CBN & PCD Tools

C1~C35

C

CBN Tools

Extended Tool Life | Improved Stability | High Speed Machining

Kyocera's innovative CBN tools

CBN Variation and Features See Page A16

Various lineup applicable from machining Hard materials to Sintered steel

Identification System (Turning Insert)

C	N	G	A	12	04	04	S01225	ME

"Turning Indexable Inserts Identification System" See Page B2

Insert Type	Description	Edge Prep.	Manufacture's Option	Edge Length	No. of Edges	Regrinding
Negative	CNGA120404MEF	F	MEF	Short (Small Edge)	2	Not Recommended
	CNGA120404ME4	S01225	ME4		4(Double-sided)	
	CNGA120404S01225ME		ME		2	
	CNGA120404S00545MEP	S00545	MEP		2	
	CNGA120404S01225SE	S01225	SE		1	
	CNMN120404S02020	S02020	Without Indication (Only KBN900)	Long	Plural edge	Possible
Positive	CCMW09T304MEF	F	MEF	Short (Small Edge)	2	Not Recommended
	CCMW09T304T00815ME	T00815	ME		2	
	CCMW09T304S01225MES	S01225	MES		2	
	CCMW09T304T00815SE	T00815	SE		1	

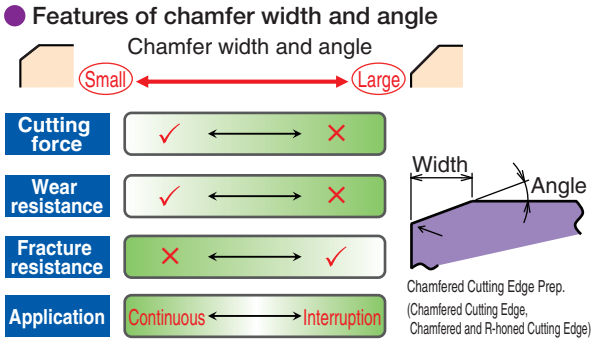
Note 1) See Page **B3** for insert color.

● About Regrinding
1) Regrinding is possible for inserts without any indication in manufacturer's option. Regrinding cannot be available depending on the edge condition.
2) Regrinding is not recommended for inserts with manufacturer's symbol like "ME" or "SE"

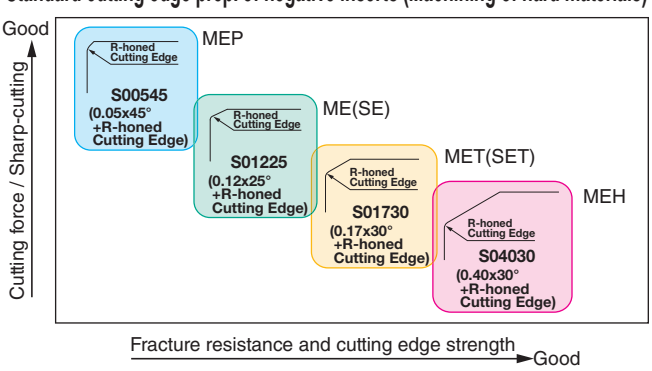
● Edge Preparation Identification System

Edge Prep.				
Symbol	Cutting Edge Spec.	Example		Shape
F	Sharp Edge	F	Sharp Edge	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge	R-honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15˚Chamfered Cutting Edge	0.12, 15˚
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25˚Chamfered and R-honed Cutting Edge	0.12, 25˚, R-honed

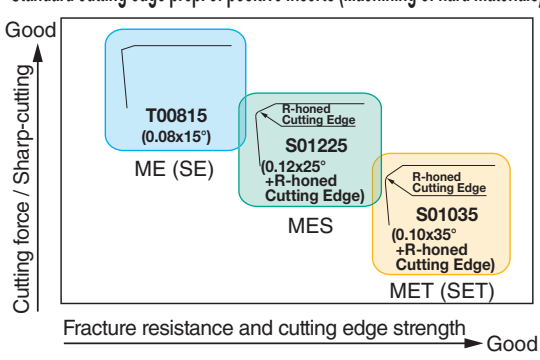
● Features of chamfer width and angle



(1) Standard cutting edge prep. of negative inserts (Machining of hard materials)



(2) Standard cutting edge prep. of positive inserts (Machining of hard materials)



Manufacture's Option	Edge Prep.		Application and Features
MEP	S00545	0.05mm x 45˚+R-honed Cutting Edge	High speed, Continuous Excellent crater wear resistance
ME	S01225	0.12mm x 25˚+R-honed Cutting Edge	General purpose
MET	S01730	0.17mm x 30˚+R-honed Cutting Edge	Superior fracture resistance
MEH	S04030	0.40mm x 30˚+R-honed Cutting Edge	Interrupted high feed machining Prevention of flaking

