MITSUBISHI MITSUBISHI MATERIALS TOOL NEWS
2013.11 Update B076A

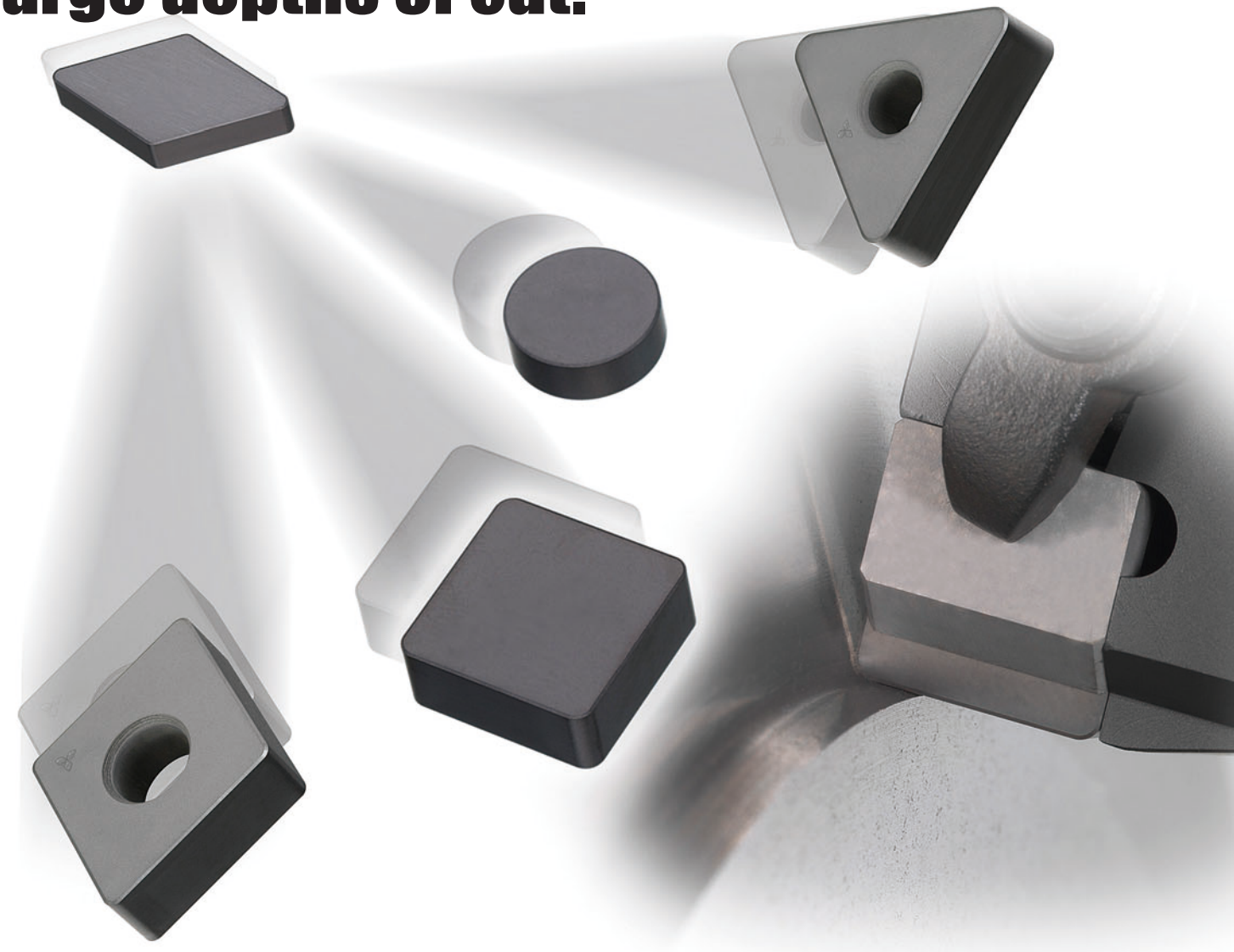
Solid CBN Grade for Cast Iron and Sintered Alloy

MBS140

Series Expansion

Good balance of wear and fracture resistance
from high-performance sintering technology.

New solid CBN for improved cast iron machining. High-speed machining at large depths of cut.



