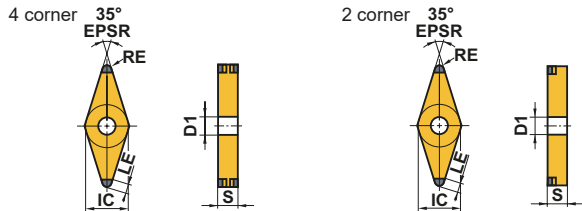
NEW PETIT CUT

NP_004



NEW PETIT CUT

NP_002



(mm)

Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-VNGA160404GA4	●						4	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408GA4	●						4	9.525	4.76	0.8	3.81	2.0
NP-VNGA160412GA4	●						4	9.525	4.76	1.2	3.81	1.5
NP-VNGA160404GH4	●						4	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408GH4	●						4	9.525	4.76	0.8	3.81	2.0
NP-VNGA160404VA4	●						4	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408VA4	●						4	9.525	4.76	0.8	3.81	2.0
NP-VNGA160412VA4	●						4	9.525	4.76	1.2	3.81	1.5
NP-VNGA160404TA4	●						4	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408TA4	●						4	9.525	4.76	0.8	3.81	2.0
NP-VNGA160404TH4	●						4	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408TH4	●						4	9.525	4.76	0.8	3.81	2.0
NP-VNGA160402GA2	●						2	9.525	4.76	0.2	3.81	2.5
NP-VNGA160404GA2	●						2	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408GA2	●						2	9.525	4.76	0.8	3.81	2.0
NP-VNGA160412GA2	●						2	9.525	4.76	1.2	3.81	1.5
NP-VNGA160404GH2	●						2	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408GH2	●						2	9.525	4.76	0.8	3.81	2.0
NP-VNGA160404VA2	●						2	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408VA2	●						2	9.525	4.76	0.8	3.81	2.0
NP-VNGA160412VA2	●						2	9.525	4.76	1.2	3.81	1.5
NP-VNGA160404TA2	●						2	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408TA2	●						2	9.525	4.76	0.8	3.81	2.0
NP-VNGA160404TH2	●						2	9.525	4.76	0.4	3.81	2.5
NP-VNGA160408TH2	●						2	9.525	4.76	0.8	3.81	2.0

BC8220

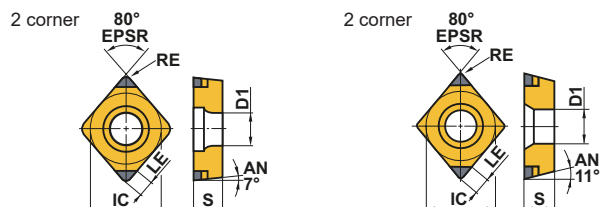
NEW

Positive Inserts (With Hole)

G Class

CCGW 7°, CCGT 7°, CPGB 11°

NEW PETIT CUT	NEW PETIT CUT	NEW PETIT CUT
NP_○2	NP_○W○2	BM_
		
	(With Wiper)	(With Breaker)



(mm)