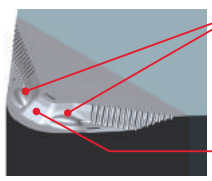
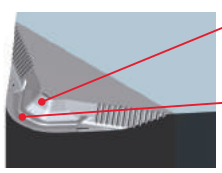
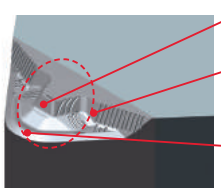
Manufacture's Option	Edge Prep.		Application and Features
ME	T00815	0.08mm x 15˚	Chamfered Sharp-cutting oriented, less burring
MES	S01225	0.12mm x 25˚+R-honed Cutting Edge	General purpose
MET	S01035	0.10mm x 35˚+R-honed Cutting Edge	Interrupted machining Stable machining oriented

CBN Inserts for Machining Hardened Material

H Chipbreaker Series

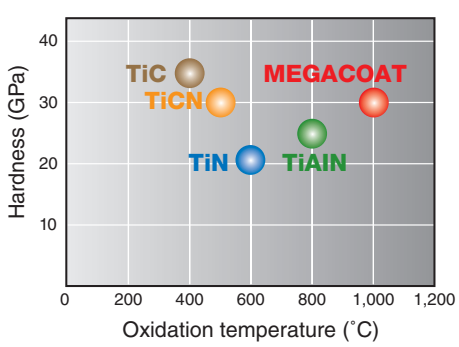
Unique Molded Chipbreaker Provides Excellent Chip Control when Machining Hardened Material

3 Chipbreaker Styles for a Wide Range of Machining Applications

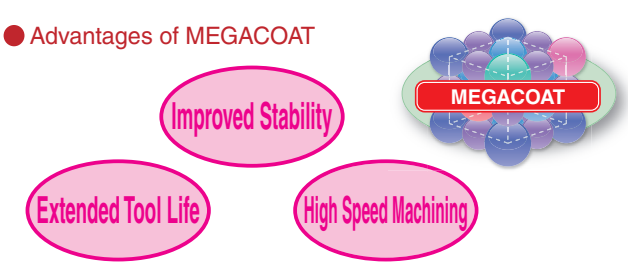
Chipbreaker	Applications	Recommended Cutting Range
HH 1st Choice  Twin Dots: Breaks chips into small pieces. Wide Bump: Provides stable chip curls	Hardened Steel Finishing 55HRC or more	Small D.O.C. (ap = 0.1~0.3 mm)
HL  Wide Bump. Rake Surface: Stable chip control for softer interior of hardened materials	Hardened Steel Finishing 55HRC or less	
HD  Wide Bump. Multi-step Structure: Good for a wide range of conditions. Rake Surface: Stable chip control for softer interior of hardened materials	Removing the Carburized Layer (From Carburized Layer to Unhardened Layer)	Large D.O.C. (ap = 0.3~0.7 mm)

MEGACOAT CBN

● Properties of PVD Coating



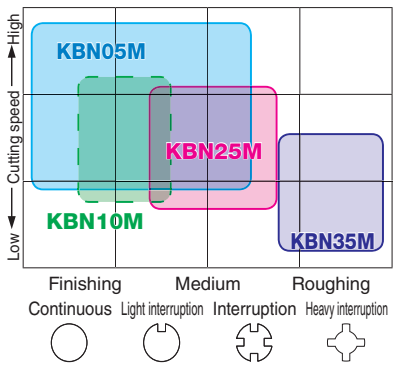
● Advantages of MEGACOAT



- Long tool life and stable machining due to superior heat-resistance and hardness
- Stability improvement through prevention of crater wear (oxidation, diffusional wear)
- High thermal stability and surface smoothness provide excellent surface finish

Application Map

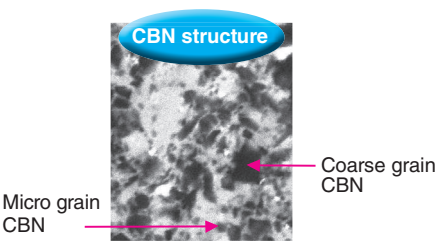
Hard materials



Hybrid Grain Structure (KBN05M)

Mixed structure of micro grain CBN and coarse grain CBN

CBN that possess High hardness, toughness and thermal resistance characteristics



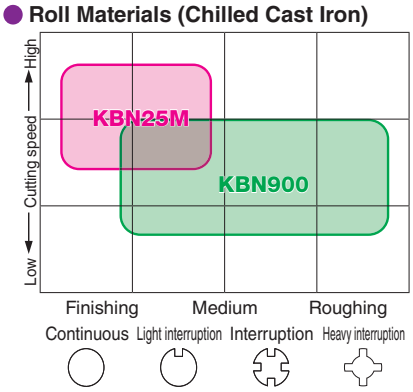
Heat diffusion is promoted by coarse grain CBN
⇒High thermal conductivity

KBN05M is 1st recommended grade for a wide range of application from continuous (high speed finishing) to interrupted machining.

