

## Special Features

CBN is a cutting tool material made under ultra high pressure and temperature sintering mixture of cubic boron nitride and special ceramic binder material.

CBN tool is suitable for machining of high speed precise machining of hardened steels and cast irons. Machining with CBN can replace conventional grinding process effectively.



## SOWA CBN grades

Cutting Condition	Special Features	Work piece
	<p><b>KB320</b></p> <ul style="list-style-type: none"> <li>• Suitable for general cutting, intermittent and continuous cutting.</li> <li>• Superior toughness.</li> <li>• Comprehensive grade having optimal wear resistance and toughness.</li> </ul>	<p><b>Hardened steel</b> HRC : 40~65</p>
	<p><b>KB330</b></p> <ul style="list-style-type: none"> <li>• Suitable for intermittent cutting.</li> </ul>	<p><b>Hardened steel</b> HRC : 40~65</p>
	<p><b>KB350</b></p> <ul style="list-style-type: none"> <li>• Suitable for high speed finishing of cast iron.</li> <li>• Comprehensive grade for machining of cast iron.</li> </ul>	<p><b>Cast iron</b> Hb : 180~250</p>
	<p><b>KB360</b></p> <ul style="list-style-type: none"> <li>• Suitable for high speed cutting of cast iron and milling of high hardness roll, sintered alloy as well.</li> </ul>	<p><b>FC, Sintered alloy, Heat resisting alloy, Carbide roll</b></p>
	<p><b>KB420</b></p> <ul style="list-style-type: none"> <li>• Unsurpassed tool life at high speed cut.</li> <li>• High productivity.</li> </ul>	<p><b>Hardened steel</b> HRC : 40~65</p>

**Grades & Chipbreakers**

## Cutting condition

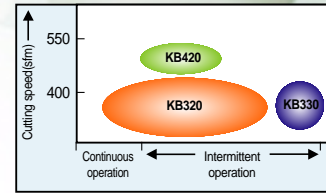
### Hardened steel

#### ● Grade

Grade	Application range	Hardness	TRS (kgm <sup>2</sup> )
KB320	Comprehensive grade for hardened steel	>HRC45	100 ~ 110
KB330	Severe intermittent cutting	>HRC45	110 ~ 120
KB420	For difficult intermittent operations	>HRC45	110 ~ 120

TRS = Transverse ruptural strength

#### ● Application



### Cast iron

#### ● Grade

Grade	Application range	Hardness	TRS (kgm <sup>2</sup> )
KB350	Cast iron, Ductile cast iron	180~230HB	100 ~ 110
KB360	Milling of cast iron	180~230HB	95 ~ 110

TRS = Transverse ruptural strength

#### ● Application range

Work piece	Hardness(HB)	Part name	Cutting speed(sfm)				
			325	650	1325	1975	2625
GC250 (Ferrite & Pearlite)	180	Oil Pump Housing Brake Disc					
GC300 Pearlite		Engine Block Scroll Compressor					
Alloy Iron Pearlite	250	Brake Drum Liner					
GCD400 Ferrite & Pearlite	150	Differential Case					
GCD700 Bainite		300	Brake body Knuckle				

### Sintered alloy

#### ● Grade

Grade	Application range	Hardness	TRS (kgm <sup>2</sup> )
KB360	Machining of sintered alloy, roll, heat resistant alloy	180~230HB	95 ~ 110

TRS = Transverse ruptural strength

#### ● Application range

	Valve seat of gasoline engine	Valve seat of gasoline engine
Flange cutting		
Traverse cutting		
Hardness of work piece	← low Hv300 high →	← low Hv300 high →

### Heat resistant alloy

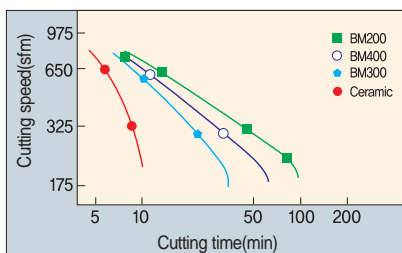
#### ● Grade

Grade	Application range	Hardness	TRS (kgm <sup>2</sup> )
KB360	Machining of sintered alloy, roll, heat resistant alloy	180~230HB	95 ~ 110

TRS = Transverse ruptural strength

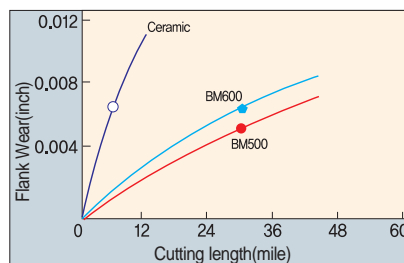
### Cutting test examples

#### ● Heat treated steels



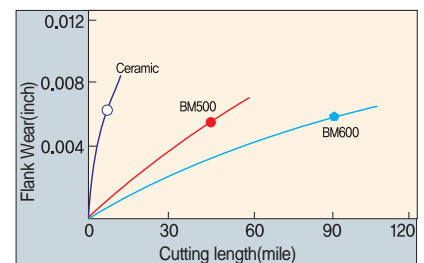
Work piece : SUJ2(HRC62-64) Cutting condition : V=250, 325, 650, 825sfm  
Insert : SNGN 432 f=0.004ipr d=0.008inch  
Cutting condition : BM200, BM300, BM400

#### ● Gray cast iron(No45B)



Work piece : Gray cast irons (No35B) Cutting condition : V=1650sfm  
f=0.012ipr d=0.005inch, Wet cut

#### ● Gray cast iron(No35B)



Work piece : Gray cast irons (No35B) Cutting condition : V=2300sfm  
f=0.01ipr d=0.01inch, Wet cut