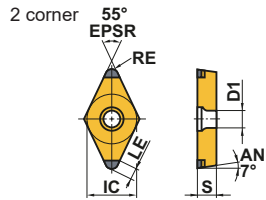
Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-CCGW060202GA2	●						2	6.35	2.38	0.2	2.8	1.7
NP-CCGW060204GA2	●						2	6.35	2.38	0.4	2.8	1.8
NP-CCGW060208GA2	●						2	6.35	2.38	0.8	2.8	2.0
NP-CCGW09T302GA2	●						2	9.525	3.97	0.2	4.4	1.7
NP-CCGW09T304GA2	●						2	9.525	3.97	0.4	4.4	1.8
NP-CCGW09T308GA2	●						2	9.525	3.97	0.8	4.4	2.0
NP-CCGW09T304VA2	●						2	9.525	3.97	0.4	4.4	1.8
NP-CCGW09T308VA2	●						2	9.525	3.97	0.8	4.4	2.0
NP-CCGW09T304TA2	●						2	9.525	3.97	0.4	4.4	1.8
NP-CCGW09T308TA2	●						2	9.525	3.97	0.8	4.4	2.0
NP-CCGW09T304GAWS2	●						2	9.525	3.97	0.4	4.4	1.8
NP-CCGW09T308GAWS2	●						2	9.525	3.97	0.8	4.4	2.0
BM-CCGT09T304TA2	●						2	9.525	3.97	0.4	4.4	1.8
BM-CCGT09T308TA2	●						2	9.525	3.97	0.8	4.4	2.0
NP-CPGB080204GA2	●						2	7.94	2.38	0.4	3.5	1.8
NP-CPGB080208GA2	●						2	7.94	2.38	0.8	3.5	2.0
NP-CPGB080212GA2	●						2	7.94	2.38	1.2	3.5	2.2
NP-CPGB090302GA2	●						2	9.525	3.18	0.2	4.5	1.7
NP-CPGB090304GA2	●						2	9.525	3.18	0.4	4.5	1.8
NP-CPGB090308GA2	●						2	9.525	3.18	0.8	4.5	2.0
NP-CPGB090312GA2	●						2	9.525	3.18	1.2	4.5	2.2
NP-CPGB090304VA2	●						2	9.525	3.18	0.4	4.5	1.8
NP-CPGB090308VA2	●						2	9.525	3.18	0.8	4.5	2.0
NP-CPGB090312VA2	●						2	9.525	3.18	1.2	4.5	2.2
NP-CPGB090304TA2	●						2	9.525	3.18	0.4	4.5	1.8
NP-CPGB090308TA2	●						2	9.525	3.18	0.8	4.5	2.0
NP-CPGB090312TA2	●						2	9.525	3.18	1.2	4.5	2.2

● : Inventory maintained in Japan. (1 insert in one case)

Positive Inserts (With Hole)

G Class

DCGW 7°, DCGT 7°



NEW PETIT CUT

NP_002



NEW PETIT CUT

BM_



(With Breaker)

(mm)

Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-DCGW070202GA2	●						2	6.35	2.38	0.2	2.8	2.2
NP-DCGW070204GA2	●						2	6.35	2.38	0.4	2.8	2.1
NP-DCGW070208GA2	●						2	6.35	2.38	0.8	2.8	2.0
NP-DCGW11T302GA2	●						2	9.525	3.97	0.2	4.4	2.2
NP-DCGW11T304GA2	●						2	9.525	3.97	0.4	4.4	2.1
NP-DCGW11T308GA2	●						2	9.525	3.97	0.8	4.4	2.0
NP-DCGW11T304VA2	●						2	9.525	3.97	0.4	4.4	2.1
NP-DCGW11T308VA2	●						2	9.525	3.97	0.8	4.4	2.0
NP-DCGW11T304TA2	●						2	9.525	3.97	0.4	4.4	2.1
NP-DCGW11T308TA2	●						2	9.525	3.97	0.8	4.4	2.0
BM-DCGT11T304TA2	●						2	9.525	3.97	0.4	4.4	2.1
BM-DCGT11T308TA2	●						2	9.525	3.97	0.8	4.4	2.0

BC8220

NEW

Positive Inserts (With Hole)

G Class

TPGB 11°

NEW PETIT CUT

NP_TCGW

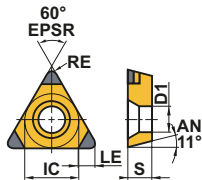


NEW PETIT CUT

NP-TPGB



3 corner



(mm)

Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-TPGB090204GA3	●						3	5.56	2.38	0.4	2.9	1.6
NP-TPGB090208GA3	●						3	5.56	2.38	0.8	2.9	1.7
NP-TPGB110302GA3	●						3	6.35	3.18	0.2	3.4	1.5
NP-TPGB110304GA3	●						3	6.35	3.18	0.4	3.4	1.6
NP-TPGB110308GA3	●						3	6.35	3.18	0.8	3.4	1.7
NP-TPGB160304GA3	●						3	9.525	3.18	0.4	4.4	1.6
NP-TPGB160308GA3	●						3	9.525	3.18	0.8	4.4	1.7
NP-TPGB110304VA3	●						3	6.35	3.18	0.4	3.4	1.6
NP-TPGB110308VA3	●						3	6.35	3.18	0.8	3.4	1.7
NP-TPGB110304TA3	●						3	6.35	3.18	0.4	3.4	1.6
NP-TPGB110308TA3	●						3	6.35	3.18	0.8	3.4	1.7