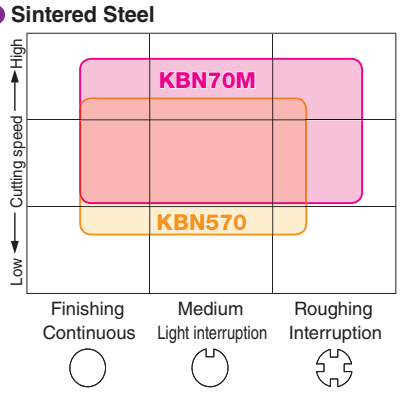
KBN25M : High stability for general machining

KBN35M : Honeycomb structure CBN
Superior fracture resistance in heavy interrupted machining

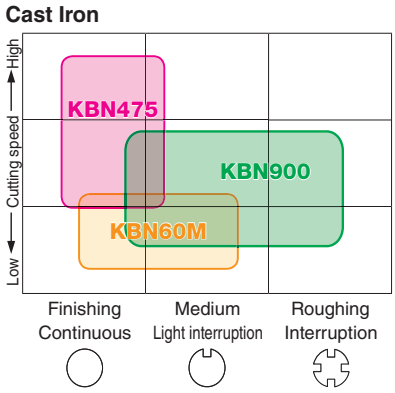
Roll Materials (Chilled Cast Iron)



Sintered Steel



Cast Iron



Recommended Cutting Conditions

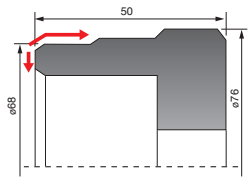
Workpiece Material	Hardness	Applications		Recommended Insert Grade	Cutting Conditions		
					Vc (m/min)	ap (mm)	f (mm/rev)
Hard materials	55HRC or more	General Finishing	Continuous~Interruption	KBN05M	100 - **150** - 200	0.05 - **0.3** - 0.5	0.05 - **0.08** - 0.1
		HH Chipbreaker for Hardened Steel Finishing	Continuous~Interruption	KBN05M	100 - **150** - 200	0.1 - **0.2** - 0.3	0.1 - **0.15** - 0.25
		High Efficient Stable Machining	Light interruption~Interruption	KBN25M	80 - **120** - 160	0.05 - **0.3** - 0.5	0.05 - **0.08** - 0.1
		Interruption (Small ap)	Interruption~Heavy interruption	KBN35M	60 - **100** - 150	0.05 - **0.2** - 0.4	0.05 - **0.08** - 0.1
		Heavy Machining	Continuous~Interruption	KBN900	70 - **90** - 110	0.5 - **1.0** - 2.0	0.05 - **0.1** - 0.2
	55HRC or less	HL Chipbreaker for Hardened Steel Finishing	Continuous~Interruption	KBN05M	100 - **150** - 200	0.1 - **0.2** - 0.3	0.1 - **0.15** - 0.25
		Finishing	Continuous	*PT600M	60 - **80** - 120	0.2 - **0.5** - 0.7	0.05 - **0.1** - 0.15
	Removing the Carburized Layer	HD Chipbreaker for Removing the Carburized Layer	Continuous~Interruption	KBN05M	100 - **150** - 200	0.3 - **0.5** - 0.7	0.1 - **0.15** - 0.25
Gray Cast Iron	Under 250HB	Finishing	Continuous~Light interruption	KBN475	400 - **800** - 1,200	0.05 - **0.2** - 0.5	0.1 - **0.2** - 0.3
		Finishing	Continuous~Light interruption	KBN60M	300 - **500** - 700	0.05 - **0.2** - 0.5	0.1 - **0.2** - 0.3
		High Efficient Finishing	Continuous~Light interruption	KBN900	500 - **900** - 1,200	0.1 - **0.5** - 1.0	0.05 - **0.1** - 0.2
		Heavy Machining	Continuous~Interruption	KBN900	500 - **700** - 900	0.5 - **1.5** - 3.0	0.1 - **0.3** - 0.5
Roll Materials (Chilled Cast Iron)	55HRC or more	Finishing	Continuous~Interruption	KBN25M	80 - **120** - 160	0.05 - **0.3** - 0.5	0.05 - **0.08** - 0.1
		Heavy Machining	Continuous~Interruption	KBN900	70 - **90** - 110	0.3 - **0.7** - 1.0	0.05 - **0.1** - 0.15
Sintered Steel	-	Finishing	Continuous~Light interruption	KBN570	50 - **150** - 250	0.05 - **0.15** - 0.25	0.03 - **0.1** - 0.2
	-	Finishing	Continuous~Interruption	KBN70M	100 - **200** - 250	0.05 - **0.2** - 0.3	0.05 - **0.15** - 0.25

*PT600M : MEGACOAT on Al_2O_3+TiC ceramic

Case Studies

SCr420H(58HRC)

· Gear
· External , Facing and Chamfering
· Vc=130 m/min
· ap=0.6 mm
· f=0.12 mm/rev
· Wet
· CNGA120408S01225ME (KBN05M)



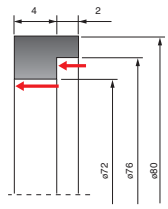
KBN05M	300 pcs/edge
Competitor C	200 pcs/edge

· KBN05M achieved 1.5 times longer tool life than competitor C.
⇒Its longer tool life contributes to cost-cutting.