Solid CBN Grade for Cast Iron and Sintered Alloy

MBS140

100% Solid CBN structure

For highly efficient machining at large depths of cut

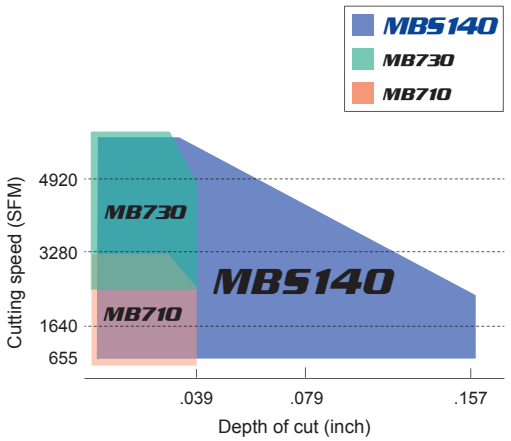
Inserts made entirely of CBN do not limit the depth of cut. For the high speed and efficiency of CBN finishing but now also for roughing applications.

Balance of wear and fracture resistance

The use of CBN particles and a newly developed special binder delivers high wear resistance.
Mitsubishi's unique high-performance sintering technology gives high fracture resistance.

Application range

for higher efficiency machining

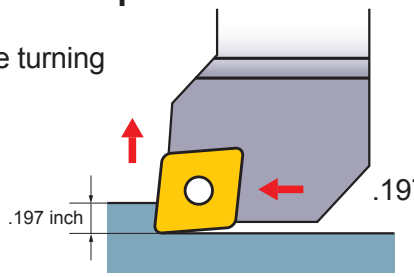


Addition of insert series with hole

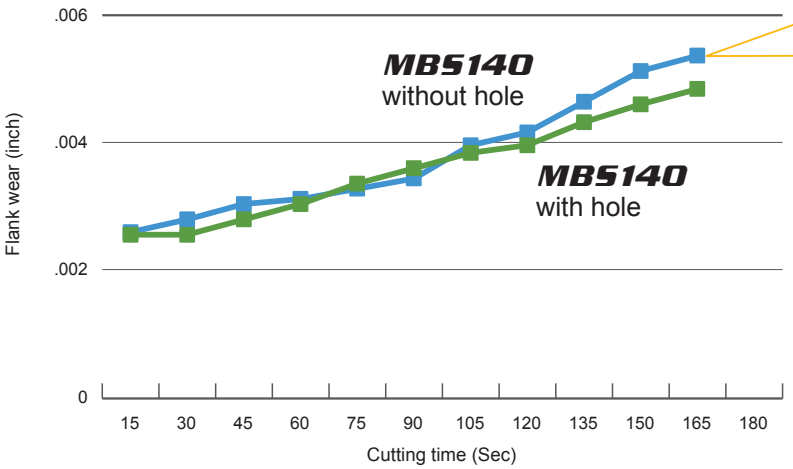
Comparison of depth of cut

NEW

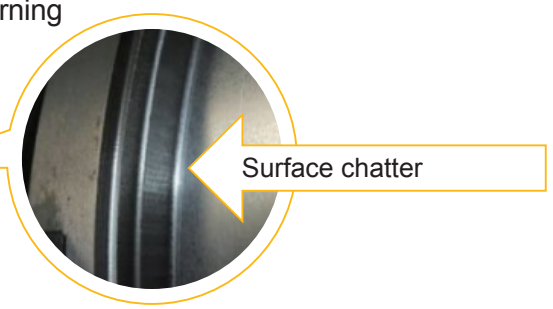
.197 inch face turning



.197 inch external turning

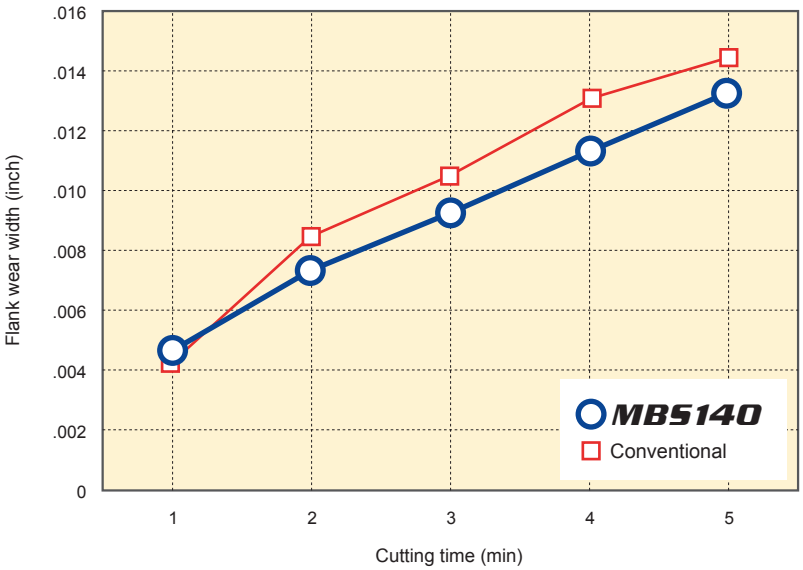


Vibration occurred when using an insert without hole after 165 sec due to high cutting loads.