● : Inventory maintained in Japan. (1 insert in one case)

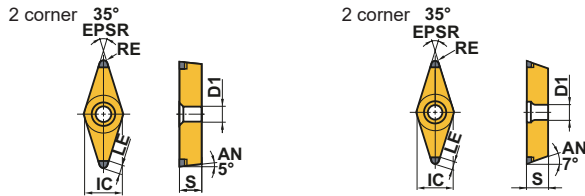
Positive Inserts (With Hole)

G Class

VBGW 5°, VCGW 7°

NEW PETIT CUT

NP_002



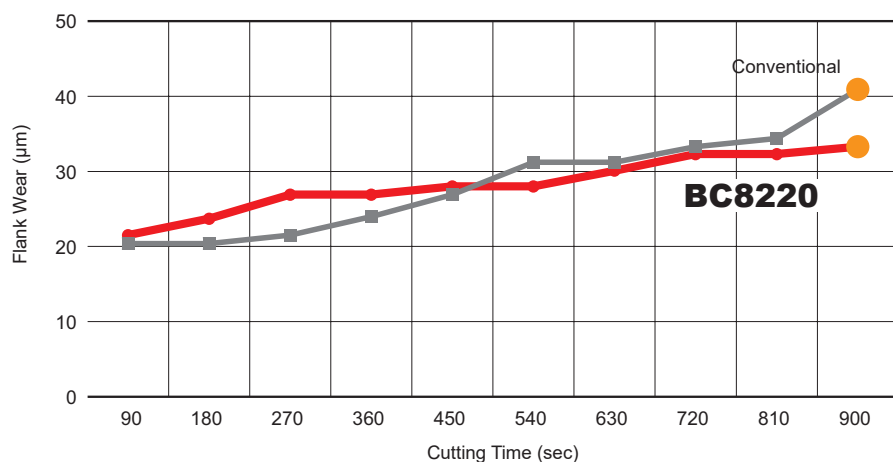
(mm)

Order Number	Coated CBN						Cutting Edges	IC	S	RE	D1	LE
	BC8220											
NP-VBGW110302GA2	●						2	6.35	3.18	0.2	2.85	2.5
NP-VBGW110304GA2	●						2	6.35	3.18	0.4	2.85	2.5
NP-VBGW110308GA2	●						2	6.35	3.18	0.8	2.85	2.0
NP-VBGW160402GA2	●						2	9.525	4.76	0.2	4.43	2.5
NP-VBGW160404GA2	●						2	9.525	4.76	0.4	4.43	2.5
NP-VBGW160408GA2	●						2	9.525	4.76	0.8	4.43	2.0
NP-VBGW160404VA2	●						2	9.525	4.76	0.4	4.43	2.5
NP-VBGW160408VA2	●						2	9.525	4.76	0.8	4.43	2.0
NP-VBGW160404TA2	●						2	9.525	4.76	0.4	4.43	2.5
NP-VBGW160408TA2	●						2	9.525	4.76	0.8	4.43	2.0
NP-VCGW160404GA2	●						2	9.525	4.76	0.4	4.4	2.5
NP-VCGW160408GA2	●						2	9.525	4.76	0.8	4.4	2.0
NP-VCGW160404VA2	●						2	9.525	4.76	0.4	4.4	2.5
NP-VCGW160408VA2	●						2	9.525	4.76	0.8	4.4	2.0
NP-VCGW160404TA2	●						2	9.525	4.76	0.4	4.4	2.5
NP-VCGW160408TA2	●						2	9.525	4.76	0.8	4.4	2.0

Cutting Performance

Machining SCr420 (60 HRC): Comparison of Wear Resistance During Continuous Cutting

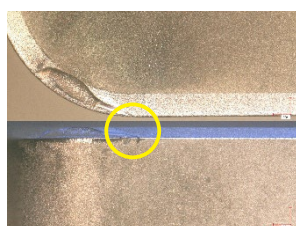
BC8220 achieves excellent wear resistance and finished surface when compared to conventional products.