(User Evaluation)

SCM415(55HRC)

· Stator
· Boring
· Vc=170 m/min
· ap=0.4 mm
· f=0.1 mm/rev
· Wet
· CNGA120408S01225ME (KBN05M)



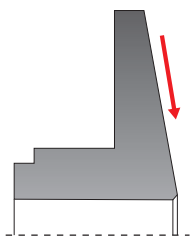
KBN05M	600 pcs/edge
Competitor D	300 pcs/edge

· KBN05M achieved twice longer tool life than competitor D.
⇒Its longer tool life contributes to cost-cutting.

(User Evaluation)

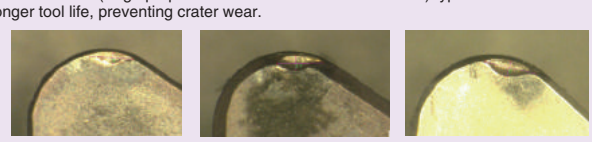
SCr420H(58HRC)

· Pulley
· Facing (Continuous)
· Vc=120 m/min
· ap=0.15~0.2 mm
· f=0.24 mm/rev
· Wet
· DNGA120408S00545MEP (KBN05M)



KBN05M-MEP (Edge Prep. : 0.05 x 45°)	150 pcs/edge
KBN05M-ME (Edge Prep. : 0.12 x 25°)	100 pcs/edge
Competitor E	100 pcs/edge

· Tool life of KBN05M-ME type (Edge prep. : 0.12 x 25˚Chamfered + R-honed) is same as competitor E's.
· KBN05M-MEP (Edge prep. : 0.05 x 45˚Chamfered + R-honed) type achieved 1.5 times longer tool life, preventing crater wear.

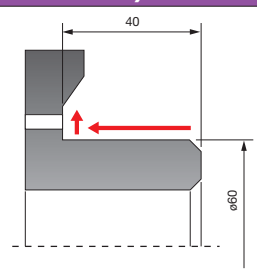


KBN05M-MEP **KBN05M-ME** Competitor E

(User Evaluation)

SCr20(61~65HRC)

· Gear
· External and Facing (Interrupted)
· Vc=120 m/min
· ap=0.15 mm
· f=0.1~0.15 mm/rev (External)
· Wet
· CNGA120408S04030MEH (KBN05M)



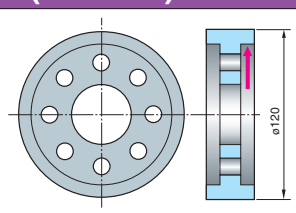
KBN05M-MEH (Edge Prep. : 0.40 x 30°)	150 pcs/edge
Competitor F	100 pcs/edge

· Compared to competitor F, KBN05M-MEH type (Edge prep.: 0.40 x 30˚Chamfered + R-honed) achieved 1.5 times longer tool life.
· No chipping in interrupted machining, and improved productivity. (Competitor F's cutting edge got many chipping)
· Feed rate could be increased from 0.15 to 0.25 mm/rev in facing.
⇒Achieved cycle time and cost reduction.

(User Evaluation)

SCM420(60HRC)

· Gear
· Facing (Interrupted)
· Vc=90 m/min
· ap=0.5 mm
· f=0.12 mm/rev
· Wet⇒Dry
· CNGA120412S01225ME (KBN25M)



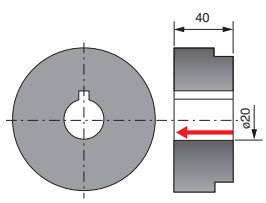
KBN25M	70 pcs/edge
Competitor G	30 pcs/edge (Unstable)

KBN25M improved tool life up to 70 pcs/edge that is two times more than competitor G (CBN tool). Also, KBN25M has increased its tool life up to 250 pcs/edge by changing from wet machining to dry machining.

(User Evaluation)

SCM420(58HRC)

· Sleeve
· Boring (Heavy interruption)
· Vc=100 m/min
· ap=0.5 mm
· f=0.1 mm/rev
· Wet
· TPGB110308S01035MET (KBN35M)



KBN35M	115 pcs/edge
Competitor H	100 pcs/edge

· KBN35M achieved 15% Longer tool life in heavy interrupted machining compared with competitor H.
· Furthermore, it still keeps the insert in a good condition and provides stable machining result.
⇒Its longer tool life and capability of providing stable result can contribute to cost-cutting and improved efficiency in machining.

(User Evaluation)

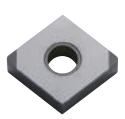
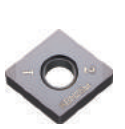
80° Rhombic / Negative

(mm)

Description	IC	S	D1
CNGA 1204_ CNGM 1204_	12.70	4.76	5.16

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E	R-honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)					◕				●	
	Nodular Cast Iron (With Scale)										
H	Hard Materials (Roughing)				✖						
	Hard Materials (Finishing)	●	○	◕				○	◔		
	Hard Materials (Chip Control)		●	◕							
	Sintered Steel						✖				◕

