



COMPLETE METALWORKING SOLUTIONS
(800) 991-4225 www.ahbinc.com
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HH Chipbreaker

CBN Inserts for Machining Hardened Materials



Economical Double-sided Multi-edge Inserts Added to the KBN05M Lineup

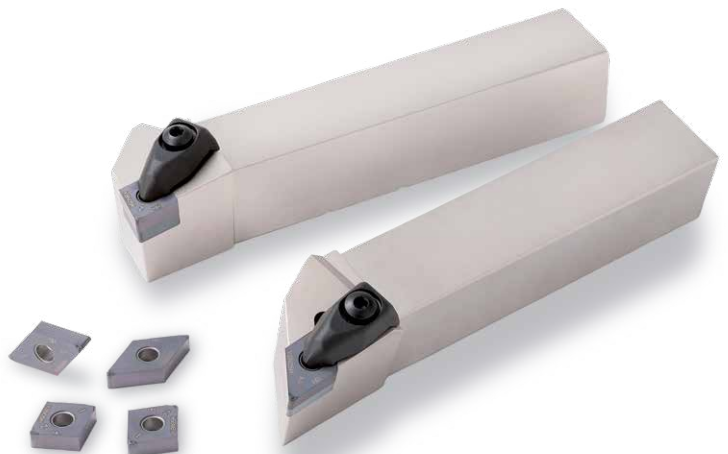
Excellent chip control with molded chipbreaker

KBN05M insert grade with superior oxidation resistance and wear resistance

Small D.O.C.
for Hardened Steel Finishing



HH Chipbreaker
(55HRC~)



H Chipbreaker Series

CBN Inserts for Machining Hardened Material

Unique Molded Chipbreaker Provides Excellent Chip Control when Machining Hardened Material

1 Excellent Chip Control with Molded Chipbreaker

Molded chipbreaker delivers excellent chip control and low cutting force with edge preparation and sharp cutting performance

Chip Control Comparison (Internal Evaluation)



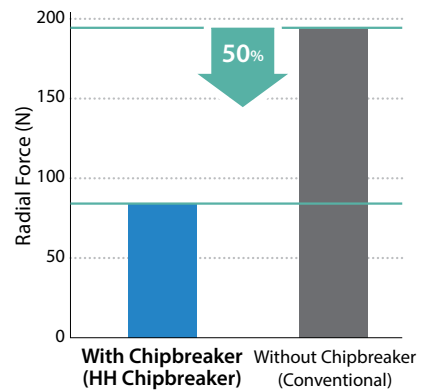
With Chipbreaker
(HH Chipbreaker)



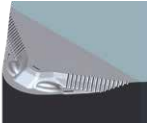
Without Chipbreaker
(Conventional)

Cutting Conditions: $V_c = 490$ sfm, D.O.C. = 0.008"
 $f = 0.006$ ipr, 60HRC, Wet, CN**432 Type after 21min Workpiece: 4131, 60HRC

Cutting Force Comparison (Internal Evaluation)



Cutting Conditions: $V_c = 490$ sfm, D.O.C. = 0.008"
 $f = 0.006$ ipr, Wet, CN**432 Type
Workpiece: 4131, 60HRC

Chipbreaker	Application	Recommended Cutting Range
<p>HH</p> <p>1st Recommendation</p> 	<p>Hardened Steel Finishing</p> <p>55HRC or more</p>	<p>Small D.O.C. (D.O.C. = 0.004" ~ 0.012")</p>

2

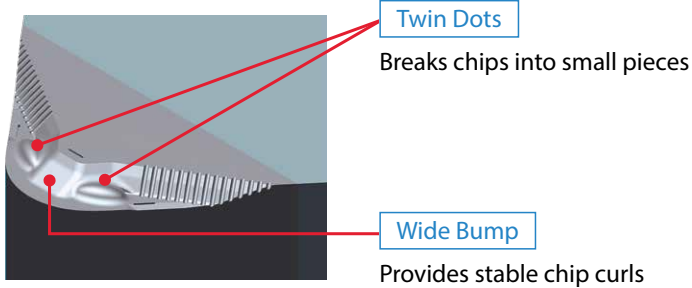
HH for Hardened Steel Finishing

Small D.O.C.
(D.O.C. = 0.004" ~ 0.012")

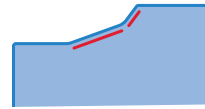
Molded chipbreaker provides excellent chip control and low cutting force when machining hardened material

1st Recommendation

HH Chipbreaker (Workpiece 55HRC or more)



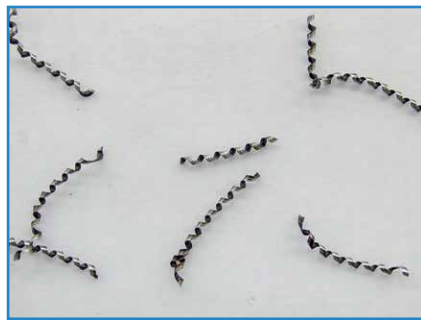
Chipbreaker cross-section



2-step rising face prevents chip clogging

Stable chip control for hardened workpieces which are 55HRC or more

Chip Control Comparison (Internal Evaluation)