After machining 900 seconds



BC8220



Conventional product - Notch wear

<Cutting Conditions>

Work Material : JIS SCr420 (60 HRC)

Inserts : NP-CNGA120408VA2

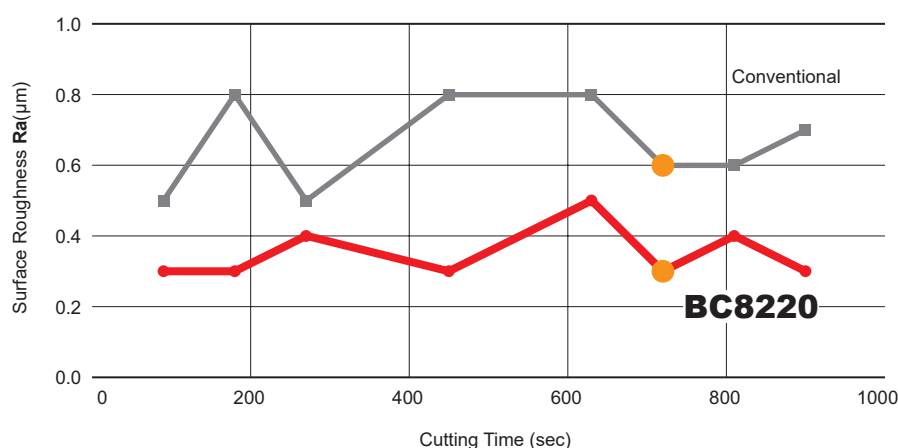
Cutting Speed: $v_c = 150$ m/min

Feed per Rev. : $f = 0.1$ mm/rev

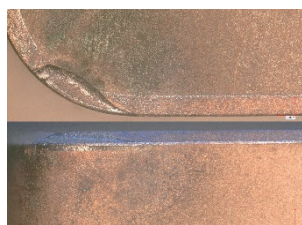
Depth of Cut : $a_p = 0.2$ mm

Cutting Mode : Dry Cutting

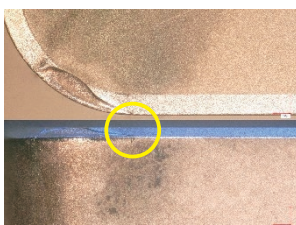
Machining SCr420 (60 HRC): Comparison of Surface Roughness During Continuous Cutting



After machining 720 seconds



BC8220



Conventional product - Notch wear

<Cutting Conditions>

Work Material : JIS SCr420 (60 HRC)

Inserts : NP-CNGA120408VA2

Cutting Speed: $v_c = 150$ m/min

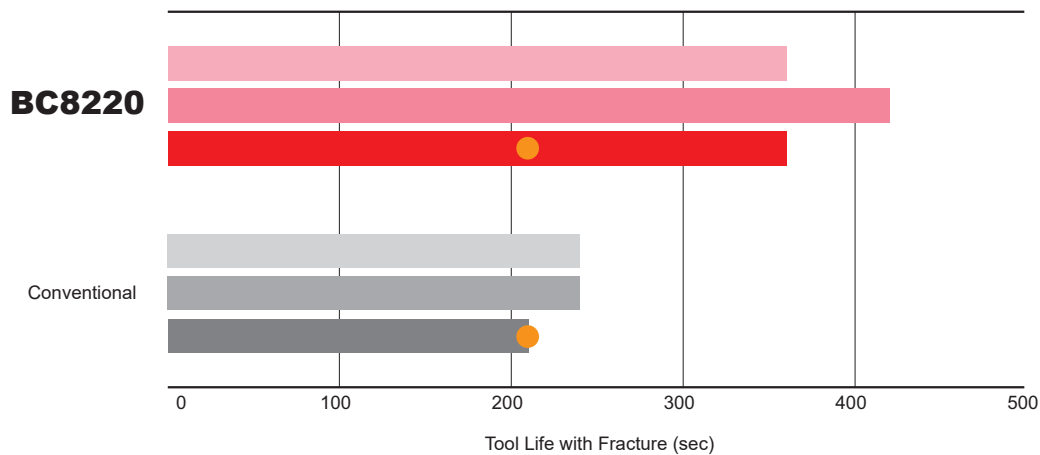
Feed per Rev. : $f = 0.1$ mm/rev

Depth of Cut : $a_p = 0.2$ mm

Cutting Mode : Dry Cutting

Machining SCr420 (60 HRC): Comparison of Fracture Resistance During Low Interrupted Cutting

BC8220 has excellent chipping and fracture resistance.