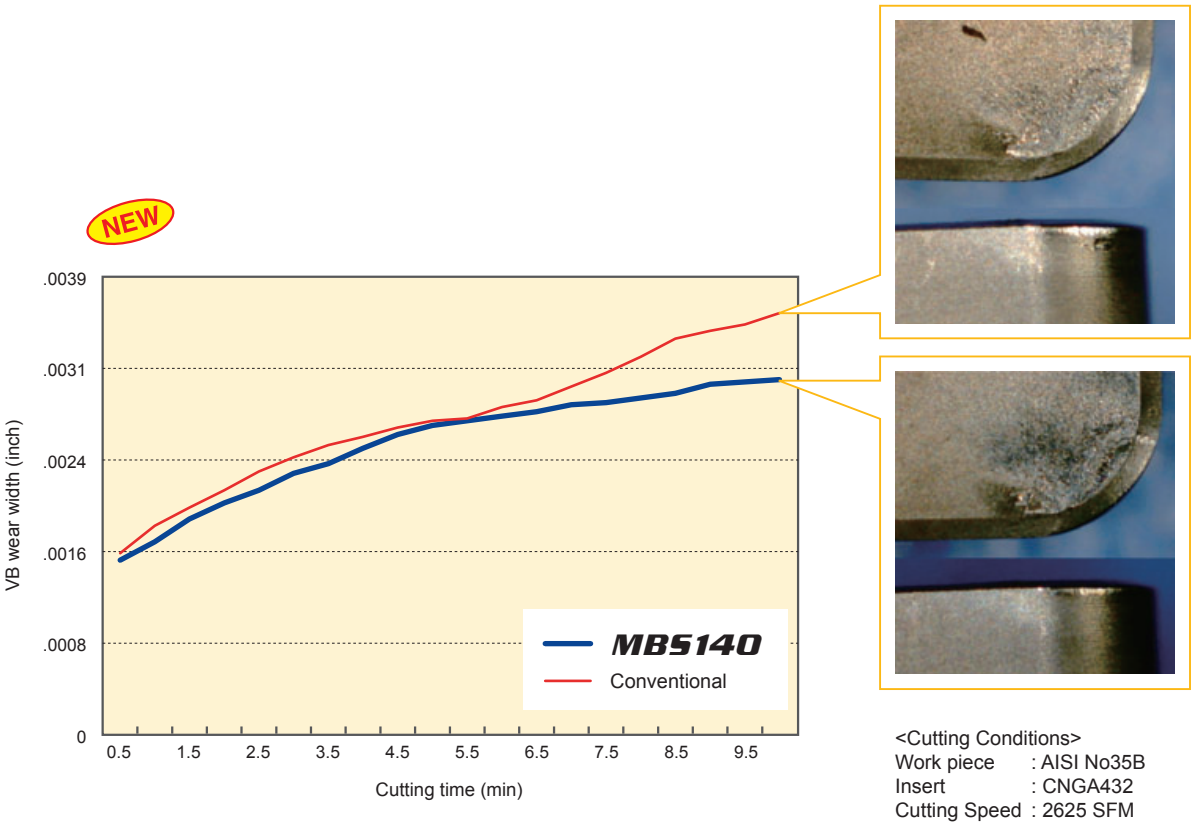
<Cutting Conditions>
Work piece : AISI No35B
Insert : CNGA432/CNGN432
Holder : Double Clamp Byte
Cutting Speed : 1.310 SFM
Feed : .002 IPR
Depth of Cut : .197 inch
Dry Cutting

MBS140's Cutting Performance



<Cutting Conditions>
Work piece : AISI No35B (220–250HB)
Insert : SNGN322
Cutting Speed : 1640 SFM
Feed : .010 IPR
Depth of Cut : .004 inch
Dry Cutting

Stable flank wear is maintained compared to conventional products for continuous cutting.