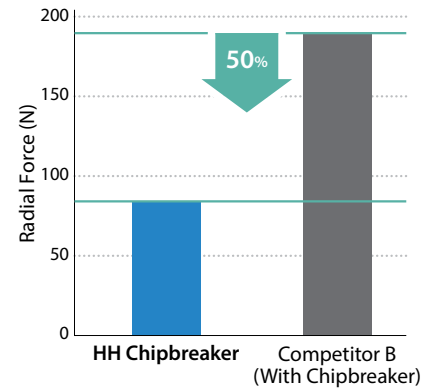
HH Chipbreaker



Competitor A
(With Chipbreaker)

Cutting Conditions: $V_c = 490$ sfm, D.O.C. = 0.008", $f = 0.008$ ipr, Wet, CN**432 Type
Workpiece: 4131H, 55HRC

Cutting Force Comparison (Internal Evaluation)



Cutting Conditions: $V_c = 490$ sfm, D.O.C. = 0.008"
 $f = 0.006$ ipr, Wet, CN**432 Type
Workpiece: 4131H, 60HRC

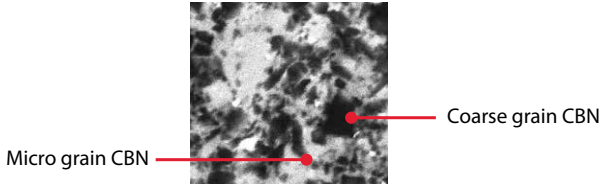
MEGACOAT CBN KBN05M

Hybrid Grain Structure for High Hardness and High Strength
MEGACOAT Coating Technology Ensures Longer Tool Life

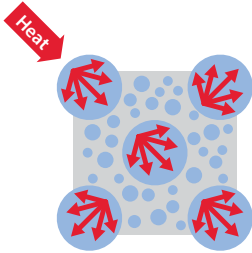
Combination of a Hybrid Grain Structure and MEGACOAT Provides Superior Oxidation Resistance and Wear Resistance

Hybrid Grain Structure

Mixed structure of micro grain CBN and coarse grain CBN provides high hardness, toughness and thermal resistance characteristics.



High Thermal Conductivity

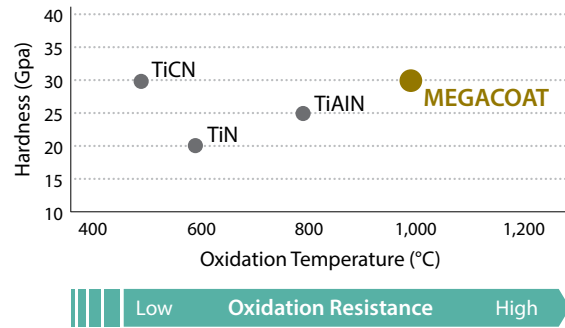


Coarse grain CBN quickly transfers heat

MEGACOAT

Superior Oxidation Resistance and Wear Resistance

Coating Properties

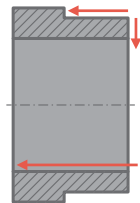


Case Studies

Pinion - Chromium Molybdenum Hardened Steel (55 ~ 62HRC)

Vc = 430 sfm
D.O.C. = 0.002"
f = 0.003 ipr
Dry

CNGM120408ME-HH



Tool Life

HH Chipbreaker 70 pcs/edge


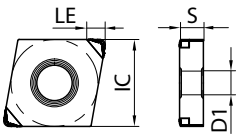
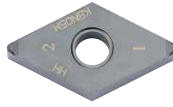
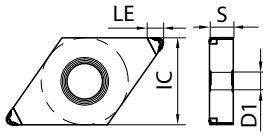
↑ Tool Life
2.3x

Competitor F (Without Chipbreaker) 30 pcs/edge

The HH chipbreaker maintained 2.3 times longer tool life than Competitor F. The molded chipbreaker provided stable chip control.

(User Evaluation)

Negative Inserts

Edge Preparation		Cutting Edge Specification		★ : 1st Recommendation	H Hardened Material						★
E		Honed			Edge Prep	Dimensions (in)					MEGACOAT CBN
S00535		0.005" X 35°				I.C.	S	D1	RE	LE	No. of Edges
Shape		Part Number		E	1/2	3/16	0.203			2	
 Small D.O.C.		CNGM431ME-HH						1/64	0.102		○
		CNGM432ME-HH						1/32	0.102		○
		CNGM433ME-HH						3/64	0.098		○
 Small D.O.C.		DNGM431ME-HH						1/64	0.102		○
		DNGM432ME-HH						1/32	0.087		○
		DNGM433ME-HH		3/64	0.075	○					

○ : World Express (Shipping: 7-10 Business Days)

Recommended Cutting Conditions

Chipbreaker	Workpiece	Application	Insert Grade	MIN - Recommendation - MAX		
				Cutting Speed Vc (sfm)	D.O.C. (mm)	f (ipr)
HH	Hardened Material (55HRC or more)	Finishing	KBN05M	330 - 490 - 660	0.004 - 0.008 - 0.012	0.004 - 0.006 - 0.010



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