

# CBN & PCD Tools

**C1~C28**

## MEGACOAT CBN (MEGACOAT)

**C2~C3**

Application Map	<b>C2</b>
Recommended Cutting Conditions	<b>C3</b>

## CBN & PCD Tools Identification System

**C4**

### CBN Tools

**C5~C16**

Turning negative Inserts	<b>C5~C8</b>
Negative Inserts (Solid)	<b>C9</b>
Turning Positive Inserts	
Grooving Inserts	<b>C16</b>
Tip-Bars	<b>C16</b>

### PCD Tools

**C17~C28**

Turning Negative Inserts	<b>C17</b>
Turning Positive Inserts	
Grooving Inserts	
For Aluminum Wheel	<b>C25</b>
System Tip-Bars	<b>C26</b>
Tip-Bars	<b>C26</b>
Milling Inserts	<b>C27</b>
PCD Grades and Features	<b>C28</b>
Recommended Cutting Conditions	<b>C28</b>

C



CBN



Extended  
Tool Life

Stability

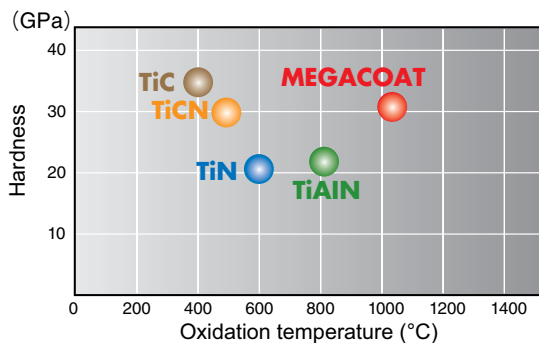
High Speed  
availability

**Kyocera's new innovative CBN tools.**  
CBN Variation and Features ➡ See page A15.

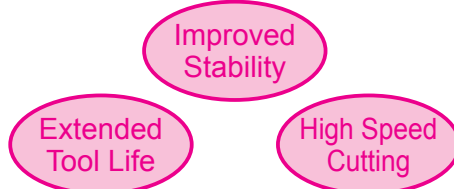
Eight grades in the lineup to accommodate a wide range of workpiece materials

## MEGACOAT CBN

### Properties of PVD coated layer



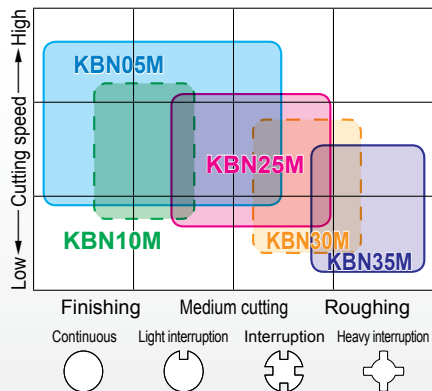
### Advantages of MEGACOAT



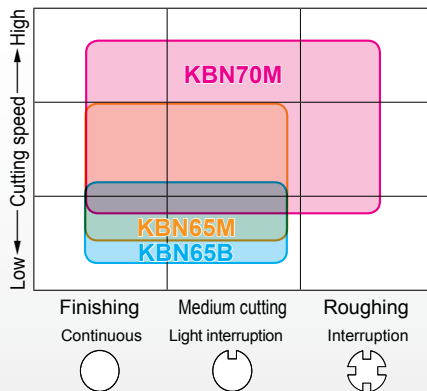
- Long tool life and stable cutting due to superior heat-resistance and hardness.
- Improvement of crater wear resistance.

## Application Map

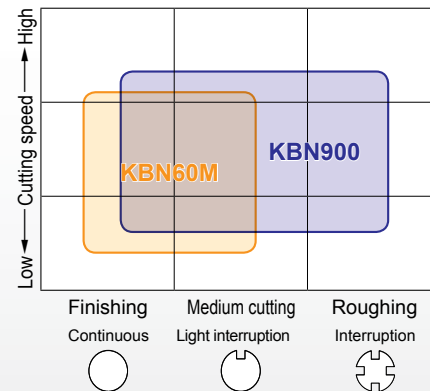
### Hardened Materials



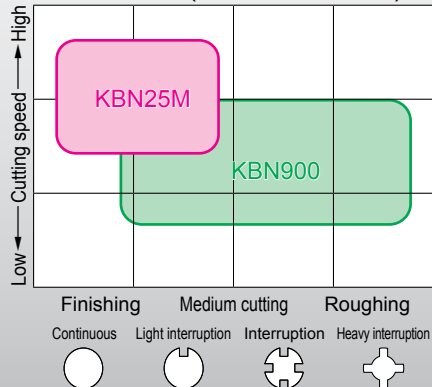
### Sintered Steel



### Cast Iron



### Roll Materials (Chilled Cast Iron)



## Case Studies

17Cr3 (SCr420H) (58HRC)	
<ul style="list-style-type: none"> <li>Gear</li> <li>External and Face machining and Chamfering</li> <li>Vc=130 m/min</li> <li>ap=0.6 mm</li> <li>f=0.12mm/rev</li> <li>WET</li> <li>CNGA120408S01225ME (KBN05M)</li> </ul>	
<b>KBN05M</b>	300 pcs/edge
Compe.A	200 pcs/edge
*KBN05M achieved 1.5 times longer tool life than Competitor A. =>Its longer tool life contributes to cost-cutting. (Evaluation by the user)	

15CrMo4 (SCM415) (55HRC)	
<ul style="list-style-type: none"> <li>Stator</li> <li>Internal machining</li> <li>Vc=170 m/min</li> <li>ap=0.4 mm</li> <li>f=0.1mm/rev</li> <li>WET</li> <li>CNGA120408S01225ME (KBN05M)</li> </ul>	
<b>KBN05M</b>	600 pcs/edge
Compe.B	300 pcs/edge
*KBN05M achieved twice longer tool life than Competitor B. =>Its longer tool life contributes to cost-cutting. (Evaluation by the user)	

25CrMo4 (SCM420) (60HRC)	
<ul style="list-style-type: none"> <li>Gear Parts</li> <li>Interrupted face machining</li> <li>Vc=90m/min</li> <li>ap=0.5mm</li> <li>f=0.12mm/rev</li> <li>Wet=&gt;Dry</li> <li>CNGA120412S01225ME (KBN25M)</li> </ul>	
<b>KBN25M</b>	70 pcs/edge
Compe.C (CBN tool)	30 pcs/edge (Unstable)
KBN25M improved tool life up to 70 pieces/edge than is two times more than competitor's (CBN tool) B. Also, KBN25M has increased its tool life up to 250 pieces/edge by changing from wet machining to dry machining. (Evaluation by the user)	

25CrMo4 (SCM420) (58HRC)	
<ul style="list-style-type: none"> <li>Sleeve</li> <li>Internal machining (Heavy interrupted)</li> <li>Vc=100 m/min</li> <li>ap=0.5 mm</li> <li>f=0.1mm/rev</li> <li>Wet</li> <li>TPGB110308S01035MET (KBN35M)</li> </ul>	
<b>KBN35M</b>	115 pcs/edge
Compe.D	100 pcs/edge
*KBN35M achieved 15% longer tool life in heavy interrupted machining compared with Competitor D. *Furthermore it still keeps the insert tip in a good condition and so provides stable machining result. =>Its longer tool life and capability of providing stable result can contribute to cost-cutting and improved efficiency in machining. (Evaluation by the user)	

## Recommended Cutting Conditions

Workpiece Material	Hardness	Application		Insert Grade	Cutting Conditions		
					Vc (m/min)	ap (mm)	f (mm/rev)
Heat Treated Steel	Over 55HRC	General Finishing	Continuous~Light interruption	KBN05M	100 - 150 - 200	0.05 - 0.3 - 0.5	0.05 - 0.08 - 0.1
		High Efficient Stable Cutting	Continuous~Interruption	KBN25M	80 - 120 - 160	0.05 - 0.3 - 0.5	0.05 - 0.08 - 0.1
		Interrupted (Small ap)	Interrupted~Heavy interruption	KBN35M	60 - 100 - 150	0.05 - 0.2 - 0.4	0.05 - 0.08 - 0.1
		Heavy Cutting	Continuous~Interruption	KBN900	70 - 90 - 110	0.5 - 1.0 - 2.0	0.05 - 0.1 - 0.2
Gray Cast Iron	Under 55HRC	Finishing	Continuous	PT600M	60 - 80 - 120	0.2 - 0.5 - 0.7	0.05 - 0.1 - 0.15
		Finishing	Continuous~Light interruption	KBN60M	300 - 600 - 800	0.05 - 0.2 - 0.5	0.03 - 0.05 - 0.1
		High Efficient Finishing	Continuous~Light interruption	KBN900	500 - 900 - 1200	0.1 - 0.5 - 1.0	0.05 - 0.1 - 0.2
Roll Materials (Chilled Cast Iron)	Under 250HB	Heavy Cutting	Continuous~Interruption	KBN900	500 - 700 - 900	0.5 - 1.5 - 3.0	0.1 - 0.3 - 0.5
	Over 55HRC	Finishing	Continuous~Interruption	KBN25M	80 - 120 - 160	0.05 - 0.3 - 0.5	0.05 - 0.08 - 0.1
		Heavy Cutting	Continuous~Interruption	KBN900	70 - 90 - 110	0.3 - 0.7 - 1.0	0.05 - 0.1 - 0.15
Sintered steel	Under 35HRC	Finishing	Continuous~Light interruption	KBN65M	50 - 150 - 200	0.05 - 0.2 - 0.3	0.05 - 0.1 - 0.2
	Over 35HRC	Finishing	Continuous~Interruption	KBN70M	100 - 200 - 250	0.05 - 0.2 - 0.3	0.05 - 0.1 - 0.2

L : Std. Item (L-hand Only)  
 □ : Deleted from the next catalogue

CBN & PCD Tools are sold in 1 piece boxes.

# CBN & PCD Tools Identification System

## Turning Insert

### Identification System

Description	A	T	ød (mm)
AAAA 0000_	00.00	0.00	0.00
0000_		0.00	

C	N	G	A	12	04	04	S01225	ME
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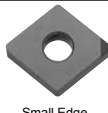
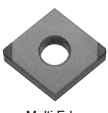
Turning Indexable Inserts Identification System [See Page B2](#)

Insert Type	Example of type	*Edge Preparation	Manufacture's Option	Feature of insert		No. of Edges	Re-grinding
				Cutting Edge Length	Strengthening of edge		
Negative	CNGA120404S01225	S01225	Without Indication	Long	Standard specification (Specification is different from materials)	1	Possible
	CNGA120404T01215	T01215				1	
	CNMN120404S02020	S02020	Without Indication (Only KBN900)			4 (Plural Edge)	Not recommended
	CNGA120404S01225SE	S01225	SE	Short (Small Edge)		Standard specification	
	CNGA120404S01225ME	S01225	ME		2 (Plural Edge)		
	CNGA120404S01730SET	S01730	SET (SE-T)		Tough Edge	1	
	CNGA120404S01730MET	S01730	MET (ME-T)		Tough Edge	2 (Plural Edge)	
	CNGM120404S00825BB1 CNGM120404S01225BB2 CNGM120404S01625BB3	S00825 S01225 S01625	BB1 BB2 BB3		With chipbreaker (Specification is different from chipbreaker)	1	
	Positive	CPGB090304T00815	T00815	Without Indication	Long		
CPGB090304T00815SE		T00815	SE	Short (Small Edge)	Standard specification		1
CPGB090304T00815ME		T00815	ME			2 (Plural Edge)	
CPGB090304S01035SET		S01035	SET (SE-T)		Tough Edge	1	
CPGB090304S01035MET		S01035	MET (ME-T)		Tough Edge	2 (Plural Edge)	

\*No edge spec. identification because all PCD insert is sharp edge.

• See Page B3 for insert color

### How to identify edge specification

Edge Preparation				
Symbol	Cutting Edge Spec.	Example		Shape
E	Honed Cutting Edge	E008	R0.08mm Honed	 External Grooving
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge	 Small Edge
S	Chamfered + Honed Cutting Edge	S01225	0.12mm X 25° Chamfered + Honed Cutting Edge	 Multi Edge



## 80° Rhombic / Negative

(mm)			
Description	A	T	φd
AAAA 0000		0.00	
Description	A	T	φd
CNGA 1204	12.70	4.76	5.16
CNGM 1204			

Edge Prep.				Classification of usage				Material Compatibility														Ref. Page for Toolholder																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Symbol	Cutting Edge Spec.	Example		✱: Interruption / 1st Choice	✱✱: Interruption / 2nd Choice	●: Light Interruption / 1st Choice	☺: Light Interruption / 2nd Choice	●: Continuous / 1st Choice	○: Continuous / 2nd Choice																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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● : Std. Item (1 pc boxes)  
 ●● : Std. Item (4 pc boxes)  
 □ : Deleted from the next catalogue

CBN & PCD Tools are sold in 1 piece boxes.