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
 Multi Edge / With Wiper Edge	CNGA 120404S01215MEW	S01215	0.4	2.6	2	●	□	●				●	●			D8 D9 F65 F69 F70
	CNGA 120408S01215MEW		0.8	2.5		●	○	●	●			●	●			
	CNGA 120412S01215MEW		1.2	2.5		●	○	●					●			
 Multi Edge / Finishing	CNGA 120404S00545MEP	S00545	0.4	2.6	2	●										
	CNGA 120408S00545MEP		0.8	2.6		●										
	CNGA 120412S00545MEP		1.2	2.5		●										
	CNGA 120416S00545MEP		1.6	3.4		●										
	CNGA 120420S00545MEP		2.0	3.4		●										
	CNGA 120424S00545MEP		2.4	3.3		●										
 Multi Edge / Sharp Edge	CNGA 120404MEF	F	0.4	2.6	2									●	●	
	CNGA 120408MEF		0.8	2.6										●	●	
	CNGA 120412MEF		1.2	2.5										●	●	
NEW  Multi Edge (Double-sided)	CNGA 120404ME4	S01225	0.4	2.6	4	●										
	CNGA 120408ME4		0.8	2.6		●										
	CNGA 120412ME4		1.2	2.5		●										
 Multi Edge	CNGA 120402S01225ME	S01225	0.2	2.6	2	●	□	●	●	●			●			
	CNGA 120404S01225ME		0.4	2.6		●	○	●	●	●		●	●	●		
	CNGA 120408S01225ME		0.8	2.6		●	○	●	●	●		●	●	●		
	CNGA 120412S01225ME		1.2	2.5		●	○	●	●	●			●	●		
	CNGA 120416S01225ME		1.6	3.4		●										
	CNGA 120420S01225ME		2.0	3.4		●										
	CNGA 120424S01225ME		2.4	3.3		●										
	CNGA 120404T01215ME	T01215	0.4	2.6	2						●			●		
	CNGA 120408T01215ME		0.8	2.6							●			●		
	CNGA 120412T01215ME		1.2	2.5							●			●		
 Multi Edge / Tough	CNGA 120404S01730MET	S01730	0.4	2.6	2	●	□	●	●				●			
	CNGA 120408S01730MET		0.8	2.6		●	○	●	●				●			
	CNGA 120412S01730MET		1.2	2.5		●		●	●				●			
	CNGA 120416S01730MET		1.6	3.4		●										
	CNGA 120420S01730MET		2.0	3.4		●										
	CNGA 120424S01730MET		2.4	3.3		●										
 Multi Edge / Interruption	CNGA 120404S04030MEH	S04030	0.4	2.6	2	●										
	CNGA 120408S04030MEH		0.8	2.6		●										
	CNGA 120412S04030MEH		1.2	2.5		●										
	CNGA 120416S04030MEH		1.6	3.4		●										
	CNGA 120420S04030MEH		2.0	3.4		●										
	CNGA 120424S04030MEH		2.4	3.3		●										

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

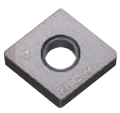
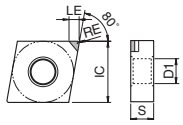
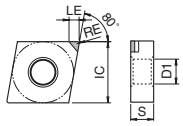
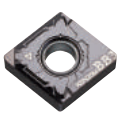
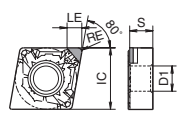
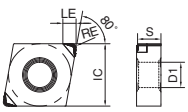
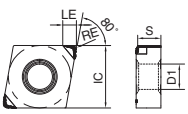
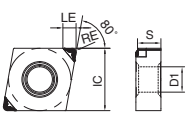
80° Rhombic / Negative

(mm)

Description	IC	S	D1
CNGA 1204_	12.70	4.76	5.16
CNGM 1204_			

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E	R-honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)										
	Nodular Cast Iron (With Scale)										
H	Hard Materials (Roughing)										
	Hard Materials (Finishing)	●	○	●				○	◡		
	Hard Materials (Chip Control)	●	○	●							
	Sintered Steel										

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	MEGACOAT CBN KBN05M	MEGACOAT CBN KBN10M	MEGACOAT CBN KBN25M	MEGACOAT CBN KBN35M	MEGACOAT CBN KBN60M	MEGACOAT CBN KBN70M	CBN KBN510	CBN KBN525	CBN KBN475	CBN KBN570	See Page for Applicable Toolholders
 Small Edge		CNGA 120402S01225SE	S01225	0.2	2.6	1		□	○				○			D8 D9 F65 F69 F70
		CNGA 120404S01225SE		0.4	2.6			○	○			○	○			
		CNGA 120408S01225SE		0.8	2.6			□	○			○	□			
		CNGA 120412S01225SE		1.2	2.5				○							
 Small Edge / Tough		CNGA 120404S01730SET	S01730	0.4	2.6	1			□				○			
		CNGA 120408S01730SET		0.8	2.6				○				□			
 Chip Control		CNGM 120404S00825BB1	S00825	0.4	1.8	1			●							
		CNGM 120408S00825BB1		0.8	2.0				●							
		CNGM 120412S00825BB1		1.2	2.2				●							
		CNGM 120404S01225BB2	S01225	0.4	2.2	1			●							
		CNGM 120408S01225BB2		0.8	2.4				●							
		CNGM 120412S01225BB2		1.2	2.6				●							
		CNGM 120404S01625BB3	S01625	0.4	2.6	1			●							
		CNGM 120408S01625BB3		0.8	2.8				●							
		CNGM 120412S01625BB3		1.2	3.0				●							
NEW  Hardened Steel Finishing (55HRC or more)		CNGM 120404ME-HH	E	0.4	2.6	2	●									
		CNGM 120408ME-HH		0.8	2.6		●									
		CNGM 120412ME-HH		1.2	2.5		●									
NEW  Hardened Steel Finishing (55HRC or less)		CNGM 120404ME-HL	E	0.4	2.6	2	●									
		CNGM 120408ME-HL		0.8	2.6		●									
		CNGM 120412ME-HL		1.2	2.5		●									
NEW  Removing the Carburized Layer		CNGM 120404ME-HD	S01235	0.4	2.6	2	●									
		CNGM 120408ME-HD		0.8	2.6		●									
		CNGM 120412ME-HD		1.2	2.5		●									

