


Coated cubic boron nitride (CBN) grade for hardened steels

MIBC010

New sintering technology provides high wear and fracture resistance and good surface finish.

Achieves cutting speed of over 300m/min.

High-grade, coated CBN for machining hardened steels.

Coated cubic boron nitride (CBN) grade for hardened steels

MBC010



Ultra high-speed cutting

MBC010 is a coated CBN grade for hardened steels. High wear resistance enables high-speed cutting.

Excellent surface finish

Micrograin CBN makes **MBC010** a "high-grade" grade for excellent surface finish.

Features

High wear resistance properties and high-speed cutting performance

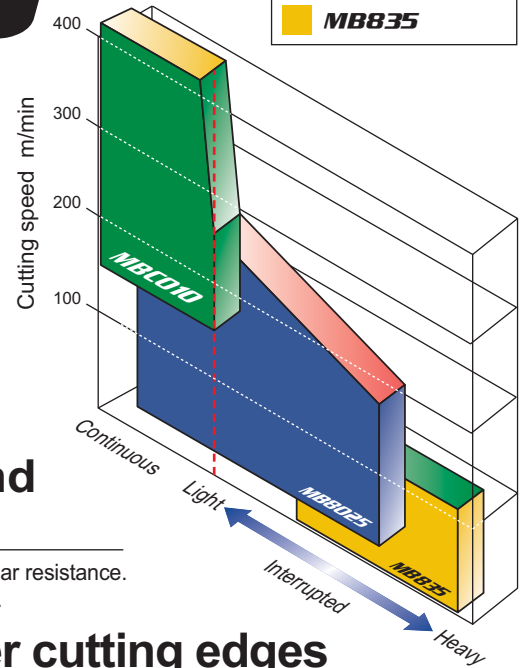
MBC010 makes the best use of special ceramic binder structure, actualizing high wear resistance. High wear resistance enables continuous machining at high speed of over 300m/min.

Superior surface finish

MBC010 employs micrograin CBN for the first time in the world. Micrograin CBN and a special ceramic coating achieve excellent surface finish.

Tougher cutting edges

Mitsubishi Materials' newly developed "particle-activated sintering method" provides both high wear resistance and high toughness. Because of high resistance to fracture, which high-grade CBN is liable to, MBC010 increases tool life and is less costly.

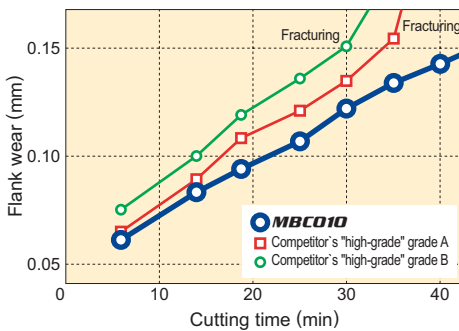


Recommended cutting conditions

Workpiece	Machining condition	Cutting speed (m/min)				Feed (mm/rev)	Depth of cut (mm)	Coolant
		100	200	300	400			
Hardened steel (Tempered steel)	Continuous cutting	----- ----- ----- -----				-0.2	-0.2	Wet, Dry

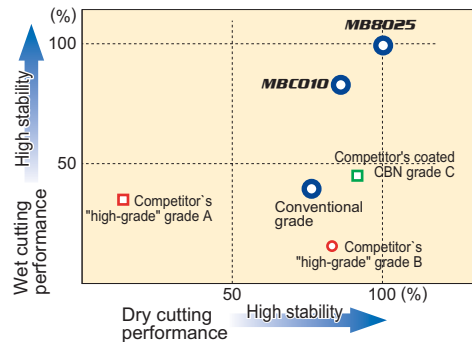
Cutting performance

Wear resistance



<Cutting conditions>
 Workpiece : SCM415 HRC60
 Continuous cutting
 Insert : NP-CNGA120408GS2
 Cutting speed : 300m/min
 Feed : 0.05mm/rev
 Depth of cut : 0.1mm
 Dry cutting

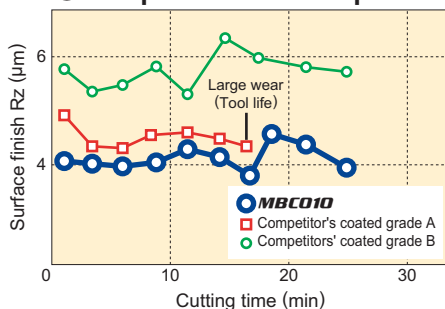
Toughness



<Cutting conditions>
 Workpiece : SCM415 HRC60
 Interrupted external cutting of eight slits
 Insert : NP-CNGA120408GS2
 Cutting speed : 150m/min
 <Wet cutting>
 Feed : 0.1mm/rev
 Depth of cut : 0.1mm
 <Dry cutting>
 Feed : 0.15mm/rev
 Depth of cut : 0.2mm