## 55° Rhombic / Negative

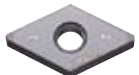
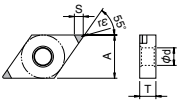

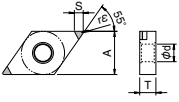
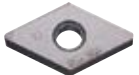
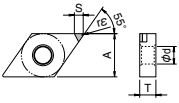
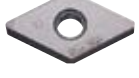
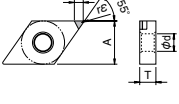
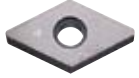
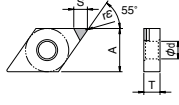

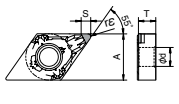
(mm)

Description	A	T	ød
AAAA 0000	00.00	0.00	0.00
0000		0.00	

C




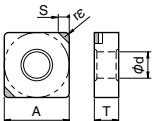

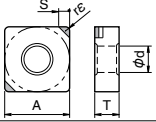

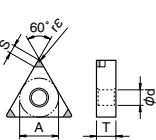

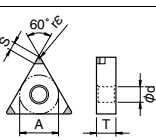

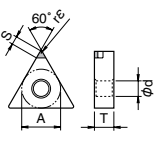

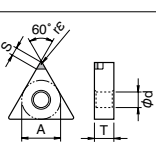

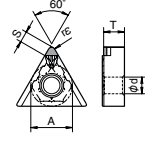
CBN

Edge Prep.			Classification of usage		K														Ref. Page for Toolholder	
Symbol	Cutting Edge Spec.	Example	✱: Interruption / 1st Choice	✳: Interruption / 2nd Choice	Gray Cast Iron (With Scale)															
E	R Honed	E008	R0.08mm Honed	●: Light Interruption / 1st Choice	☺: Light Interruption / 2nd Choice	Gray Cast Iron (Without Scale)														
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge	●: Continuous / 1st Choice	○: Continuous / 2nd Choice	Nodular Cast Iron (Without Scale)														
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge			Sintered Steel														
					H															
					Hard Materials (Roughing)															
					Hard Materials (Finishing)															
					Hard Materials (Chip Control)															
Insert		Description	(Previous Description)	Edge Prep.	Dimension (mm)		No. of Edges	CBN										MEGACOAT CBN		PVD Coated CBN
					ℓE	S		KBN65B	KBN510	KBN525	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C
 Multi Edge		DNGA 150401S01225ME	DNGA 150401ME	S01225	0.1	2.2														
		150402S01225ME	150402ME		0.2	2.5		●	●	●	●	●	●	●	●					
		150404S01225ME	150404ME		0.4	2.3	2	●	●	●	●	●	●	●	●	●				
		150408S01225ME	150408ME		0.8	1.9	●	●	●	●	●	●	●	●	●	●				
		150412S01225ME	150412ME		1.2	1.9				●	●	●	●	●	●					
		DNGA 150404T01215ME	DNGA 150404ME	T01215	0.4	2.3											●	●		
		150408T01215ME	150408ME		0.8	1.9	2										●	●		
		150412T01215ME	150412ME		1.2	1.9											□	●		
		DNGA 150604S01225ME	DNGA 150604ME	S01225	0.4	2.3		●	●	●	●	●	●	●	●	●				
		150608S01225ME	150608ME		0.8	1.9	2	●	●	●	●	●	●	●	●	●				
		150612S01225ME	150612ME		1.2	1.9	●	●	●	●	●	●	●	●	●					
		DNGA 150604T01215ME	DNGA 150604ME	T01215	0.4	2.3												●	●	
150608T01215ME	150608ME	0.8	1.9		2											●	●			
150612T01215ME	150612ME	1.2	1.9													□	●			
 Multi Edge / Tough		DNGA 150404S01730MET	DNGA 150404ME-T	S01730	0.4	2.3			●		●	●	●							
		150408S01730MET	150408ME-T		0.8	1.9	2			●		●	●	●						
		150412S01730MET	150412ME-T		1.2	1.9			●		●	●	●							
		DNGA 150604S01730MET	DNGA 150604ME-T	S01730	0.4	2.3			●		●	●	●	●						
		150608S01730MET	150608ME-T		0.8	1.9	2			●		●	●	●	●					
150612S01730MET	150612ME-T	1.2	1.9				●		●	●	●	●								
 Small Edge		DNGA 150401S01225SE	DNGA 150401SE	S01225	0.1	2.2														
		150402S01225SE	150402SE		0.2	2.5		●	●			●								
		150404S01225SE	150404SE		0.4	2.3	1		●	●			●							
		150408S01225SE	150408SE		0.8	1.9		□	●	●			●							
		150412S01225SE	150412SE		1.2	1.9			●			●								
		DNGA 150404T01215SE	DNGA 150404SE	T01215	0.4	2.3		●												
		150408T01215SE	150408SE		0.8	1.9	1	●												
		DNGA 150604S01225SE	DNGA 150604SE	S01225	0.4	2.3		●	●			●	●							
		150608S01225SE	150608SE		0.8	1.9	1	●	●			●	●							
150612S01225SE	150612SE	1.2	1.9			●	●			●	●									
 Small Edge / Tough		DNGA 150404S01730SET	DNGA 150404SE-T	S01730	0.4	2.3			●			□								
		150408S01730SET	150408SE-T		0.8	1.9	1			●			●							
		150412S01730SET	150412SE-T		1.2	1.9			●				□							
 Chip Control		DNGA 150404S01225	DNGA 150404	S01225	0.4	5.8		□	□			□								
		150408S01225	150408		0.8	5.5		□	□			□								
		DNGA 150404T01215	DNGA 150404	T01215	0.4	5.8		□												
		150408T01215	150408		0.8	5.5		□												
 Chip Control		DNGM 150404S00825BB1	DNGM 150404BB1	S00825	0.4	1.6							●	●						
		150408S00825BB1	150408BB1		0.8	1.6	1								●	●				
		150412S00825BB1	150412BB1		1.2	1.8									●	●				
		DNGM 150404S01225BB2	DNGM 150404BB2	S01225	0.4	1.8									●	●				
		150408S01225BB2	150408BB2		0.8	2.0	1								●	●				
		150412S01225BB2	150412BB2		1.2	2.1									●	●				
		DNGM 150404S01625BB3	DNGM 150404BB3	S01625	0.4	2.2									●	●				
		150408S01625BB3	150408BB3		0.8	2.5	1								●	●				
150412S01625BB3	150412BB3	1.2	2.5										●	●						

# 90° Square / 60° Triangle / Negative

(mm)

Description	A	T	ød
AAAA 0000	00.00	0.00	0.00
0000		0.00	

Edge Prep.				Classification of usage		K		Gray Cast Iron (With Scale)		Gray Cast Iron (Without Scale)		Nodular Cast Iron (Without Scale)		Sintered Steel		Hard Materials (Roughing)		Hard Materials (Finishing)		Hard Materials (Chip Control)	
Symbol	Cutting Edge Spec.	Example																			
E	R Honed	E008	R0.08mm Honed		✱: Interruption / 1st Choice																
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge		✱✱: Interruption / 2nd Choice																
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge		●: Light Interruption / 1st Choice																
						○: Light Interruption / 2nd Choice															
						●: Continuous / 1st Choice															
						○: Continuous / 2nd Choice															
Insert			Description		(Previous Description)		Edge Prep.		Dimension (mm)		No. of Edges		CBN		MEGACOAT CBN		PVD Coated CBN		Ref. Page for Toolholder		
									rε S				KBN65B KBN510 KBN525 KBN05M KBN10M KBN25M KBN35M KBN60M KBN65M KBN70M KBN10C KBN25C								
					SNGA 120404S01225ME 120408S01225ME		SNGA 120404ME 120408ME		S01225		0.4 1.8 0.8 1.8		2		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
Multi Edge					SNGA 120404T01215ME 120408T01215ME 120412T01215ME		SNGA 120404ME 120408ME 120412ME		T01215		0.4 1.8 0.8 1.8 1.2 2.2		2		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
					SNGA 120404S01730MET 120408S01730MET 120412S01730MET		SNGA 120404ME-T 120408ME-T 120412ME-T		S01730		0.4 1.8 0.8 1.8 1.2 2.2		2		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
Multi Edge / Tough					TNGA 160401S01225ME 160402S01225ME 160404S01225ME 160408S01225ME 160412S01225ME		TNGA 160401ME 160402ME 160404ME 160408ME 160412ME		S01225		0.1 2.6 0.2 2.5 0.4 2.4 0.8 2.4 1.2 2.1		3		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
					TNGA 160404T01215ME 160408T01215ME 160412T01215ME		TNGA 160404ME 160408ME 160412ME		T01215		0.4 2.4 0.8 2.4 1.2 2.1		3		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
Multi Edge					TNGA 160404S01730MET 160408S01730MET 160412S01730MET		TNGA 160404ME-T 160408ME-T 160412ME-T		S01730		0.4 2.4 0.8 2.4 1.2 2.1		3		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
					TNGA 160401S01225SE 160402S01225SE 160404S01225SE 160408S01225SE 160412S01225SE		TNGA 160401SE 160402SE 160404SE 160408SE 160412SE		S01225		0.1 2.6 0.2 2.9 0.4 2.7 0.8 2.4 1.2 2.1		1		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
Multi Edge / Tough					TNGA 160404T01215SE 160408T01215SE 160412T01215SE		TNGA 160404SE 160408SE 160412SE		T01215		0.4 2.4 0.8 2.4 1.2 2.2		1		□ □ □ □ □ □ □ □ □ □ □ □		□ □ □ □ □ □ □ □ □ □ □ □		□ □ □ □ □ □ □ □ □ □ □ □		
					TNGA 160404S01730SET 160408S01730SET 160412S01730SET		TNGA 160404SE-T 160408SE-T 160412SE-T		S01730		0.4 2.7 0.8 2.4 1.2 2.1		1		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
Small Edge					TNGA 160404S01225 160408S01225		TNGA 160404 160408		S01225		0.4 3.8 0.8 3.5		1		□ □ □ □ □ □ □ □ □ □ □ □		□ □ □ □ □ □ □ □ □ □ □ □		□ □ □ □ □ □ □ □ □ □ □ □		
					TNGA 160404T01215 160408T01215		TNGA 160404 160408		T01215		0.4 3.8 0.8 3.5		1		□ □ □ □ □ □ □ □ □ □ □ □		□ □ □ □ □ □ □ □ □ □ □ □		□ □ □ □ □ □ □ □ □ □ □ □		
Small Edge / Tough					TNGM 160404S00825BB1 160408S00825BB1 160412S00825BB1		TNGM 160404BB1 160408BB1 160412BB1		S00825		0.4 1.5 0.8 1.7 1.2 1.9		1		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
					TNGM 160404S01225BB2 160408S01225BB2 160412S01225BB2		TNGM 160404BB2 160408BB2 160412BB2		S01225		0.4 1.9 0.8 2.1 1.2 2.2		1		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		
Chip Control					TNGM 160404S01625BB3 160408S01625BB3 160412S01625BB3		TNGM 160404BB3 160408BB3 160412BB3		S01625		0.4 2.2 0.8 2.4 1.2 2.6		1		● ● ● ● ● ● ● ● ● ● ● ●		● ● ● ● ● ● ● ● ● ● ● ●		□ □ □ □ □ □ □ □ □ □ □ □		

## 35° Rhombic / 80° Trigon / Negative

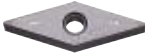
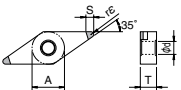

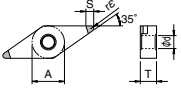

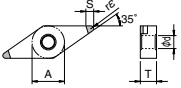

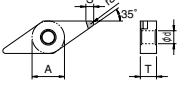

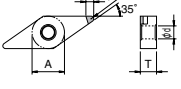

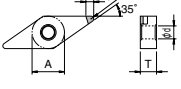

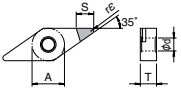

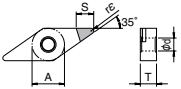

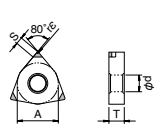
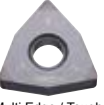
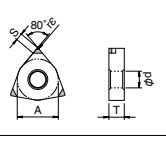
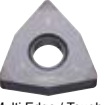
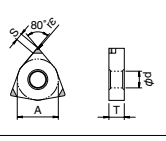

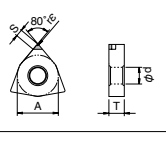

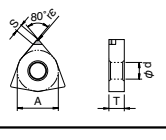
(mm)

Description	A	T	ød
AAAA 0000	00.00	0.00	0.00
0000		0.00	

C

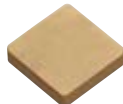
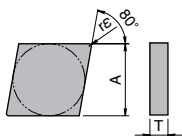