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

CBN & PCD Inserts are sold in 1 piece boxes

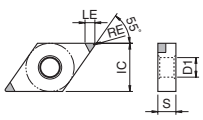
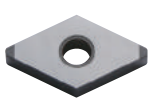
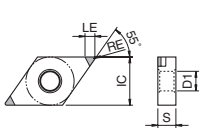
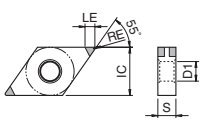
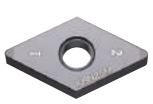
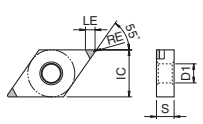
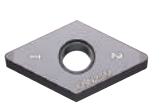
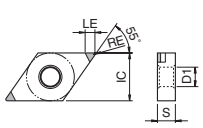
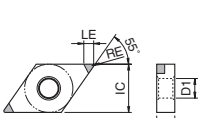
55° Rhombic / Negative

(mm)

Description	IC	S	D1
DNGA 1504_	12.70	4.76	5.16
1506_		6.35	
DNGM 1504_	12.70	4.76	5.16

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E	R-honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		MEGACOAT CBN						CBN				
		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	
K	Gray Cast Iron (With Scale)											
	Gray Cast Iron (Without Scale)				●					●		
	Nodular Cast Iron (With Scale)											
H	Hard Materials (Roughing)				✖							
	Hard Materials (Finishing)	●	○	●				○	◔			
	Hard Materials (Chip Control)		●	●								
	Sintered Steel						✖				●	

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
 Multi Edge / Finishing		DNGA 150404S00545MEP	S00545	0.4	2.6	2	●									
		DNGA 150408S00545MEP		0.8	2.2		●									
		DNGA 150412S00545MEP		1.2	1.9		●									
		DNGA 150416S00545MEP		1.6	3.8		●									
		DNGA 150420S00545MEP		2.0	3.5		●									
		DNGA 150424S00545MEP		2.4	3.1		●									
 Multi Edge / Sharp Edge		DNGA 150404MEF	F	0.4	2.6	2								●	●	
		DNGA 150408MEF		0.8	2.2									●	●	
		DNGA 150412MEF		1.2	1.9									●		
NEW  Multi Edge (Double-sided)		DNGA 150404ME4	S01225	0.4	2.6	4	●									D12 D13 F66 F72 F73
		DNGA 150408ME4		0.8	2.2		●									
		DNGA 150412ME4		1.2	1.9		●									
 Multi Edge		DNGA 150401S01225ME	S01225	0.1	2.8	2	●		●							
		DNGA 150402S01225ME		0.2	2.7		●	□	●		●		●	●		
		DNGA 150404S01225ME		0.4	2.6		●	○	●	●	●		●	●	●	
		DNGA 150408S01225ME		0.8	2.2		●	□	●	●	●		●	●	●	
		DNGA 150412S01225ME		1.2	1.9		●		●	●					●	
		DNGA 150416S01225ME		1.6	3.8		●									
		DNGA 150420S01225ME		2.0	3.5		●									
		DNGA 150424S01225ME		2.4	3.1		●									
		DNGA 150404T01215ME	T01215	0.4	2.6	2					●			●		
		DNGA 150408T01215ME		0.8	2.2						●			●		
		DNGA 150412T01215ME		1.2	1.9						●			●		
		DNGA 150604S01225ME	S01225	0.4	2.6	2	●	□	●	●				●		
		DNGA 150608S01225ME		0.8	2.2		●	□	●	●	●			●		D12
		DNGA 150612S01225ME		1.2	1.9		●			●						D13
		DNGA 150604T01215ME	T01215	0.4	2.6	2					●					F66
		DNGA 150608T01215ME		0.8	2.2						●					
 Multi Edge / Tough		DNGA 150404S01730MET	S01730	0.4	2.6	2	●	□	●	●				●		D12 D13 F66 F72 F73
		DNGA 150408S01730MET		0.8	2.2		●	□	●	●				●		
		DNGA 150412S01730MET		1.2	1.9		●		●	●				●		
		DNGA 150416S01730MET		1.6	3.8		●									
		DNGA 150420S01730MET		2.0	3.5		●									
		DNGA 150424S01730MET		2.4	3.1		●									
		DNGA 150604S01730MET	S01730	0.4	2.6	2	●	○	●	●						D12
		DNGA 150608S01730MET		0.8	1.9		●	○	●	●				●		D13
		DNGA 150612S01730MET		1.2	1.9		●			●						F66
 Multi Edge / Interruption		DNGA 150404S04030MEH	S04030	0.4	2.6	2	●									D12 D13 F66 F72 F73
		DNGA 150408S04030MEH		0.8	2.2		●									
		DNGA 150412S04030MEH		1.2	1.9		●									
		DNGA 150416S04030MEH		1.6	3.8		●									
		DNGA 150420S04030MEH		2.0	3.5		●									
		DNGA 150424S04030MEH		2.4	3.1		●									