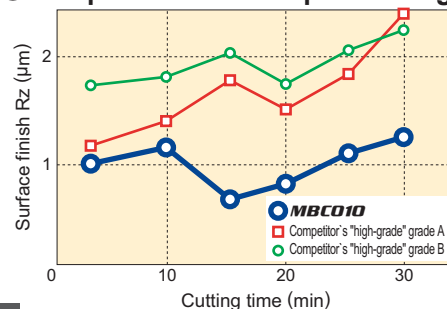
Surface finish

Comparison with competitors' coated CBN grades



<Cutting conditions>
 Workpiece : SCM415 HRC60
 Continuous cutting
 Insert : NP-CNGA120408GS2
 Cutting speed : 150m/min
 Feed : 0.15mm/rev
 Depth of cut : 0.2mm
 Dry cutting


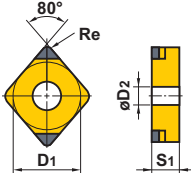
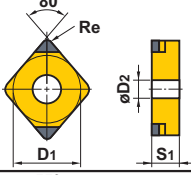

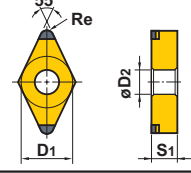

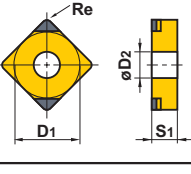

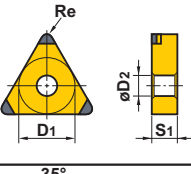

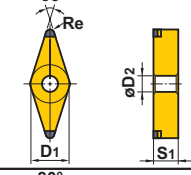

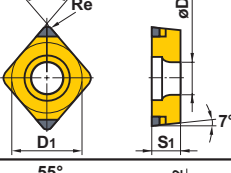

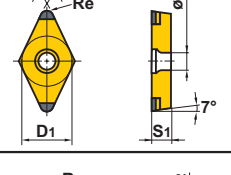

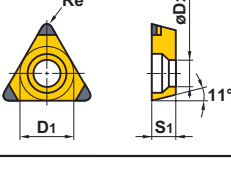
Comparison with competitors' high-grade CBN grades



<Cutting conditions>
 Workpiece : SCM415 HRC60
 Continuous cutting
 Insert : NP-CNGA120408GS2
 Cutting speed : 300m/min
 Feed : 0.05mm/rev
 Depth of cut : 0.1mm
 Dry cutting

MBC010

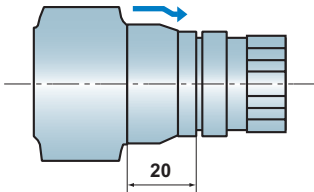
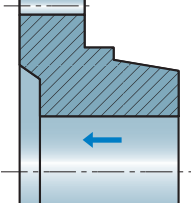
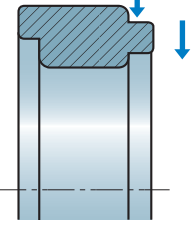
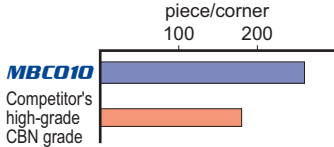
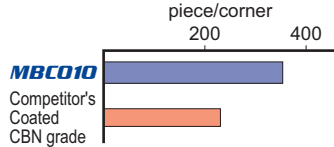
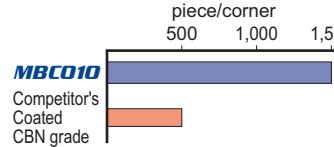
Insert standards