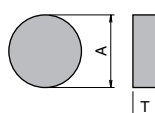

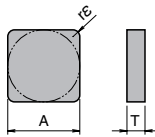

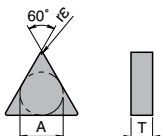


CBN

Edge Prep.				Classification of usage		Gray Cast Iron (With Scale)												Ref. Page for Toolholder			
Symbol	Cutting Edge Spec.	Example		✱: Interruption / 1st Choice	✱✱: Interruption / 2nd Choice	Gray Cast Iron (Without Scale)															
E	R Honed	E008	R0.08mm Honed	●: Light Interruption / 1st Choice	☉: Light Interruption / 2nd Choice	Nodular Cast Iron (Without Scale)															
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge	●: Continuous / 1st Choice	○: Continuous / 2nd Choice	Sintered Steel															
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge			Hard Materials (Roughing)															
						Hard Materials (Finishing)															
						Hard Materials (Chip Control)															
Insert		Description	(Previous Description)	Edge Prep.	Dimension (mm)		No. of Edges	CBN										PVD Coated CBN			
					rε	S		KBN65B	KBN510	KBN525	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN10C	KBN25C	
		VNGA 160401S01225ME	VNGA 160401ME	S01225	0.1	2.6	2														
		160402S01225ME	160402ME		0.2	2.3															
		160404S01225ME	160404ME		0.4	2.0															
		160408S01225ME	160408ME		0.8	1.8															
		VNGA 160404T01215ME	VNGA 160404ME	T01215	0.4	2.0	2														
		160408T01215ME	160408ME		0.8	1.8															
		VNGA 160404S01730MET	VNGA 160404ME-T	S01730	0.4	2.0	2														
		160408S01730MET	160408ME-T		0.8	1.8															
				VNGA 160401S01225SE	VNGA 160401SE	S01225	0.1	2.6	1												
				160402S01225SE	160402SE		0.2	2.3													
160404S01225SE	160404SE			0.4	2.7																
160408S01225SE	160408SE			0.8	1.9																
		VNGA 160404T01215SE	VNGA 160404SE	T01215	0.4	1.9	1														
		160408T01215SE	160408SE		0.8	1.6															
		VNGA 160404S01730SET	VNGA 160404SE-T	S01730	0.4	1.9	1														
		160408S01730SET	160408SE-T		0.8	2.7															
		VNGA 160404S01225	VNGA 160404	S01225	0.4	4.9	1														
		160408S01225	160408		0.8	4.0															
				VNGA 160404T01215	VNGA 160404	T01215	0.4	4.9	1												
				160408T01215	160408		0.8	4.0													
		WNGA 080404S01225ME	WNGA 080404ME	S01225	0.4	2.0	3														
		080408S01225ME	080408ME		0.8	2.6															
		080412S01225ME	080412ME		1.2	2.5															
				WNGA 080404T01215ME	WNGA 080404ME	T01215	0.4	2.0	3												
080408T01215ME	080408ME			0.8	2.6																
080412T01215ME	080412ME			1.2	2.5																
		WNGA 080404S01730MET	WNGA 080404ME-T	S01730	0.4	2.0	3														
		080408S01730MET	080408ME-T		0.8	2.6															
		080412S01730MET	080412ME-T		1.2	2.5															
		WNGA 080404S01225SE	WNGA 080404SE	S01225	0.4	2.0	1														
		080408S01225SE	080408SE		0.8	1.9															
		WNGA 080404S01730SET	WNGA 080404SE-T	S01730	0.4	2.0	1														
		080408S01730SET	080408SE-T		0.8	1.9															

## Negative (Solid)

(mm)			
Description	A	T	ød
AAAA 0000_	00.00	0.00	0.00
0000_		0.00	

Edge Prep.				Classification of usage ✱: Interruption / 1st Choice ✱✱: Interruption / 2nd Choice ●: Light Interruption / 1st Choice ○: Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice		K	Gray Cast Iron (With Scale)	✱	Ref. Page for Toolholder
Symbol	Cutting Edge Spec.	Example					Gray Cast Iron (Without Scale)	✱	
E	R Honed	E008	R0.08mm Honed			H	Nodular Cast Iron (Without Scale)		
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge				Sintered Steel		
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge			Hard Materials (Roughing)			
						Hard Materials (Finishing)	●		
						Hard Materials (Chip Control)			
Insert			Description	(Previous Description)	Edge Prep.	Dimension (mm)	No. of Edges	PVD Coated CBN	
						rε		KBN900	
 Solid		CNMN 090308S02020	CNMN 090308	S02020	0.8	4	●	D32	
		090312S02020	090312		1.2		●		F75
		CNMN 120408S02020	CNMN 120408	S02020	0.8		●	D22	
		120412S02020	120412		1.2		●		
		120416S02020	120416		1.6		●		
		CNMN 120412S04015	CNMN 120412S04015	S04015	1.2		●		
120416S04015	120416S04015	1.6	●						
 Solid		RNMN 060300S02020	RNMN 060300	S02020	Depends on ap	●	-		
		RNMN 090300S02020	RNMN 090300			●	D33		
		RNMN 120300S02020	RNMN 120300			●			
		RNMN 120400S02020	RNMN 120400			●	D27		
		RNMN 120400S04015	RNMN 120400S04015	S04015	●	D33			
 Solid		SNMN 090308S02020	SNMN 090308	S02020	0.8	8	●	D34	
		090312S02020	090312		1.2		●		D35
		SNMN 120308S02020	SNMN 120308	S02020	0.8		●	D34	
		120312S02020	120312		1.2		●		D35
		SNMN 120408S02020	SNMN 120408	S02020	0.8		●	D25	
		120412S02020	120412		1.2		●		D34
		120416S02020	120416		1.6		●		D35
		120420S02020	120420	2.0	●		F73		
		SNMN 120412S04015	SNMN 120412S04015	S04015	1.2		●		
		120416S04015	120416S04015		1.6		●		
		120432S04015	120432S04015		3.2		●		
 Solid		TNMN 110308S02020	TNMN 110308	S02020	0.8	6	●	D36	
		110312S02020	110312		1.2		□		F75
		TNMN 160408S02020	TNMN 160408	S02020	0.8		●	D26	
		160412S02020	160412		1.2		●		
		160416S02020	160416		1.6		●		
		160420S02020	160420		2.0		□		

- : Std. Item (1 pc boxes)
- L : Std. Item (L-hand Only)
- : Deleted from the next catalogue

CBN & PCD Tools are sold  
in 1 piece boxes.

C



CBN



## 80°Rhombic / Positive

(mm)

Description	A	T	ød
AAAA 0000	00.00	0.00	0.00
0000		0.00	

C


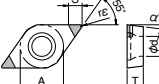
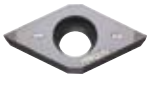
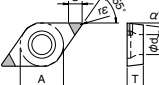

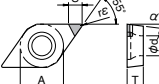

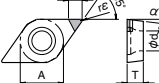
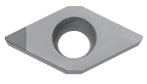
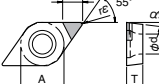


CBN

Edge Prep.				Classification of usage		Gray Cast Iron (With Scale)												Ref. Page for Toolholder		
Symbol	Cutting Edge Spec.	Example		✱: Interruption / 1st Choice	✱: Interruption / 2nd Choice	Gray Cast Iron (Without Scale)														
E	R Honed	E008	R0.08mm Honed	●: Light Interruption / 1st Choice	○: Light Interruption / 2nd Choice	Nodular Cast Iron (Without Scale)														
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge	●: Continuous / 1st Choice	○: Continuous / 2nd Choice	Sintered Steel														
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge			Hard Materials (Roughing)														
						Hard Materials (Finishing)														
						Hard Materials (Chip Control)														
Insert		Description		(Previous Description)		Edge Prep.	Dimension (mm)		No. of Edges	CBN										PVD coated CBN
							rε	S		KBN65B	KBN510	KBN525	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	
		CCMW 060202T00815ME		CCMW060202ME	T00815	0.2	2.0	2	●	●	●	●	●	●	●	●	●	●	E20 E21 E33 F27 F29	
		060204T00815ME		060204ME		0.4	1.9		●	●	●	●	●	●	●	●	●	●		
		060208T00815ME		060208ME		0.8	1.8		●	●	●	●	●	●	●	●	●	●		
		CCMW 09T302T00815ME		CCMW09T302ME	T00815	0.2	2.0	2	●	●	●	●	●	●	●	●	●	●	E20 E21 E33 F27 F66	
		09T304T00815ME		09T304ME		0.4	1.9		●	●	●	●	●	●	●	●	●	●		
		09T308T00815ME		09T308ME		0.8	1.8		●	●	●	●	●	●	●	●	●	●		
		CCMW 09T304S01035MET		CCMW09T304ME-T	S01035	0.4	1.9	2		●		●	●	●	●				E20 E21 E33 F27 F66	
		09T308S01035MET		09T308ME-T		0.8	1.8					●	●	●						
		CCMW 030102T00815SE		CCMW030102SE	T00815	0.2	1.4	1	●	●		●	●						F27 F29	
		030104T00815SE		030104SE		0.4	1.4		●	●		●	●							
		CCMW 040102T00815SE		CCMW040102SE	T00815	0.2	1.4	1	●	●		●	●						E20 E21 E33 F27 F29 F66	
		040104T00815SE		040104SE		0.4	1.4		●	●		●	●							
		CCMW 060202T00815SE		CCMW060202SE	T00815	0.2	2.0	1	●	●									E20 E21 E33 F27 F29 F66	
		060204T00815SE		060204SE		0.4	1.9		●	●			●							
		CCMW 09T302T00815SE		CCMW09T302SE	T00815	0.2	2.0	1	●	●		●							E20 E21 E33 F27 F29 F66	
		09T304T00815SE		09T304SE		0.4	1.9		●	●		●								
		CCMW 030102S01035SET		CCMW030102SE-T	S01035	0.2	1.4	1		●		●	●						F27 F29	
		030104S01035SET		030104SE-T		0.4	1.4			●		●	●							
		CCMW 040102S01035SET		CCMW040102SE-T	S01035	0.2	1.4	1		●		●	●						E20 E21 E33 F27 F66	
		040104S01035SET		040104SE-T		0.4	1.4			●		●	●							
		CCMW 060204S01035SET		CCMW060204SE-T	S01035	0.4	1.9	1		●									E20 E21 E33 F27 F66	
		CCMW 09T304S01035SET		CCMW09T304SE-T		0.4	1.9			●										
		CPGB 080204T00815ME		CPGB 080204ME	T00815	0.4	1.9	2	●	●	●	●	●	●	●	●	●	●	F31 F33	
		CPGB 090302T00815ME		CPGB 090302ME		0.2	1.9		●	●	●	●	●	●	●	●	●	●		
		090304T00815ME		090304ME		0.4	1.9		●	●	●	●	●	●	●	●	●	●		●
		CPGB 080204S01035MET		CPGB 080204ME-T	S01035	0.4	1.9	2		●		●	●	●	●				F31 F33	
		080208S01035MET		080208ME-T		0.8	2.2					●	●	●	●					
		CPGB 090304S01035MET		CPGB 090304ME-T	S01035	0.4	1.9	2		●		●	●	●	●					
		CPGB 080202T00815SE		CPGB 080202SE	T00815	0.2	1.9	1	●	●									F31 F33	
		080204T00815SE		080204SE		0.4	1.9		●	●										
		CPGB 090302T00815SE		CPGB 090302SE	T00815	0.2	1.9	1	●	●		●								
		CPGB 080204S01035SET		CPGB 080204SE-T	S01035	0.4	1.9	1		●			●						F31 F33	
		CPGB 090304S01035SET		CPGB 090304SE-T		0.4	1.9			●										
		CPGB 090304T00815		CPGB 090304	T00815	0.4	3.7	1											F31 F33	
		090308T00815		090308		0.8	3.6													

# 55°Rhombic / Positive

Description	A	T	ød
AAAA 0000	00.00	0.00	0.00
0000		0.00	

Edge Prep.			Classification of usage															
Symbol	Cutting Edge Spec.	Example	✱: Interruption / 1st Choice	K	Gray Cast Iron (With Scale)													
E	R Honed	E008	R0.08mm Honed	✱: Interruption / 2nd Choice	K	Gray Cast Iron (Without Scale)												
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge	✱: Light Interruption / 1st Choice	K	Nodular Cast Iron (Without Scale)												
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge	✱: Continuous / 1st Choice	H	Sintered Steel												
			○: Continuous / 2nd Choice	H	Hard Materials (Roughing)													
				H	Hard Materials (Finishing)													
				H	Hard Materials (Chip Control)													
Insert		Description	(Previous Description)	Edge Prep.	Dimension (mm)		No. of Edges	CBN										PVD coated CBN
					rε	S		KBN65B	KBN510	KBN525	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN70M	KBN10C
		DCMW 070202T00815ME	DCMW070202ME	T00815	0.2	1.9	2											
		070204T00815ME	070204ME		0.4	1.7												
		070208T00815ME	070208ME		0.8	1.9												
		DCMW 11T302T00815ME	DCMW11T302ME	T00815	0.2	1.9	2											
		11T304T00815ME	11T304ME		0.4	1.7												
		11T308T00815ME	11T308ME		0.8	1.9												
		DCMW 070202S01035MET	DCMW070202ME-T	S01035	0.2	1.9	2											
		070204S01035MET	070204ME-T		0.4	1.7												
		070208S01035MET	070208ME-T		0.8	1.9												
		DCMW 11T302S01035MET	DCMW11T302ME-T	S01035	0.2	1.9	2											
		11T304S01035MET	11T304ME-T		0.4	1.7												
		DCMW 070202T00815SE	DCMW070202SE	T00815	0.2	1.9	1											
		070204T00815SE	070204SE		0.4	1.7												
		DCMW 11T302T00815SE	DCMW11T302SE		0.2	1.9	1											
		11T304T00815SE	11T304SE		0.4	1.7												
		11T308T00815SE	11T308SE		0.8	1.9												
		DCMW 070204S01035SET	DCMW070204SE-T	S01035	0.4	1.7	1											
		DCMW 11T302S01035SET	DCMW11T302SE-T	S01035	0.2	1.9	1											
		11T304S01035SET	11T304SE-T		0.4	1.7												
		11T308S01035SET	11T308SE-T		0.8	1.9												
		DCMW 11T302T00815	DCMW11T302	T00815	0.2	3.7	1											
		11T304T00815	11T304		0.4	3.5												
		11T308T00815	11T308		0.8	3.1												

Refer to the table below

Description	Ref. Page for Toolholder
DC..07 type	E22~E25, F35~F39
DC..11 type	E22~E25, F35~F39, F66

- : Std. Item (1 pc boxes)
- L : Std. Item (L-hand Only)
- : Deleted from the next catalogue

CBN & PCD Tools are sold in 1 piece boxes.