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

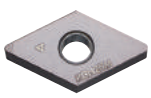
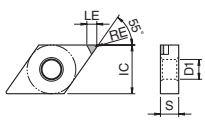
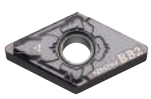
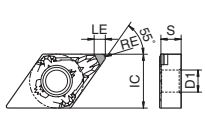
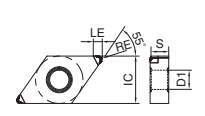
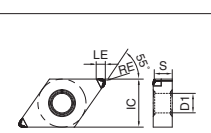
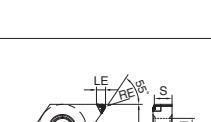
55° Rhombic / Negative

(mm)

Description	IC	S	D1
DNGA 1504_	12.70	4.76	5.16
1506_		6.35	
DNGM 1504_	12.70	4.76	5.16

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E	R-honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570
K	Gray Cast Iron (With Scale)										
K	Gray Cast Iron (Without Scale)										
K	Nodular Cast Iron (With Scale)										
H	Hard Materials (Roughing)										
H	Hard Materials (Finishing)	●	○	◐				○	◔		
H	Hard Materials (Chip Control)	●	○	◐							
	Sintered Steel										

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
 Small Edge		DNGA 150401S01225SE	S01225	0.1	2.2	1			○			○	○			D12 D13 F66 F72 F73
		DNGA 150402S01225SE		0.2	2.5				○			○	○			
		DNGA 150404S01225SE		0.4	2.3				□			○	○			
		DNGA 150408S01225SE		0.8	1.9				□				□			
		DNGA 150604S01225SE	S01225	0.4	2.3	1			□							D12 D13 F66
 Chip Control		DNGM 150404S00825BB1	S00825	0.4	1.6	1			●							
		DNGM 150408S00825BB1		0.8	1.6				●							
		DNGM 150412S00825BB1		1.2	1.8				●							
		DNGM 150404S01225BB2	S01225	0.4	1.8	1			●							
		DNGM 150408S01225BB2		0.8	2.0			□	●							
		DNGM 150412S01225BB2		1.2	2.1				●							
		DNGM 150404S01625BB3	S01625	0.4	2.2	1			●							
		DNGM 150408S01625BB3		0.8	2.5			□	●							
		DNGM 150412S01625BB3		1.2	2.5				●							
NEW  Hardened Steel Finishing (55HRC or more)		DNGM 150404ME-HH	E	0.4	2.6	2	●									D12 D13 F66 F72 F73
		DNGM 150408ME-HH		0.8	2.2		●									
		DNGM 150412ME-HH		1.2	1.9		●									
NEW  Hardened Steel Finishing (55HRC or less)		DNGM 150404ME-HL	E	0.4	2.6	2	●									
		DNGM 150408ME-HL		0.8	2.2		●									
		DNGM 150412ME-HL		1.2	1.9		●									
NEW  Removing the Carburized Layer		DNGM 150404ME-HD	S01235	0.4	2.6	2	●									
		DNGM 150408ME-HD		0.8	2.2		●									
		DNGM 150412ME-HD		1.2	1.9		●									

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

CBN & PCD Inserts are sold in 1 piece boxes

90° Square · 60° Triangle / Negative

(mm)

Description	IC	S	D1
SNGA 1204_	12.70	4.76	5.16
TNGA 1604_	9.525	4.76	3.81

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)									●	
	Nodular Cast Iron (With Scale)										
H	Hard Materials (Roughing)				✠						
	Hard Materials (Finishing)	●	○	◕					◔		
	Hard Materials (Chip Control)		●	◕							
	Sintered Steel						✠				◕