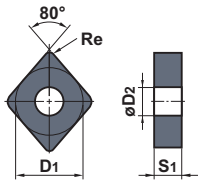
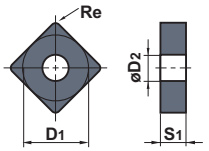
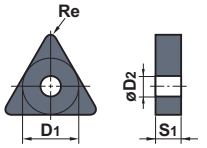
<Cutting Conditions>
Work piece : AISI No35B
Insert : CNGA432
Cutting Speed : 2625 SFM
Feed : .012 IPR
Depth of Cut : .197 inch
Dry Cutting

Provides outstanding wear resistance and fracture resistance,
MBS140 achieves long tool life without abnormal fracturing even when taking large depth of cut.

MBS140

INSERTS

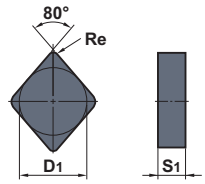
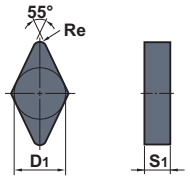
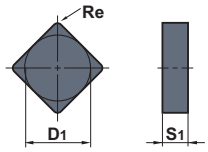
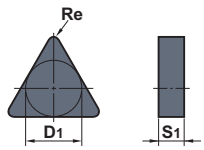
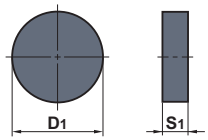
● Standard Inserts (With hole)

Shape	Order Number	(ISO) Number	Stock MBS140	No.of teeth	Dimensions (inch) D1	S1	Re	D2	Geometry
NEW 	CNGA432	CNGA120408	●	4	.500	.187	.031	.203	
	433	120412	●	4	.500	.187	.047	.203	
NEW 	SNGA432	SNGA120408	●	8	.500	.187	.031	.203	
	433	120412	●	8	.500	.187	.047	.203	
NEW 	TNGA332	TNGA160408	●	6	.375	.187	.031	.150	
	333	160412	●	6	.375	.187	.047	.150	

* Please use with double clamp holder and lever lock holders.

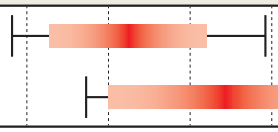
● : Inventory maintained. ★ : Inventory maintained in Japan.

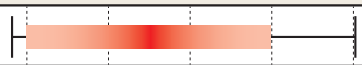
● Standard Inserts

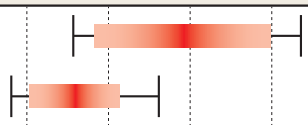
Shape	Order Number	(ISO) Number	Stock MB5140	No.of teeth	Dimensions (mm) D1	S1	Re	Geometry
	**CNG431**	**CNGN120404**	★	4	.500	.187	.016	
	432	**120408**	●	4	.500	.187	.031	
	433	**120412**	●	4	.500	.187	.047	
	**DNG322**	**DNGN110308**	★	4	.375	.125	.031	
	323	**110312**	★	4	.375	.125	.047	
	**SNG322**	**SNGN090308**	●	8	.375	.125	.031	
	323	**090312**	●	8	.375	.125	.047	
	324	**090316**	●	8	.375	.125	.063	
	332	**090408**	●	8	.375	.187	.031	
	333	**090412**	●	8	.375	.187	.047	
	432	**120408**	●	8	.500	.187	.031	
	433	**120412**	★	8	.500	.187	.047	
	434	**120416**	●	8	.500	.187	.063	
	**TNG332**	**TNGN160408**	●	6	.375	.187	.031	
	333	**160412**	●	6	.375	.187	.047	
	334	**160416**	●	6	.375	.187	.063	
	**RNG32**	**RNGN090300**	●	—	.375	.125	—	
	42	**120300**	●	—	.500	.125	—	
	43	**120400**	●	—	.500	.187	—	

SOLID CBN GRADE FOR CAST IRON AND SINTERED ALLOY

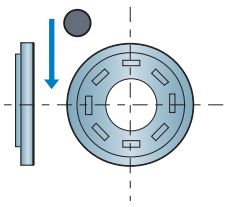
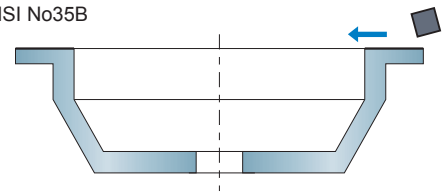
Recommended Cutting Conditions