## 60° Triangle / Positive


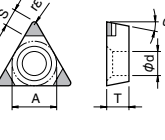

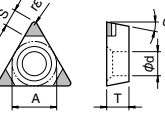

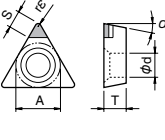

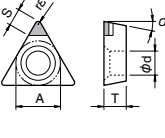

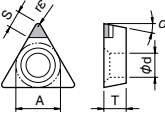

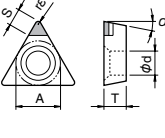

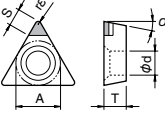

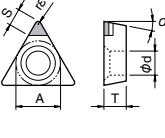

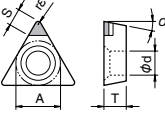

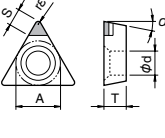
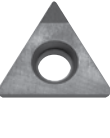
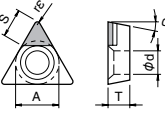
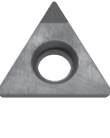
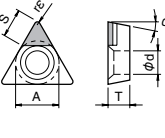
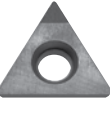
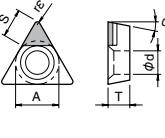
(mm)

Description	A	T	ød
AAAA 0000	00.00	0.00	0.00
0000		0.00	

C



CBN

Edge Prep.				Classification of usage		Gray Cast Iron (With Scale)												Ref. Page for Toolholder		
Symbol	Cutting Edge Spec.	Example		✱: Interruption / 1st Choice	K	Gray Cast Iron (Without Scale)														
E	R Honed	E008	R0.08mm Honed	✱: Interruption / 2nd Choice		Nodular Cast Iron (Without Scale)														
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge	●: Light Interruption / 1st Choice		Sintered Steel														
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge	☉: Light Interruption / 2nd Choice	H	Hard Materials (Roughing)														
				●: Continuous / 1st Choice		Hard Materials (Finishing)														
				○: Continuous / 2nd Choice		Hard Materials (Chip Control)														
Insert		Description		(Previous Description)	Edge Prep.	Dimension (mm)		No. of Edges	CBN		MEGACOAT CBN						PVD coated CBN			
						rε	S		KBN65B	KBN510	KBN525	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M		KBN70M	KBN10C
 Multi Edge		TPGB 110302T00815ME	TPGB 110302ME	T00815	0.2	2.3	3	●	●	●	●	●	●	●	●	●	●		●	●
		110304T00815ME	110304ME		0.4	2.1		●	●	●	●	●	●	●	●	●	●	●		
		110308T00815ME	110308ME		0.8	1.8		●	●	●	●	●	●	●	●	●	●	●		
 Multi Edge / Tough		TPGB 160304T00815ME	TPGB 160304ME	T00815	0.4	1.8	3				●	●	●	●	●	●	●	●	F43 F45 F47	
		160308T00815ME	160308ME		0.8	1.5				●	●	●	●	●	●	●	●			
												●	●	●	●	●	●	●		
 Small Edge		TPGB 110302S01035MET	TPGB 110302ME-T	S01035	0.2	2.3	3				●	●	●	●	●	●	●	●	E27 F43 F45 F47	
		110304S01035MET	110304ME-T		0.4	2.1					●	●	●	●	●	●	●	●		
		110308S01035MET	110308ME-T		0.8	1.8					●	●	●	●	●	●	●	●		
		 Small Edge / Tough		TPGB 160304S01035MET	TPGB 160304ME-T	S01035	0.4	1.8	3		●	●	●	●	●	●	●	●	●	F43 F45 F47
				160308S01035MET	160308ME-T		0.8	1.5			●	●	●	●	●	●	●	●		
														●	●	●	●	●	●	
		 Small Edge		TPGB 080202T00815SE	TPGB 080202SE	T00815	0.2	1.8	1	●	●	●	●	●	●	●	●	●	●	E27 F45 F48
				080204T00815SE	080204SE		0.4	1.6		●	●	●	●	●	●	●	●	●		
				 Small Edge / Tough		TPGB 090202T00815SE	TPGB 090202SE	T00815	0.2	1.8	1	●	●	●	●	●	●	●	●	F43 F45 F48
090204T00815SE	090204SE					0.4	1.6		●	●		●	●	●	●	●	●			
 Small Edge / Tough				TPGB 110302T00815SE	TPGB 110302SE	T00815	0.2	1.9	1	●	●	●	●	●	●	●	●	E27 F43 F45 F47		
				110304T00815SE	110304SE		0.4	1.8		●	●	●	●	●	●	●	●			
				110308T00815SE	110308SE		0.8	1.5		●	●	●	●	●	●	●	●			
				TPGB 160302T00815SE	TPGB 160302SE	T00815	0.2	1.9	1	●	●	●	●	●	●	●	F43 F45 F47			
160304T00815SE	160304SE	0.4	1.8	●	●		●	●		●	●	●								
 Small Edge / Tough		TPGB 080202S01035SET	TPGB 080202SE-T	S01035	0.2	1.8	1		●	●	●	●	●	●	●	●	E27 F45 F48			
		080204S01035SET	080204SE-T		0.4	1.6			●	●	●	●	●	●	●					
		 Small Edge / Tough		TPGB 090202S01035SET	TPGB 090202SE-T	S01035	0.2	1.8	1		●	●	●	●	●	●	F43 F45 F48			
				090204S01035SET	090204SE-T		0.4	1.6			●	●	●	●	●	●				
		 Small Edge / Tough		TPGB 110304S01035SET	TPGB 110304SE-T	S01035	0.4	1.8	1		●	●	●	●	●	●	E27 F43 F45 F47			
				110308S01035SET	110308SE-T		0.8	1.5			●	●	●	●	●	●				
				TPGB 160304S01035SET	TPGB 160304SE-T		S01035	0.4		1.8	1		●	●	●	●		●	F43 F45 F47	
				160308S01035SET	160308SE-T	0.8		1.5		●		●	●	●	●					
 Small Edge / Tough		TPGB 080202T00815	TPGB 080202	T00815	0.2	2.4	1	□	□	□	□	□	□	□	□	E27 F45 F48				
		080204T00815	080204		0.4	2.3		□	□	□	□	□	□	□						
		 Small Edge / Tough		TPGB 090202T00815	TPGB 090202	T00815	0.2	2.9	1	□	□	□	□	□	□	F43 F45 F48				
				090204T00815	090204		0.4	2.8		□	□	□	□	□	□					
		 Small Edge / Tough		TPGB 110302T00815	TPGB 110302	T00815	0.2	3.9	1	□	□	□	□	□	□	E27 F43 F45 F47				
				110304T00815	110304		0.4	3.8		□	□	□	□	□	□					
				110308T00815	110308		0.8	3.5		□	□	□	□	□	□					
				TPGB 160302T00815	TPGB 160302	T00815	0.2	4.0	1		□	□	□	□	□	F43 F45 F47				
		160304T00815	160304	0.4	3.8		□	□		□	□	□	□							
		160308T00815	160308	0.8	3.5		□	□		□	□	□	□							

(mm)			
Description	A	T	ød
AAAA 0000	00.00	0.00	0.00
0000		0.00	

Edge Prep.				Classification of usage																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Symbol	Cutting Edge Spec.	Example		✱: Interruption / 1st Choice	✱✱: Interruption / 2nd Choice	●: Light Interruption / 1st Choice	☺: Light Interruption / 2nd Choice	●: Continuous / 1st Choice	○: Continuous / 2nd Choice	K	Gray Cast Iron (With Scale)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

● : Std. Item (1 pc boxes)  
 L : Std. Item (L-hand Only)  
 □ : Deleted from the next catalogue

CBN & PCD Tools are sold in 1 piece boxes.

## 35°Rhombic / Positive

(mm)

Description	A	T	ød	α
VBGW 1103_	6.35	3.18	2.8	5°
1604_	9.525	4.76	4.4	
VCGW 0802_	4.76	2.38	2.3	7°

C


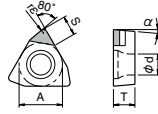
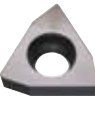
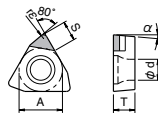


CBN

Edge Prep.				Classification of usage				Material Compatibility														Ref. Page for Toolholder	
Symbol	Cutting Edge Spec.	Example		✱: Interruption / 1st Choice	✱: Interruption / 2nd Choice	●: Light Interruption / 1st Choice	○: Light Interruption / 2nd Choice																
E	R Honed	E008	R0.08mm Honed	●: Continuous / 1st Choice	○: Continuous / 2nd Choice																		
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge																				
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge																				
Insert				Description	(Previous Description)	Edge Prep.	Dimension (mm)		No. of Edges	Material Compatibility													
							rε	S		CBN	MEGACOAT CBN										PVD coated CBN		
											KBN65B	KBN510	KBN525	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN70M	KBN10C	KBN25C	
			VBGW 110302T00815ME	VBGW110302ME	T00815	0.2	2.4	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
			110304T00815ME	110304ME		0.4	2.0		●	●	●	●	●	●	●	●	●	●	●	●			
			110308T00815ME	110308ME		0.8	1.7		●	●	●	●	●	●	●	●	●	●	●	●			
			VBGW 160402T00815ME	VBGW160402ME	T00815	0.2	2.4	2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
160404T00815ME	160404ME	0.4	2.0	●		●	●		●	●	●	●	●	●	●	●	●						
160408T00815ME	160408ME	0.8	1.7	●		●	●		●	●	●	●	●	●	●	●	●						
			VBGW 110302S01035MET	VBGW110302ME-T	S01035	0.2	2.4	2				●	●	●	●	●	●	●	●	●	●		
			110304S01035MET	110304ME-T		0.4	2.0			●		●	●	●	●	●	●	●	●	●			
			110308S01035MET	110308ME-T		0.8	1.7					●	●	●	●	●	●	●	●	●			
			VBGW 160402S01035MET	VBGW160402ME-T	S01035	0.2	2.4	2				●	●	●	●	●	●	●	●	●	●	●	
			160404S01035MET	160404ME-T		0.4	2.0					●	●	●	●	●	●	●	●	●			
			160408S01035MET	160408ME-T		0.8	1.7					●	●	●	●	●	●	●	●	●			
			VBGW 110302T00815SE	VBGW110302SE	T00815	0.2	2.8	1	●	●	●	●	●	●	●	●	●	●	●	●	●		
			110304T00815SE	110304SE		0.4	2.4		●	●	●	●	●	●	●	●	●	●	●	●			
			110308T00815SE	110308SE		0.8	1.7		●	●	●	●	●	●	●	●	●	●	●	●			
			VBGW 160402T00815SE	VBGW160402SE	T00815	0.2	2.4	1	●	●	●	●	●	●	●	●	●	●	●	●	●		
			160404T00815SE	160404SE		0.4	2.0		●	●	●	●	●	●	●	●	●	●	●				
			160408T00815SE	160408SE		0.8	1.7		●	●	●	●	●	●	●	●	●	●	●				
			VBGW 110304S01035SET	VBGW110304SE-T	S01035	0.4	2.0	1		●													
			110308S01035SET	110308SE-T		0.8	1.7			●		●											
			VBGW 160404S01035SET	VBGW160404SE-T	S01035	0.4	2.0	1		●													
			160408S01035SET	160408SE-T		0.8	1.7			●													
			VCGW 080202T00815ME	VCGW080202ME	T00815	0.2	2.0	2	●	●	●	●	●	●	●	●	●	●	●	●	●		
			080204T00815ME	080204ME		0.4	2.0		●	●	●	●	●	●	●	●	●	●	●	●			
			080208T00815ME	080208ME		0.8	1.7		●	●	●	●	●	●	●	●	●	●	●	●			
			VCGW 160408T00815ME	VCGW160408S2E	T00815	0.8	2.7	2	●														
			160412T00815ME	160412S2E		1.2	1.9		●														
			VCGW 080202S01035MET	VCGW080202ME-T	S01035	0.2	2.0	2				●	●	●	●	●	●	●	●	●	●		
			080204S01035MET	080204ME-T		0.4	2.0					●	●	●	●	●	●	●	●	●			
			080208S01035MET	080208ME-T		0.8	1.7					●	●	●	●	●	●	●	●	●			
			VCGW 080202T00815SE	VCGW080202SE	T00815	0.2	2.4	1	●	●	●	●	●	●	●	●	●	●	●	●	●		
			080204T00815SE	080204SE		0.4	2.0		●	●	●	●	●	●	●	●	●	●	●				
			080208T00815SE	080208SE		0.8	1.8		●	●	●	●	●	●	●	●	●	●	●				
			VCGW 080204S01035SET	VCGW080204SE-T	S01035	0.4	2.0	1		●													
			080208S01035SET	080208SE-T		0.8	1.8			●													