After machining 210 seconds



BC8220



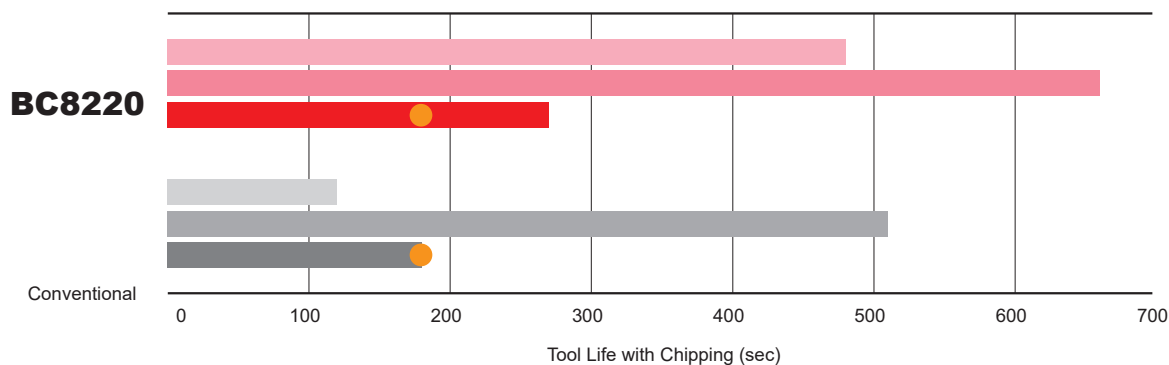
Conventional product - Fracture

<Cutting Conditions>

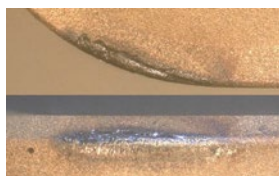
Work Material : JIS SCr420 (60 HRC)
 Inserts : NP-CNGA120408VA2
 Cutting Speed: $v_c=250$ m/min
 Feed per Rev. : $f=0.15$ mm/rev
 Depth of Cut : $a_p=0.1$ mm
 Cutting Mode : Dry Cutting

Machining SCr420 (60 HRC): Comparison of Fracture Resistance During Heavy Interrupted Cutting

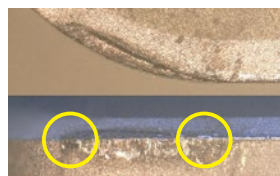
BC8220 has improved chipping resistance when compared to conventional products.



After machining 180 seconds



BC8220

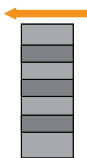


Conventional Product is Chipping

<Cutting Conditions>

Work Material : JIS SCr420 (60 HRC)
 Inserts : NP-CNGA120408VA2
 Cutting Speed: $v_c=200$ m/min
 Feed per Rev. : $f=0.05$ mm/rev
 Depth of Cut : $a_p=0.1$ mm
 Cutting Mode : Wet Cutting

Examples of Usage

Insert		NP-TNGA160412TA3	NP-TNGA160420TA3	
Workpiece Material	16MnCr5			
Component		Automobile Parts	Automobile Parts	
Application		Strong Interrupted Boring	Strong Interrupted Turning	
Cutting Conditions	Cutting Speed v_c (m/min)	120	130	
	Feed per Rev. f (mm/rev)	0.18	0.12	
	Depth of Cut a_p (mm)	0.15-0.25	0.25	
Cutting Mode		Dry Cutting	Dry Cutting	
Results		Number of Workpieces 100 200 300 400 500 600 BC8220 Conventional  BC8220, which has excellent fracture resistance, has a tool life 1.5 times longer than that of conventional products.	Number of Workpieces 100 200 300 400 BC8220 Conventional  BC8220, which has excellent fracture resistance, has a tool life 1.25 times longer than that of conventional products.	

The application examples are from customers workpieces and can therefore differ from the recommended cutting conditions.

For Your Safety

●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When attaching inserts or spare parts, please use only the correct wrench or driver. ●When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

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(Tools specifications subject to change without notice.)

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