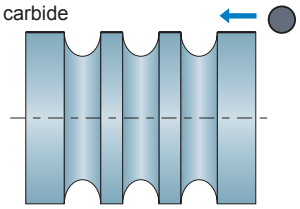
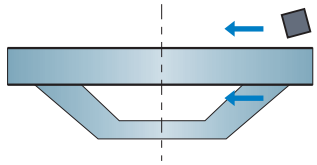
Work piece	Cutting Mode	Cutting Speed (SFM) 820 1640 2460 3280 4100	Feed (IPR)	Depth of Cut (inch)	Coolant
Cast iron	Turning		≤.039	≤.197	Dry, Wet
	Milling		≤.006	≤.197	Dry

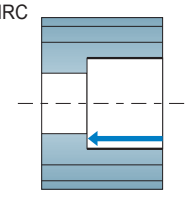
Work piece	Cutting Mode	Cutting Speed (SFM) 330 490 655 820 985	Feed (IPR)	Depth of Cut (inch)	Coolant
General sintered alloy	Turning (Rough)		≤.008	≤.197	Dry, Wet

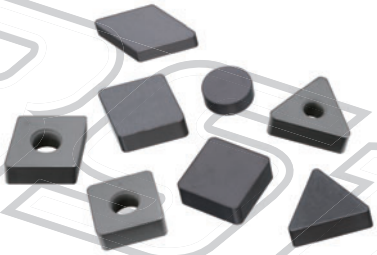
Work piece	Cutting Mode	Cutting Speed (SFM) 30 65 100 195 330	Feed (IPR)	Depth of Cut (inch)	Coolant
High-speed steel	Turning		≤.016	≤.118	Dry, Wet
Cemented carbide	Turning		≤.008	≤.197	Dry, Wet

Application Examples

Insert	RNG42	SNG433
Work piece	AISI No35B 	AISI No35B 
Component	Clutch parts	Brake drum
Cutting Conditions: Cutting Speed (SFM)	1640	2300
Cutting Conditions: Feed (IPR)	.012	.012
Cutting Conditions: Depth of Cut (inch)	.138	.118
Coolant	Dry cutting	Dry cutting
Results	Pieces/corner 750 1000 MBS140 Conventional Conventional solid CBN tool life was 900 parts due to large wear. MBS140 could extend the tool life to 1000 parts.	Pieces/corner 750 1500 MBS140 Conventional Conventional solid CBN tool life was 850 parts due to large wear. MBS140 could extend the tool life to 1500 parts.

Insert	RNG43	SNG434
Work piece	Cemented carbide 	AISI No35B 
Component	Cemented carbide roll	Brake disc
Cutting Conditions: Cutting Speed (SFM)	50	2300
Cutting Conditions: Feed (IPR)	.006	.012
Cutting Conditions: Depth of Cut (inch)	.004	.118
Coolant	Dry cutting	Dry cutting
Results	Pieces/corner 3 6 MBS140 Conventional Longer tool life than a conventional single-sided CBN insert. The economical double-sided MBS140 insert reduced tool costs.	Pieces/corner 750 1500 MBS140 Conventional Conventional solid CBN had a tool life of 800 parts. MBS140 could lengthen the tool life to 1500 parts.

Insert	CNGA432	CNGA433
Work piece	Sintered Alloy 55HRC NEW 	Sintered Alloy 55HRC NEW 
Component	Transmission gear	Drive rotor
Cutting Conditions: Cutting Speed (SFM)	600	330
Cutting Conditions: Feed (IPR)	.014	.014
Cutting Conditions: Depth of Cut (inch)	.236	.236
Coolant	Dry cutting	Dry cutting
Results	Pieces/corner 2000 2100 MBS140 Conventional Due to excellent flank wear, number of work pieces per cutting edge increased.	Pieces/corner 1500 2000 MBS140 Conventional Increase of cutting speed enabled efficient cutting.



Solid CBN Grade for Cast Iron and Sintered Alloy

MBS140

For your safety
●Don't touch breakers and chips without gloves. ●Please machine within recommended application range, and exchange expired tools with new parts in advance. ●Please use safety cover and wear safety glasses. ●When using compounded cutting oils, please take fire prevention. ●When attaching chips or spare parts, please use the attached wrench or driver. ●When using tools in revolution machining, please make a trial run to check run-out, vibration, abnormal sounds etc.

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MITSUBISHI MATERIALS U.S.A. CORPORATION

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(Tools specifications subject to change without notice.)

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