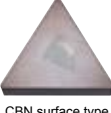
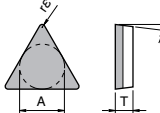

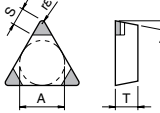

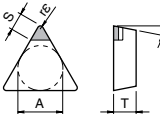

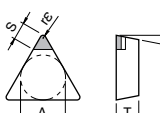

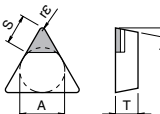
## 80°Trigon / Positive

Description	A	T	ød	α
WBGW 0601_	3.97	1.59	2.3	5°
0802_	4.76	2.38		

Edge Prep.				Classification of usage															Ref. Page for Toolholder	
Symbol	Cutting Edge Spec.	Example				K														
E	R Honed	E008	R0.08mm Honed																	
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge																	
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge			H														
Insert			Description		(Previous Description)	Edge Prep.	Dimension (mm)		No. of Edges	CBN			MEGACOAT CBN					PVD coated CBN		
Handed insert indicates Left-hand							rε	S		KBN65B	KBN510	KBN525	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN70M	KBN10C
		WBGW060102T00815 <sup>R/L</sup> -SE		WBGW060102 <sup>R/L</sup> -SE		T00815	0.2	1.9	1	L	L		L	L						
		060104T00815 <sup>R/L</sup> -SE		060104 <sup>R/L</sup> -SE			0.4	1.9		L	L		L	L						
		WBGW080202T00815 <sup>R/L</sup> -SE		WBGW080202 <sup>R/L</sup> -SE		T00815	0.2	2.3	1	L	L		L	L						
		080204T00815 <sup>R/L</sup> -SE		080204 <sup>R/L</sup> -SE			0.4	2.3		L	L		L	L						
		WBGW060102S01035 <sup>R/L</sup> SET		WBGW060102 <sup>R/L</sup> -SE-T		S01035	0.2	1.9	1				L	L						
		060104S01035 <sup>R/L</sup> SET		060104 <sup>R/L</sup> -SE-T			0.4	1.9			L		L	L						
		WBGW080202S01035 <sup>R/L</sup> SET		WBGW080202 <sup>R/L</sup> -SE-T		S01035	0.2	2.3	1				L	L						
		080204S01035 <sup>R/L</sup> SET		080204 <sup>R/L</sup> -SE-T			0.4	2.3			L		L	L						

## 60°Triangle / Positive without Hole

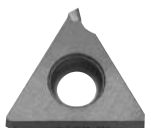
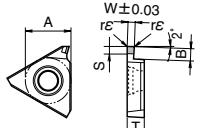
(mm)				
Description	A	T	ød	α
TBGN 0601_	3.97	1.59	-	5°
TPGN 1103_	6.35	3.18		11°
1603	9.525			

Edge Prep.				Classification of usage															Ref. Page for Toolholder			
Symbol	Cutting Edge Spec.	Example				K																
E	R Honed	E008	R0.08mm Honed																			
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge																			
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge			H																
Insert				Description		(Previous Description)		Edge Prep.		Dimension (mm)		No. of Edges	CBN			MEGACOAT CBN					PVD coated CBN	
										rε	S		KBN65B	KBN510	KBN525	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN70M
				TBGN 060102T00815		TBGN 060102		T00815	0.2	-	3	●	●		●							
				060104T00815		060104			0.4	-		●	●		●							
				060108T00815		060108			0.8	-		●	●		●							
				TPGN 110302T00815ME		TPGN 110302ME		T00815	0.2	2.6	3	●	●									
				110304T00815ME		110304ME			0.4	2.5		●	●									
				110308T00815ME		110308ME			0.8	2.4		●	●									
				TPGN 110302T00815SE		TPGN 110302SE		T00815	0.2	2.6	1	●	●									
				110304T00815SE		110304SE			0.4	2.5		●	●									
				110308T00815SE		110308SE			0.8	2.4		●	●									
				TPGN 160302T00815SE		TPGN 160302SE		T00815	0.2	2.6	1	●	●									
				160304T00815SE		160304SE			0.4	2.4		●	●									
				160308T00815SE		160308SE			0.8	2.1		●	●									
				TPGN 110304S01035SET		TPGN 110304SE-T		S01035	0.4	2.5	1		●									
				110308S01035SET		110308SE-T			0.8	2.4			●									
				TPGN 160304S01035SET		TPGN 160304SE-T		S01035	0.4	2.4	1		●									
				160308S01035SET		160308SE-T			0.8	2.1			●									
				TPGN 110304T00815		TPGN 110304		T00815	0.4	3.8	1											
				110308T00815		110308			0.8	3.5												
				TPGN 160304T00815		TPGN 160304		T00815	0.4	3.9	1											
				160308T00815		160308			0.8	3.6												
				160312T00815		160312			1.2	3.3												

- : Std. Item (1 pc boxes)
- L : Std. Item (L-hand Only)
- : Deleted from the next catalogue

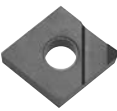
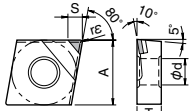
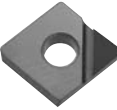
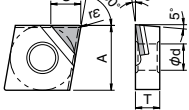

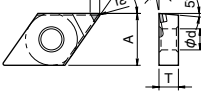
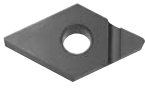
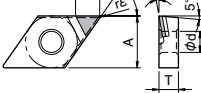

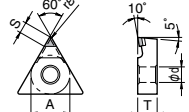

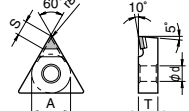

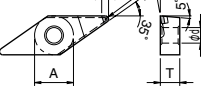

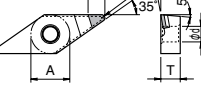

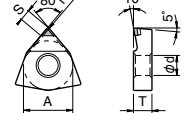

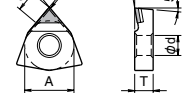
CBN & PCD Tools are sold in 1 piece boxes.

## Grooving Inserts (1-Edge)

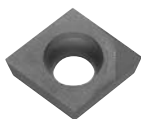
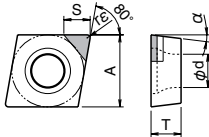
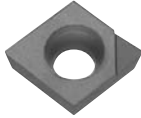
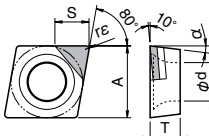
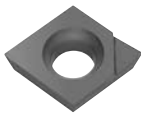
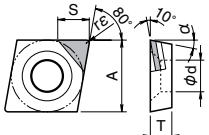
Grooving Inserts (1-Edge)				Description		A		T		ød								
				AAAA 0000				0.00										
Edge Prep.				Classification of usage				<div><div>K</div><div>Gray Cast Iron (With Scale)</div><div>Gray Cast Iron (Without Scale)</div><div>Nodular Cast Iron (Without Scale)</div><div>Sintered Steel</div><div>H</div><div>Hard Materials (Roughing)</div><div>Hard Materials (Finishing)</div><div>Hard Materials (Chip Control)</div></div>										
Symbol	Cutting Edge Spec.	Example		✱: Interruption / 1st Choice ✱: Interruption / 2nd Choice ●: Light Interruption / 1st Choice ○: Light Interruption / 2nd Choice ●: Continuous / 1st Choice ○: Continuous / 2nd Choice														
E	R Honed	E008	R0.08mm Honed															
T	Chamfered Cutting Edge	T01215	0.12mm X 15° Chamfered Cutting Edge															
S	Chamfered and Honed Cutting Edge	S01225	0.12mm X 25° Chamfered and Honed Cutting Edge															
Insert		Description		(Previous Description)		Edge Prep.		Dimension (mm)						No. of Edges		CBN		Ref. Page for Toolholder
								W	B	rε	A	T	ød			S		
Handed Insert shows Right-hand																		
 External / Internal Grooving		GBA43 <sup>R</sup> / <sub>L</sub> 125-020	GBA43 <sup>R</sup> / <sub>L</sub> 125	E008	1.25	2.0	0.2	12.70	4.76	5.5	1.9	1	●	●	G13 G15 G55			
		150-020	150	E008	1.50	3.5							●	●				
		200-020	200	E008	2.00	3.5							●	●				
		250-020	250	E008	2.50	4.0							●	●				
		300-020	300	E008	3.00	4.0							●	●				



## Negative

Negative		Classification		Description		Non-ferrous Metals (with interruption)		Non-ferrous Metals (without interruption)		Titanium Alloy (with interruption)		Titanium Alloy (without interruption)		Ref. Page for Toolholder							
Edge Prep.		AA-PCD000		PCD000		N		N		S		S									
● : Light Interruption / 1st Choice		○ : Light Interruption / 2nd Choice		● : Continuous / 1st Choice		○ : Continuous / 2nd Choice															
All Items		Sharp Edge																			
Insert		Description		Dimension (mm)		Angle (°)		No. of Edges		PCD											
				A T ød rε S α						KPD001 KPD010											
		CNMM	120402M-SE 120404M-SE 120408M-SE	12.70	4.76	5.16	0.2 0.4 0.8	2.8 2.8 2.7	-	1	● ● ●	● ● ●	D8 E18 F64 F68								
		CNMM	120402M-NE 120404M-NE 120408M-NE	12.70	4.76	5.16	0.2 0.4 0.8	5.1 5.0 4.9	-	1	● ● ●	● ● ●	D10 D11 F65								
		CNMM	120402M 120404M 120408M 120412M				0.2 0.4 0.8 1.2	5.8 5.8 5.7 5.6			● ● ● ●	● ● ● ●									
		DNMM	150402M-SE 150404M-SE 150408M-SE				12.70	4.76			5.16	0.2 0.4 0.8	2.8 2.6 2.2	-	1	● ● ●	● ● ●	D14 D15 E19 F65 F70			
		DNMM	150402M-NE 150404M-NE 150408M-NE				12.70	4.76			5.16	0.2 0.4 0.8	5.2 5.0 4.6	-	1	● ● ●	● ● ●				
		DNMM	150402M 150404M 150408M 150412M	0.2 0.4 0.8 1.2	5.9 5.8 5.4 5.0	● ● ● ●			● ● ● ●												
		TNMM	160402M-SE 160404M-SE 160408M-SE	9.525	4.76	3.81			0.2 0.4 0.8	2.7 2.6 2.3		-	1			● ● ●	● ● ●	D16 D17 D18			
		TNMM	160402M-NE 160404M-NE 160408M-NE	9.525	4.76	3.81			0.2 0.4 0.8	3.2 3.1 2.8		-	1			● ● ●	● ● ●				
		TNMM	160402M 160404M 160408M 160412M				0.2 0.4 0.8 1.2	3.8 3.6 3.3 3.0	● ● ● ●	● ● ● ●											
		VNMM	160402M-SE 160404M-SE 160408M-SE				9.525	4.76	3.81	0.2 0.4 0.8	2.9 2.5 1.6			-	1	● ● ●	● ● ●	D20 F72			
		VNMM	160402M-NE 160404M-NE 160408M-NE				9.525	4.76	3.81	0.2 0.4 0.8	4.7 4.2 3.4			-	1	● ● ●	● ● ●				
		VNMM	160402M 160404M 160408M 160412M	0.2 0.4 0.8 1.2	5.3 4.8 4.0 3.1	● ● ● ●				● ● ● ●											
		WNMM	080402M-SE 080404M-SE 080408M-SE	12.70	4.76	5.16				0.2 0.4 0.8	2.8 2.8 2.7	-	1			● ● ●	● ● ●	D20 F72			
		WNMM	080402M-NE 080404M-NE	12.70	4.76	5.16				0.2 0.4	5.0 5.0	-	1			● ●	● ●				
		WNMM	080402M 080404M				0.2 0.4	5.8 5.8	● ●	● ●											