Shape	Order number	Stock	Geometry	Dimensions (mm)				Holders
				D1	S1	Re	D2	
	NP-CNGA120404GS2	●		12.7	4.76	0.4	5.16	LL holder Double clamp holder P type boring bar D type boring head LL cartridge
	120408GS2	●		12.7	4.76	0.8	5.16	
	120412GS2	●		12.7	4.76	1.2	5.16	
NEW PETIT CUT (With wiper)	NP-CNGA120408GSW2	●		12.7	4.76	0.8	5.16	LL holder Double clamp holder P type boring bar D type boring head LL cartridge
	NP-DNGA150404GS2	●		12.7	4.76	0.4	5.16	LL holder Double clamp holder P type boring bar D type boring head
	150408GS2	●		12.7	4.76	0.8	5.16	
	150412GS2	●		12.7	4.76	1.2	5.16	
	NP-SNGA120404GS2	●		12.7	4.76	0.4	5.16	LL holder ML holder P type boring bar LL cartridge
	120408GS2	●		12.7	4.76	0.8	5.16	
	120412GS2	●		12.7	4.76	1.2	5.16	
	NP-TNGA160404GS3	●		9.525	4.76	0.4	3.81	LL holder Double clamp holder ML holder WP holder P type boring bar D type boring head LL cartridge
	160408GS3	●		9.525	4.76	0.8	3.81	
	160412GS3	●		9.525	4.76	1.2	3.81	
	NP-VNGA160404GS2	●		9.525	4.76	0.4	3.81	MP holder D type boring head
	160408GS2	●		9.525	4.76	0.8	3.81	
	NP-CCGW060204GS2	●		6.35	2.38	0.4	2.8	SP holder SMALL TOOLS S type boring bar
	09T304GS2	●		9.525	3.97	0.4	4.4	
	09T308GS2	●		9.525	3.97	0.8	4.4	
	NP-DCGW070204GS2	●		6.35	2.38	0.4	2.8	SP holder SMALL TOOLS Dimple bar S type boring bar
	11T302GS2	●		9.525	3.97	0.2	4.4	
	11T304GS2	●		9.525	3.97	0.4	4.4	
	11T308GS2	●		9.525	3.97	0.8	4.4	
	NP-TPGX080202GS3	●		4.76	2.38	0.2	2.5	F type boring bar MI holder FA/FV boring unit
	080204GS3	●		4.76	2.38	0.4	2.5	
	090202GS3	●		5.56	2.38	0.2	3	
	090204GS3	●		5.56	2.38	0.4	3	
	110304GS3	●		6.35	3.18	0.4	3.5	
	110308GS3	●		6.35	3.18	0.8	3.5	

● : Inventory maintained.

MBC010

Application examples

Insert	NP-DNGA150408GS2	NP-CNGA120408GS2	NP-CNGA120408GS2	
Workpiece	DIN 34Mn5 (HRC60) Surface finish : Ra<0.8µm 	DIN 20MoCrS4 (HRC50-61) Surface finish : Rz<3µm 	JIS SCr420H (HRC60) 	
	Component	Accelerator	Gear	Gear
Cutting conditions	Cutting speed (m/min)	230	300	180
	Feed (mm/rev)	0.08	0.06	0.15
	Depth of cut (mm)	0.1	0.07	0.1
Coolant	Wet cutting	Wet cutting	Wet cutting	
Result	 A competitor's "high-grade" grade made a poor surface finish after machining 190 pieces. Meanwhile, MBC010 maintained a good surface finish even after machining as many as 250 pieces.	 A competitor's coated CBN suffered large wear after machining 250 pieces, while MBC010 lengthened tool life and produced 380 pieces.	 A competitor's grade cut 500 pieces, while MBC010 increased tool life and machined 1500 pieces.	

For your safety

●Do not touch cutting or chips without wearing gloves. ●Use tools under recommended cutting conditions, and exchange tools before excessive wear occurs. ●Chips become extremely hot, scattered over and may be stretched. Ensure safety guards and goggles are used. ●In case of using non-water soluble oil, make sure to have a fire prevention countermeasure. ●Use the provided wrench spanner, and ensure the inserts and spare parts are damped securely.

MITSUBISHI MATERIALS CORPORATION


Overseas Operations Center :

Cutting Tools

KFC bldg., 7F, 1-6-1, Yokoami, Sumida-ku, Tokyo 130-0015, Japan
TEL 81-3-5819-8771 FAX 81-3-5819-8774

MMC HARTMETALL GmbH

Comeniusstr.2, 40670, Meerbusch GERMANY
TEL 49-2159-9189-0 FAX 49-2159-50462

MITSUBISHI MATERIALS U.S.A. CORPORATION

Headquarters

17401, Eastman Street, Irvine, California, 92614, USA
TEL 1-949-862-5100 FAX 1-949-862-5180

MMC METAL SINGAPORE PTE LTD.

10, Arumugam Road, #04-00 Lion Industrial Bldg.,409957, SINGAPORE
TEL 65-6743-9370 FAX 65-6749-1469

Mitsubishi Carbides Home page : <http://www.mitsubishicarbide.com>
(Tools specifications subject to change without notice.)