## Positive

Positive		Classification		Description		Non-ferrous Metals (with interruption)		Non-ferrous Metals (without interruption)		Titanium Alloy (with interruption)		Titanium Alloy (without interruption)		Ref. Page for Toolholder	
Edge Prep.		AAAA-000		AAAA-000		AAAA-000		AAAA-000		AAAA-000		AAAA-000			
All Items		Sharp Edge													
Insert		Description		Dimension (mm)					Angle (°)	No. of Edges	PCD				
				A	T	ød	rℓ	S	α		KPD001	KPD010			
		CCGW	040101NE	4.3	1.8	2.3	0.1	1.7	7°	1	●		F27 F29		
			040102NE				0.2	1.6			●				
			040104NE				0.4	1.6			●				
		CCGW	040101				0.1	1.9			●	□		F29	
			040102				0.2	1.9			●	●			
			040104				0.4	1.9			●	●			
		CCGW	060201NE	6.35	2.38	2.8	0.1	3.1			●		E20 E21 E33 F27 F29		
			060202NE				0.2	3.0			●				
			060204NE				0.4	3.0			●				
		CCGW	060202SE				0.2	1.9			●				
			060204SE				0.4	1.9			●				
			060208SE				0.8	1.8			●				
		CCGW	060201				0.1	3.5			●			●	F29
			060202				0.2	3.5			●			●	
			060204				0.4	3.5			●			●	
		CCGW	09T301NE	9.525	3.97	4.4	0.1	3.4			●		E20 E21 E33 F27 F29 F66		
			09T302NE				0.2	3.4			●				
			09T304NE				0.4	3.4			●				
			09T308NE				0.8	3.3			●				
			CCGW				09T304SE	0.4			1.9	●			
							09T308SE	0.8			1.8	●			
			CCGW				09T301	0.1			3.8	●		●	F29 F66
							09T302	0.2			3.8	●		●	
		09T304					0.4	3.7			●	●			
		CCGW	09T308				0.8	3.6			●			●	
		CCMT	060201NE	6.35	2.38	2.8	0.1	2.8	7°	1	●		E20 E21 E33 F27 F29		
			060202NE				0.2	2.8			●				
			060204NE				0.4	2.8			●				
		CCMT	060201				0.1	3.3			●	●		F27 F29	
			060202				0.2	3.3			●	●			
			060204				0.4	3.2			●	●			
		CCMT	09T301NE	9.525	3.97	4.4	0.1	3.4			●		E20 E21 E33 F27 F29 F66		
			09T302NE				0.2	3.4			●				
			09T304NE				0.4	3.4			●				
			09T308NE				0.8	3.3			●				
		CCMT	09T304SE				0.4	1.9			●				
			09T308SE				0.8	1.8			●				
		CCMT	09T301				0.1	3.9			●	●		F29 F66	
			09T302				0.2	3.9			●	●			
			09T304				0.4	3.9			●	●			
		CCMT	09T308				0.8	3.8			●			●	
		CPMH	080201NE	7.94	2.38	3.5	0.1	3.2	11°	1	□		F31 F33		
			080202NE				0.2	3.2			●				
			080204NE				0.4	3.2			●				
			080208NE				0.8	3.2			●				
		CPMH	080201				0.1	3.7			●	●		F31 F33	
			080202				0.2	3.7			●	●			
			080204				0.4	3.7			●	●			
			080208				0.8	3.5			●				
		CPMH	090301NE	9.525	3.18	4.5	0.1	3.4			●				
			090302NE				0.2	3.4			●				
090304NE	0.4		3.4				●								
090308NE	0.8		3.3				●								
CPMH	090301	0.1	4.0				□	●	F31 F33						
	090302	0.2	3.9				●	●							
	090304	0.4	3.9				●	●							
	090308	0.8	3.8				●								

• SE: Small Edge / NE: New Value Edge.



# Positive

Positive		Classification of Edge		Description		Non-ferrous Metals (with interruption)		Non-ferrous Metals (without interruption)		Titanium Alloy (with interruption)		Titanium Alloy (without interruption)		(mm)									
Edge Prep.		AAA 000		Light Interruption / 1st Choice		Light Interruption / 2nd Choice		Continuous / 1st Choice		Continuous / 2nd Choice													
All Items		Sharp Edge																					
Insert		Description		Dimension (mm)		Angle (°)		No. of Edges		PCD				Ref. Page for Toolholder									
Handed insert indicates Left-hand				A T ød rε S α		α				KPD001 KPD010													
		DCMT	070201NE	6.35	2.38	2.8	0.1	3.4	7°	1	●			Refer to the table below.									
			070202NE				0.2	3.4			●												
			070204NE				0.4	3.2			●												
			DCMT	070202SE	0.2	2.5		●															
				070204SE	0.4	2.4		●															
			DCMT	070201	0.1	4.0	●				●												
				070202	0.2	3.9	●				●												
				070204	0.4	3.7	●				●												
			DCMT	11T301NE	0.1	3.4	●																
				11T302NE	0.2	3.3	●																
				11T304NE	0.4	3.2	●																
				11T308NE	0.8	2.8	●																
	DCMT	11T304SE	0.4	2.2		●																	
		11T308SE	0.8	2.0		●																	
	DCMT	11T301	0.1	4.0	●		●																
		11T302	0.2	3.9	●		●																
		11T304	0.4	3.7	●		●																
		11T308	0.8	3.3	●		●																
		DCMT	070202 <sup>R/L</sup> -NE	6.35	2.38	2.8	0.2	3.3	7°	1	●			Refer to the table below.									
			070204 <sup>R/L</sup> -NE				0.4	3.2			●												
			DCMT	11T302 <sup>R/L</sup> -NE	0.2	3.3	●																
				11T304 <sup>R/L</sup> -NE	0.4	3.2	●																
		TBGW	060102NE	3.97	1.59	2.3	0.2	2.1			5°	1	●					F43 F45					
			060104NE				0.4	1.9					●										
		TBGW	060102				0.2	2.4					●				●						
			060104				0.4	2.2					●				●						
		TCGW	110302SE	6.35	3.18	2.8	0.2	2.5	7°	1				●		E27							
			110304SE				0.4	2.4						●									
		TCGW	110302NE	6.35	3.18	2.8	0.2	3.3					7°	1	●							E27	
			110304NE				0.4	3.2							●								
			110308NE				0.8	2.9			●												
			TCGW				110302	0.2			3.9				●								
		110304	0.4	3.7		●																	
		110308	0.8	3.4		●																	
		TBMT	060101NE	3.97	1.59	2.3	0.1	2.2	5°	1	●					F43 F45							
			060102NE				0.2	2.1			●												
			060104NE				0.4	2.0			●												
			060108NE				0.8	1.7			●												
			TBMT				060101	0.1			2.6		●		●								
							060102	0.2			2.5		●		●								
							060104	0.4			2.3		●		●								
							060108	0.8			2.0		●		●								
		TCMT	080202NE	4.76	2.38	2.3	0.2	2.1	7°	1	●			E27									
			080204NE				0.4	2.0			●												
			080208NE				0.8	1.7			●												
			TCMT	080202	0.2	2.4		●				●											
				080204	0.4	2.2		●				●											
				080208	0.8	1.9		●				●											

SE: Small Edge / NE: New Value Edge.


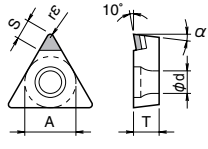

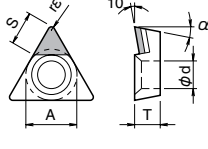

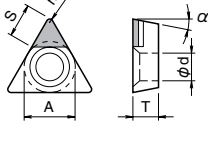

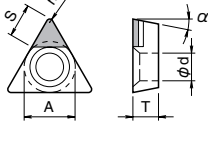

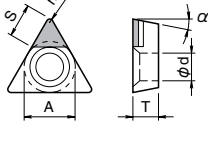

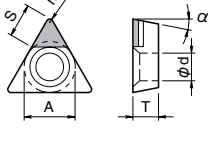
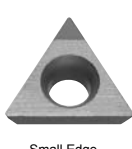
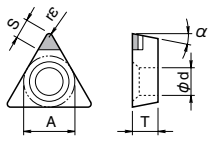

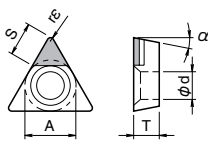

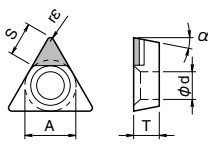
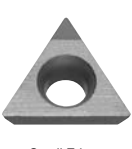
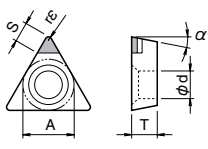

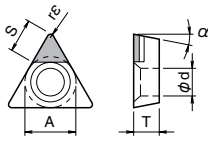

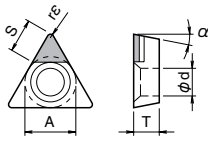
Insert Description	Ref. Page for Toolholder
DC..07 type	E22~25,E35~39
DC..11 type	E22~25,F35~39,F66

● : Std. Item (1 pc boxes)  
 L : Std. Item (L-hand Only)  
 □ : Deleted from the next catalogue

CBN & PCD Tools are sold in 1 piece boxes.


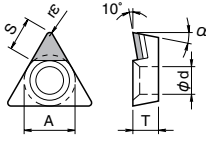
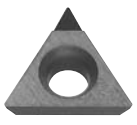
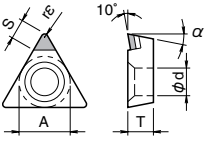

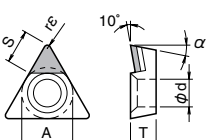
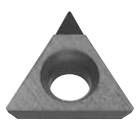
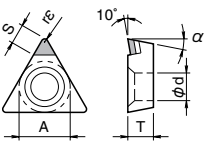

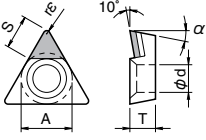

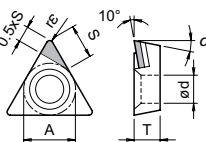
## Positive

Classification	Description	Non-ferrous Metals (with interruption)	Non-ferrous Metals (without interruption)	Titanium Alloy (with interruption)	Titanium Alloy (without interruption)
●	Light Interruption / 1st Choice	●	●	●	●
○	Light Interruption / 2nd Choice	○	○	○	○
●	Continuous / 1st Choice	●	●	●	●
○	Continuous / 2nd Choice	○	○	○	○

Edge Prep.		All Items		Sharp Edge		Dimension (mm)					Angle (°)	No. of Edges	PCD		Ref. Page for Toolholder
Insert		Description				A	T	ød	rε	S	α		KPD001	KPD010	
 Small Edge		TCMT	110301SE	6.35	3.18	2.8			0.1	2.6	7°	1		●	E27
			110302SE						0.2	2.5				●	
			110304SE						0.4	2.4				●	
 Small Edge		TCMT	110302NE	6.35	3.18	2.8			0.2	3.4	7°	1	●		E27
			110304NE						0.4	3.3			●		
			110308NE						0.8	3.0			●		
 Small Edge		TPGB	080202NE	4.76	2.38	2.3			0.2	2.2			●		E27
			080204NE						0.4	2.1			●		
			080208NE						0.8	1.8			●		
 Small Edge		TPGB	080202	4.76	2.38	2.3			0.2	2.6			●	●	F45
			080204						0.4	2.4			●	●	
			080208						0.8	2.2			●		
 Small Edge		TPGB	090202NE	5.56	2.38	3.0			0.2	2.7			●		F43
			090204NE						0.4	2.6			●		
			090208NE						0.8	2.3			●		
 Small Edge		TPGB	090202	5.56	2.38	3.0			0.2	3.2			●	●	F45
			090204						0.4	3.0			●	●	
			090208						0.8	2.7			●		
 Small Edge		TPGB	110301SE	6.35	3.18	3.3			0.1	2.7	11°	1	●	●	E27
			110302SE						0.2	2.6			●	●	
			110304SE						0.4	2.5			●	●	
 Small Edge		TPGB	110302NE	6.35	3.18	3.3			0.2	3.4	11°	1	●		F43
			110304NE						0.4	3.3			●		
			110308NE						0.8	3.0			●		
 Small Edge		TPGB	110302	6.35	3.18	3.3			0.2	3.9	11°	1	●	●	F45
			110304						0.4	3.7			●	●	
			110308						0.8	3.4			□	●	
 Small Edge		TPGB	160301SE	9.525	3.18	4.5			0.1	2.6			●	●	F43
			160302SE						0.2	2.6			●	●	
			160304SE						0.4	2.4			●	●	
 Small Edge		TPGB	160302NE	9.525	3.18	4.5			0.2	3.3			●		F45
			160304NE						0.4	3.2			●		
			160308NE						0.8	2.9			●		
 Small Edge		TPGB	160302	9.525	3.18	4.5			0.2	3.9			□	□	F47
			160304						0.4	3.7			□	□	
			160308						0.8	3.4			□	□	

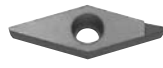
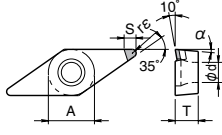
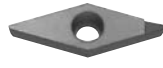
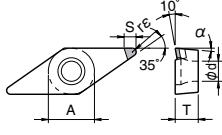
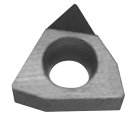
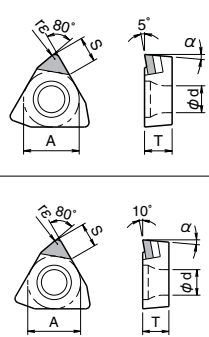
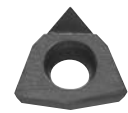
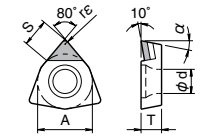
• SE: Small Edge / NE: New Value Edge.

# Positive

Edge Prep.										Material		Application		Ref. Page for Toolholder		
All Items			Sharp Edge			N		S		Non-ferrous Metals (without interruption)		Titanium Alloy (with interruption)			Titanium Alloy (without interruption)	
Insert			Description			Dimension (mm)					Angle (°)	No. of Edges	PCD			
Handed insert indicates Left-hand						A	T	ød	rε	S	α		KPD001		KPD010	
		TPMH	080201NE		4.76	2.38	2.3	0.1	2.3	11°	1	●		E27 F45 F48		
			080202NE					0.2	2.2			●				
			080204NE					0.4	2.1			●				
			080208NE					0.8	1.8			□				
		TPMH	080201		5.56	2.38	3.0	0.1	2.6			●	●		F43 F45 F48	
			080202					0.2	2.5			●	●			
			080204					0.4	2.3			●	●			
			080208					0.8	2.0			□	□			
		TPMH	090201NE		5.56	2.38	3.0	0.1	2.7			●			F43 F45 F48	
			090202NE					0.2	2.6			●				
			090204NE					0.4	2.5			●				
			090208NE					0.8	2.2			●				
TPMH	090201		5.56	2.38	3.0	0.1	3.0	●	●	F43 F45 F48						
	090202					0.2	2.9	●	●							
	090204					0.4	2.8	●	●							
	090208					0.8	2.5	□	●							
		TPMH	110301SE		6.35	3.18	3.3	0.1	2.7	11°	1	□	●	E27 F43 F45 F47		
			110302SE					0.2	2.6			●	●			
			110304SE					0.4	2.5			●	●			
Small Edge		TPMH	110301NE		6.35	3.18	3.3	0.1	3.4			●			F43 F45 F47	
			110302NE					0.2	3.3			●				
			110304NE					0.4	3.2			●				
			110308NE					0.8	2.9			●				
												●				
Small Edge		TPMH	110301		6.35	3.18	3.3	0.1	3.9			●	●		F43 F45 F47	
			110302					0.2	3.9			●	●			
			110304					0.4	3.7			●	●			
			110308					0.8	3.4			□	●			
												●				
		TPMH	160301SE		9.525	3.18	4.5	0.1	2.6	11°	1	□	●	F43 F45 F47		
			160302SE					0.2	2.6			●	●			
			160304SE					0.4	2.4			●	●			
Small Edge		TPMH	160301NE		9.525	3.18	4.5	0.1	3.5			●			F43 F45 F47	
			160302NE					0.2	3.4			●				
			160304NE					0.4	3.3			●				
			160308NE					0.8	3.0			●				
												●				
Small Edge		TPMH	160301		9.525	3.18	4.5	0.1	4.1			□	□		F43 F45 F47	
			160302					0.2	4.0			●	●			
			160304					0.4	3.8			●	●			
			160308					0.8	3.6			●	●			
												●				
		TPMH	110302 <sup>R/L</sup> -NE		6.35	3.18	3.3	0.2	3.8	11°	1	L		E27 F43 F45 F47		
			110304 <sup>R/L</sup> -NE					0.4	3.6			L				

## Positive

Classification	Description	Material	Non-ferrous Metals (with interruption)	Non-ferrous Metals (without interruption)	Titanium Alloy (with interruption)	Titanium Alloy (without interruption)
● : Light Interruption / 1st Choice	AA and 900	N	●	●	●	●
○ : Light Interruption / 2nd Choice	1000	S	●	●	●	●
● : Continuous / 1st Choice			●	●	●	●
○ : Continuous / 2nd Choice			●	●	●	●

Edge Prep.															Non-ferrous Metals (without interruption)				Ref. Page for Toolholder
All Items			Sharp Edge			Dimension (mm)					Angle (°)	No. of Edges	PCD						
Insert			Description			A	T	ød	rε	S	α		KPD001	KPD010					
Handed insert indicates Left-hand																			
		VBMT	110301NE	6.35	3.18	2.8	0.1	2.6	5°	1	●		E28 E29 E35 F51 F53 F55						
			110302NE				0.2	2.4			●								
			110304NE				0.4	2.0			●								
			110308NE				0.8	3.1			●								
		VBMT	110301				0.1	3.0			●	●							
			110302				0.2	2.8			●	●							
			110304				0.4	2.4			●	●							
			110308				0.8	3.5			●	●							
		VBMT	160401NE	9.525	4.76	4.4	0.1	2.8			●		E28 E29 F51 F53 F55						
			160402NE				0.2	2.6			●								
			160404NE				0.4	2.2			●								
			160408NE				0.8	3.0			●								
		VBMT	160404SE				0.4	2.0			●								
		VBMT	160401				0.1	3.2			●	●							
			160402				0.2	3.0			●	●							
			160404				0.4	2.6			●	●							
			160408				0.8	3.5			●	●							
		VCMT	080201NE	4.76	2.38	2.3	0.1	1.7	7°	1	●		E35 F51 F53 F55						
			080202NE				0.2	1.7			●								
			080204NE				0.4	1.8			●								
			080208NE				0.8	1.9			●								
		VCMT	080201				0.1	2.0			●	●							
			080202				0.2	2.0			●	●							
			080204				0.4	2.1			●	●							
			080208				0.8	2.2			●	●							
				WBMT	060101L-NE	3.97	1.59	2.3	0.1	1.7	5°	1	●		F57 F59				
					060102L-NE				0.2	1.6			●						
060104L-NE	0.4				1.6				●										
WBMT	060101L			0.1	1.9				●	●									
	060102L			0.2	1.9				●	●									
	060104L			0.4	1.9				●	●									
WBMT	080202L-NE			4.76	2.38	2.3	0.2	2.1	●										
	080204L-NE						0.4	2.1	●										
WBMT	080202L						0.2	2.4	●	●									
	080204L						0.4	2.3	●	●									
		WPMT	110201NE	6.35	2.38	2.8	0.1	2.7	11°	1	□								
			110202NE				0.2	2.7			●								
			110204NE				0.4	2.7			●								
		WPMT	110201				0.1	3.0			□								
			110202				0.2	3.1			●								
			110204				0.4	3.1			□								

• SE: Small Edge / NE: New Value Edge.

# Positive

Edge Prep.		Description		Dimension (mm)					Angle (°)	No. of Edges	PCD		Ref. Page for Toolholder
All Items	Sharp Edge	Insert	Description	A	T	ød	rε	S	α		KPD001	KPD010	
		<b>SEGN</b>	<b>120304NE</b>	12.70	3.18	-	0.4	3.6	20°	1	●		-
			<b>120304</b>									□	
		<b>SPGN</b>	<b>120304NE</b>	12.70	3.18	-	0.4	3.6	11°	1	●		<b>E36 F60</b>
			<b>120304</b>									●	
		<b>TBGN</b>	<b>060102</b>	3.97	1.59	-	0.2	-	5°	3		□	-
			<b>060104</b>									□	
		<b>TPGN</b>	<b>090202NE</b>	5.56	2.38	-	0.2	3.3	11°	1	□		<b>F61</b>
			<b>090204NE</b>				0.4	3.2			●		
			<b>090208NE</b>				0.8	2.9			□		
		<b>TPGN</b>	<b>090202</b>				0.2	3.9				□	
			<b>090204</b>				0.4	3.7				●	
			<b>090208</b>				0.8	3.4				□	
		<b>TPGN</b>	<b>110301SE</b>	6.35	3.18	-	0.1	2.6	11°	1	●	●	<b>E37 F61</b>
			<b>110302SE</b>				0.2	2.5			●	●	
			<b>110304SE</b>				0.4	2.4			●	●	
		<b>TPGN</b>	<b>110302NE</b>				0.2	3.4			●		
			<b>110304NE</b>				0.4	3.2			●		
			<b>110308NE</b>				0.8	2.9			●		
		<b>TPGN</b>	<b>160301SE</b>	9.525	3.18	-	0.1	2.6	11°	1		●	<b>E37 F61</b>
			<b>160302SE</b>				0.2	2.6			●	●	
			<b>160304SE</b>				0.4	2.4			●	●	
		<b>TPGN</b>	<b>160302NE</b>				0.2	3.3			●		
			<b>160304NE</b>				0.4	3.2			●		
			<b>160308NE</b>				0.8	2.9			●		
		<b>TPGN</b>	<b>160302</b>	9.525	3.18	-	0.2	3.9	11°	1	●	●	<b>E37 F61</b>
			<b>160304</b>				0.4	3.7			●	●	
		<b>TPGN</b>	<b>160308</b>				0.8	3.4			●	●	
			<b>160308</b>				0.8	3.4			●	●	

• SE: Small Edge / NE: New Value Edge.

● : Std. Item (1 pc boxes)  
 L : Std. Item (L-hand Only)  
 □ : Deleted from the next catalogue

CBN & PCD Tools are sold  
in 1 piece boxes.

# PCD Tools

## Grooving Inserts (1-Edge)

Classification	Message	Non-ferrous Metals (with interruption)	Non-ferrous Metals (without interruption)	Titanium Alloy (with interruption)	Titanium Alloy (without interruption)
●: Light Interruption / 1st Choice	●: 1st Choice	●	●	●	●
○: Light Interruption / 2nd Choice	○: 2nd Choice	○	○	○	○
●: Continuous / 1st Choice	●: 1st Choice	●	●	●	●
○: Continuous / 2nd Choice	○: 2nd Choice	○	○	○	○

(mm)

### Edge Prep.

All Items

Sharp Edge

Insert

Description

(Previous Description)

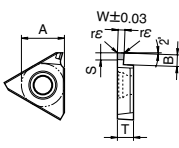
Dimension (mm)

No. of Edges

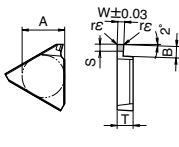
PCD

Ref. Page for Toolholder

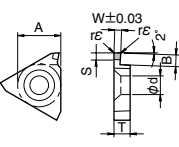
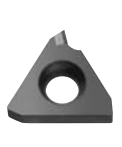
Handed Insert shows Right-hand



<b>GBA32<sup>R/L</sup></b>	<b>125-010</b>	<b>GBA32<sup>R/L</sup></b>	<b>125</b>	1.25	2.0	0.1	9.525	3.18	4.4	1.7	1	●	●	●	●	●	●	●
	<b>150-010</b>		<b>150</b>	1.50	2.0													
<b>GBA43<sup>R/L</sup></b>	<b>125-010</b>	<b>GBA43<sup>R/L</sup></b>	<b>125</b>	1.25	2.0													
	<b>150-010</b>		<b>150</b>	1.50	3.5	0.1	12.70	4.76	5.5	1.9								
	<b>200-010</b>		<b>200</b>	2.00														
	<b>250-010</b>		<b>250</b>	2.50	4.0													
	<b>300-010</b>		<b>300</b>	3.00	4.0													



<b>GB43<sup>R/L</sup></b>	<b>125</b>	-	1.25	2.0	3.5	0.1	12.70	4.76	-	1.9	1	●	●	●	●	●	●	●
	<b>150</b>	-	1.50	2.0														
	<b>200</b>	-	2.00	4.0														
	<b>250</b>	-	2.50	4.0														
	<b>300</b>	-	3.00	4.0														



<b>TGF32<sup>R/L</sup></b>	<b>125-010</b>	-	1.25	2.0	0.1	9.525	3.18	4.5	1.7	1	●	●	●	●	●	●	●	●
	<b>150-010</b>	-	1.50	2.0														
	<b>200-010</b>	-	2.00	2.5														
<b>TGF32<sup>R/L</sup></b>	<b>125</b>	-	1.25	2.0	C0.1	9.525	3.18	4.5	1.7	1	●	●	●	●	●	●	●	●
	<b>150</b>	-	1.50	2.0														
	<b>200</b>	-	2.00	2.5														

Insert

Description

(Previous Description)

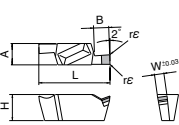
Dimension (mm)

No. of Edges

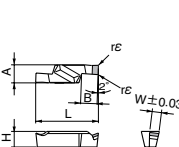
PCD

Ref. Page for Toolholder

Handed Insert shows Right-hand



<b>GV<sup>R/L</sup></b>	<b>145-020A</b>	<b>GV<sup>R/L</sup></b>	<b>145A</b>	1.45	2.3	0.2	4.0	12	5.0	1	●	●	●	●	●	●	●	●
	<b>200-020A</b>		<b>200A</b>	2.00														
	<b>300-020A</b>		<b>300A</b>	3.00														
<b>GV<sup>R/L</sup></b>	<b>200-020B</b>	<b>GV<sup>R/L</sup></b>	<b>200B</b>	2.00	3.2	0.2	4.5	15	5.5	1	●	●	●	●	●	●	●	●
	<b>250-020B</b>		<b>250B</b>	2.50														
	<b>300-020B</b>		<b>300B</b>	3.00														
<b>GV<sup>R/L</sup></b>	<b>300-020C</b>	<b>GV<sup>R/L</sup></b>	<b>300C</b>	3.00	4.5	0.2	5.8	21	6.5	1	●	●	●	●	●	●	●	●
	<b>400-020C</b>		<b>400C</b>	4.00														
				5.5														



<b>GVF<sup>R/L</sup></b>	<b>250-020B</b>	<b>GVF<sup>R/L</sup></b>	<b>250B</b>	2.50	4.8	0.2	5.8	20	5.0	1	●	●	●	●	●	●	●	●
	<b>300-020B</b>		<b>300B</b>	3.00														
	<b>400-020B</b>		<b>400B</b>	4.00														
<b>GVF<sup>R/L</sup></b>	<b>350-020C</b>	-	-	3.50	6.8	0.2	7.0	27	7.0	1	●	●	●	●	●	●	●	●
	<b>400-020C</b>	-	-	4.00														
				6.8														
<b>GVF<sup>R/L</sup></b>	<b>350-040C</b>	<b>GVF<sup>R/L</sup></b>	<b>350C</b>	3.50	6.8	0.4	7.0	27	7.0	1	●	●	●	●	●	●	●	●
	<b>400-040C</b>		<b>400C</b>	4.00														

Insert

Description

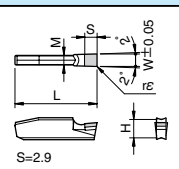
(Previous Description)

Dimension (mm)

No. of Edges

PCD


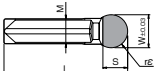
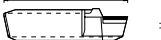
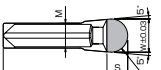
Ref. Page for Toolholder



<b>GMN</b>	<b>2</b>	-	2.0	0.2	20	4.3	2.9	1	●	●	●	●	●	●	●	●	●	●
	<b>3</b>	-	3.0															
	<b>4</b>	-	4.0															
	<b>5</b>	-	5.0															
	<b>6</b>	-	6.0															

CBN & PCD Tools are sold in 1 piece boxes.

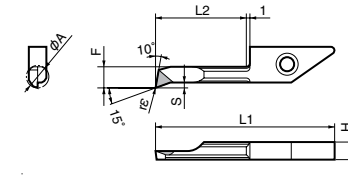
## For Aluminum Wheel (1-Edge)

Edge Prep.				Classification of usage				Non-ferrous Metals (without interruption)				Titanium Alloy (with interruption)		Titanium Alloy (without interruption)		Ref. Page for Toolholder		
All Items				Rounded Cutting Edge (Hone)				N				S		N			S	
Insert				Description				Dimension (mm)						No. of Edges	PCD			
								W	rε	L	H	M	S			KPD001	KPD010	
		GMGW	6030-30R	6	3	30	5.5	5	4.5		1							
			8030-40R	8	4			6	6									
		GMGW	8030-40R-HR	8	4	30	5.5	6	5									

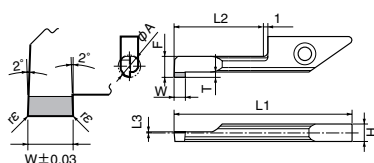
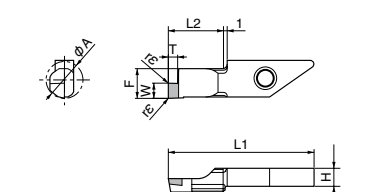


# PCD Tools

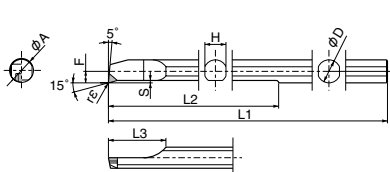
## System Tip-Bars

Edge Prep.		Min.Bore Dia.	Dimension (mm)							No. of Edges	PCD		Ref. Page for Toolholder		
All Items	Sharp Edge										KPD001	KPD010			
Insert	Description	øA	H	L1	L2	F	S	rε							
Handed Insert shows Right-hand															
 Micro Boring	VNBR 0411-02NB	4	3.9	30.8	11	3.5	0.5	0.2	1		R	R	F16 F17 F18		
	0420-02NB			39.8	20						R	R			
	VNBR 0511-02NB	5	3.9	30.8	11	4.5	0.7	0.2			R	R			
	0520-02NB			39.8	20						R	R			
	VNBR 0620-02NB	6	3.9	39.8	20	5.3	1.0	0.2			R	R			
	0630-02NB			49.8	30						R	R			
	VNBR 0720-02NB	7	3.9	39.8	20	6.2	1.0	0.2			R	R			
	0730-02NB			49.8	30						R	R			


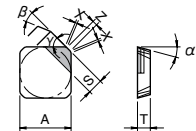

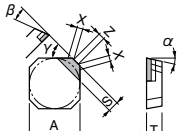

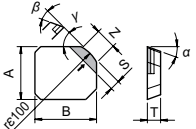

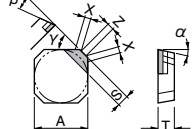
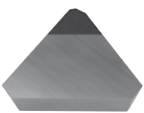
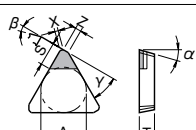

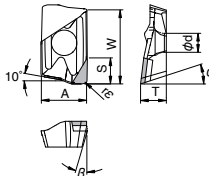

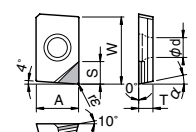
## System Tip-Bars

System Tip-Bars			Classification of usage		N		S		Ref. Page for Toolholder					
Edge Prep.			●: Light Interruption / 1st Choice		○: Light Interruption / 2nd Choice		●: Continuous / 1st Choice		○: Continuous / 2nd Choice					
All Items			Sharp Edge			Non-ferrous Metals (without interruption)		Titanium Alloy (with interruption)		Titanium Alloy (without interruption)				
Insert	Description	Min.Bore Dia.	Dimension (mm)								No. of Edges	PCD		
		øA	W	rε	H	L1	L2	L3	F	T		KPD001	KPD010	
Handed Insert shows Right-hand														
 Micro Grooving	VNGR 0410-11NB	4	1.0	0.05	3.9	30.8	11	0.1	3.5	0.8	1	MTO	MTO	
	0420-11NB		2.0	0.10								MTO	MTO	
	VNGR 0510-11NB	5	1.0	0.05	3.9	30.8	11	0.1	4.4	1.0		MTO	MTO	
	0520-11NB		2.0	0.10								MTO	MTO	
	VNGR 0610-20NB	6	1.0	0.05	3.9	39.8	20	0.3	5.2	1.8		MTO	MTO	
	0620-20NB		2.0	0.10								MTO	MTO	
	VNGR 0710-20NB	7	1.0	0.05	3.9	39.8	20	0.3	6.2	2.0		MTO	MTO	
	0720-20NB		2.0	0.10								MTO	MTO	
 Micro Face Grooving	VNFR 0820-10NB	8	2.0							2.0	1	MTO	MTO	
	0830-10NB	8	3.0	0.05	3.9	39.8	10	-	7.3	3.0		MTO	MTO	

## Tip-Bars

Tip-Bars				Classification of usage		N		S				Ref. Page for Toolholder															
Edge Prep.						Non-ferrous Metals (with interruption)		Non-ferrous Metals (without interruption)																			
All Items		Sharp Edge				Light Interruption / 1st Choice		Light Interruption / 2nd Choice																			
Insert		Description		Min.Bore Dia.		Dimension (mm)						No. of Edges		PCD													
Handed Insert shows Right-hand				øA		øD		H		L1		L2		L3		F		S		rε		KPD001		KPD010			
		PSB <sup>R/L</sup> 0404-60NBS		4		3.8		3.6		60		30		10		1.9		0.3		0.05		1		R		R	
		0505-70NBS		5		4.8		4.4		70		40		12		2.4		0.5		0.05		1		R		●	
		0606-70NBS		6		5.8		5.2		80		45		12		2.9		0.5		0.05		1		R		R	
		0707-80NBS		7		6.8		6.2		80		50		12		3.4		0.5		0.05		1		R		R	

# Milling Inserts

Milling Inserts		Description		A		T		ød										
		AAAA	0000	0.00														
Edge Prep.		Classification of usage										Ref. Page for Toolholder						
		■ : Light Interruption / 1st Choice □ : Light Interruption / 2nd Choice																
All Items		Sharp Edge							N Non-ferrous Metals (with interruption)		□		■					
							S Titanium Alloy (with interruption)		□		■							
Insert		Description		Dimension (mm)					Angle (°)			No. of Edges	PCD					
				A	T	X	Z	S	α	β	γ		KPD001	KPD010	KPD230			
		SDKN	1203AUFN-NE	12.70	3.18	0.5	1.2	3.1	15°	23°	45°	1	●			M35		
			1203AUFN					3.6							●		●	
		SEEN	1203AFFN-NE	12.70	3.18	0.5	1.4	3.0	20°	25°	45°	1	●			M30 M31 M32		
			1203AFFN					3.5							●		●	
		SEEN	1203AFFR-W	12.50	3.18	-	3.5	1.7	B=14.56	20°	25°	45°	1	●		M32		
		SOKN	13T3AXFN-NE	13.494	3.97	0.4	1.1	3.0		27°	32°	45°	1			●	M36	
		TEEN	1603PTFR-NE	9.525	3.18	0.6	1.4	4.1	20°	22°	30°	1	●			M95		
			1603PTFR					4.7					●	●				
				TEKN	2204PTFR-NE	12.70	4.76	0.7	1.8	4.2	20°	22°	30°	1	●		●	M44 M45
					2204PTFR					4.8					●	●		
Insert		Description		Dimension (mm)					Angle (°)			No. of Edges	PCD			Ref. Page for Toolholder		
				A	T	ød	W	rε	S	α	β			KPD001	KPD010		KPD230	
		BDMT	11T302FR	6.7	3.8	2.8	11.0	0.2	3.6	18°	13°	1	●		●	M48 M49		
			11T304FR					0.4					●		●			
			BDMT	170402FR	9.6	4.9	4.4	17.0	0.2	4.4	18°	13°	1	●		●	M50	
				170404FR					0.4					●		●		
		NDCW	150302FRX-NE	9.525	3.18	4.4	15.0	5.1	15°	-		1	●		●	M93		
			150302FRX					5.7					●	●				

• SE: Small Edge / NE: New Value Edge.

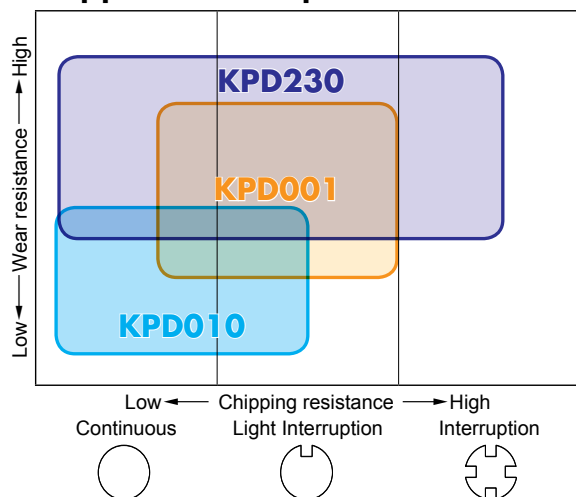
● : Std. Item (1 pc boxes)  
 L : Std. Item (L-hand Only)  
 □ : Deleted from the next catalogue

CBN & PCD Tools are sold  
 in 1 piece boxes.

# Recommended Cutting Conditions

Description	A	T	ød
AAAA 0000_	00.00	0.00	0.00
0000_		0.00	

## Application Map



Insert Grade	Applications	Features	Insert Grade	Applications	Features
<b>KPD001</b> (Ave. Grain Size under 0.5μm)	<ul style="list-style-type: none"> <li>High speed machining for non-ferrous metals and brass</li> <li>High speed machining of glass fiber and plastics</li> <li>Machining for carbide and ceramics</li> </ul>	<ul style="list-style-type: none"> <li>The world highest level micro-grain diamond</li> <li>High edge strength, and superior to wear resistance, chipping resistance and edge sharpening performance</li> </ul>	<b>KPD010</b> (Ave. Grain Size 10μm)	<ul style="list-style-type: none"> <li>High speed machining for non-ferrous metals and brass</li> <li>High speed machining of glass fiber and plastics</li> <li>Machining for carbide and ceramics</li> </ul>	<ul style="list-style-type: none"> <li>Good balance of wear resistance and flexural strength</li> <li>General Purpose</li> </ul>
<b>KPD230</b> (Mixture of fine grain with the ave. grain size 2-30μm and rough grain)	<ul style="list-style-type: none"> <li>High speed milling of aluminum alloy and non ferrous metals such as brass</li> <li>High speed milling of glass fiber and plastics</li> </ul>	<ul style="list-style-type: none"> <li>High-density carbide with mixture of rough and fine grains features excellent abrasive wear resistance and chipping resistance.</li> </ul>			

## Recommended Cutting Conditions (Turning)

Workpiece Material	Insert Grade		Cutting Conditions				Remarks
	KPD001	KPD010	Vc (m/min)	ap (mm)		f (mm/rev)	
				Small edge and Positive (Insert)	Negative (Inserts)		
Aluminum Alloys Zinc Alloys	★	☆	300~1500	~1.0	~2.0	0.03~0.5	Both Dry and Coolant Available
Copper, Brass, Bronze	★	☆	300~1000	~1.0	~2.0	0.03~0.5	
Magnesium Alloys	★	☆	400~1200	~1.0	~2.0	0.03~0.5	
Carbide	★	☆	10~30	~0.3	~0.3	0.03~0.1	
Titanium Alloys	★	☆	100~200	~1.0	~2.0	0.05~0.2	Coolant
Glass Fiber Reinforced Plastic Carbon Fiber	★	☆	100~600	~1.0	~2.0	0.05~0.5	Dry
Silica Filling Plastic Particle Board	★	☆	400~800	~1.0	~2.0	0.05~0.5	

★: 1st. Recommendation ☆: 2nd. Recommendation