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	MEGACOAT CBN KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
 Multi Edge / Finishing	**SNGA 120408S00545MEP**	S00545	0.8	1.8	2	●										D14 D15 F75
	120412S00545MEP		1.2	2.2		●										
 Multi Edge / Sharp Edge	**SNGA 120408MEF**	F	0.8	1.8	2									●		
	120412MEF		1.2	2.2										●		
 Multi Edge	**SNGA 120404S01225ME**	S01225	0.4	1.8	2	●	□	●						●		
	120408S01225ME		0.8	1.8		●	□	●	●				●	●		
	120412S01225ME		1.2	1.8										●		
	SNGA 120408T01215ME	T01215	0.8	1.8	2						□			●		
	120412T01215ME		1.2	1.8										●		
 Multi Edge / Tough	**SNGA 120404S01730MET**	S01730	0.4	1.8	2	●		●								
	120408S01730MET		0.8	1.8		●		●	●				●			
	120412S01730MET		1.2	2.2		●		●	●							
 Multi Edge / Interruption	**SNGA 120408S04030MEH**	S04030	0.8	1.8	2	●										
	120412S04030MEH		1.2	2.2		●										
 Multi Edge / Finishing	**TNGA 160404S00545MEP**	S00545	0.4	2.7	3	●										D16 D17 F66 F76 F77
	160408S00545MEP		0.8	2.4		●										
	160412S00545MEP		1.2	2.1		●										
 Multi Edge / Sharp Edge	**TNGA 160404MEF**	F	0.4	2.7	3									●	●	
	160408MEF		0.8	2.4										●	●	
	160412MEF		1.2	2.1										●	●	
NEW  Multi Edge (Double-sided)	**TNGA 160404ME6**	S01225	0.4	2.7	6	●										
	160408ME6		0.8	2.4		●										
	160412ME6		1.2	2.1		●										

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) □ : Deleted from the next catalog

60° Triangle / Negative

(mm)

Description	IC	S	D1
TNGA 1604_	9.525	4.76	3.81
TNGM 1604_			

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)					◕				●	
	Nodular Cast Iron (With Scale)										
H	Hard Materials (Roughing)				✠						
	Hard Materials (Finishing)	●	○	◕				○	◔		
	Hard Materials (Chip Control)		●	◕							
	Sintered Steel						✠				

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	MEGACOAT CBN KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
 Multi Edge	TNGA 160401S01225ME	S01225	0.1	2.9	3	●	□	●								D16 D17 F66 F76 F77
	160402S01225ME		0.2	2.8		●	○	●	●	●		●	●			
	160404S01225ME		0.4	2.7		●	○	●	●	●		●	●	●		
	160408S01225ME		0.8	2.4		●	○	●	●	●		●	●	●		
	160412S01225ME		1.2	2.1		●		●	●	●			●	●		
	TNGA 160404T01215ME	T01215	0.4	2.7	3						●			●		
	160408T01215ME		0.8	2.4							●			●		
	160412T01215ME		1.2	2.1							●			●		
 Multi Edge / Tough	TNGA 160404S01730MET	S01730	0.4	2.7	3	●	□	●	●				●			
	160408S01730MET		0.8	2.4		●	□	●	●				●			
	160412S01730MET		1.2	2.1		●		●	●				●			
 Multi Edge / Interruption	TNGA 160404S04030MEH	S04030	0.4	2.7	3	●										
	160408S04030MEH		0.8	2.4		●										
	160412S04030MEH		1.2	2.1		●										
 Small Edge	TNGA 160401S01225SE	S01225	0.1	2.6	1			□					□			
	160402S01225SE		0.2	2.9			○	○				○	○			
	160404S01225SE		0.4	2.7			○	○				○	○			
	160408S01225SE		0.8	2.4			□	□				○	○			
 Small Edge / Tough	TNGA 160404S01730SET	S01730	0.4	2.7	1			○					○			
	160408S01730SET		0.8	2.4				□					□			
 Chip Control	TNGM 160404S00825BB1	S00825	0.4	1.5	1			●								
	160408S00825BB1		0.8	1.7				●								
	160412S00825BB1		1.2	1.9				□								
	TNGM 160404S01225BB2	S01225	0.4	1.9	1			●								
	160408S01225BB2		0.8	2.1				●								
	160412S01225BB2		1.2	2.2				□								
	TNGM 160404S01625BB3	S01625	0.4	2.2	1			●								
	160408S01625BB3		0.8	2.4				●								
	160412S01625BB3		1.2	2.6				□								

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

CBN & PCD Inserts are sold in 1 piece boxes

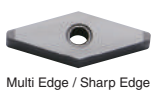
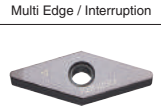
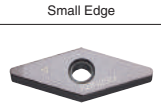
35° Rhombic / Negative

(mm)

Description	IC	S	D1
VNGA 1604_	9.525	4.76	3.81

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)					◕				●	
	Nodular Cast Iron (With Scale)										
H	Hard Materials (Roughing)				✠						
	Hard Materials (Finishing)	●	○	◕				○	◔		
	Hard Materials (Chip Control)										
	Sintered Steel						✠				◕

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
 Multi Edge / Finishing	VNGA 160404S00545MEP	S00545	0.4	2.0	2	●										D18 D19 D20
	VNGA 160408S00545MEP		0.8	1.8		●										
 Multi Edge / Sharp Edge	VNGA 160404MEF	F	0.4	2.0	2									●	●	
	VNGA 160408MEF		0.8	1.8										●	●	
NEW  Multi Edge (Double-sided)	VNGA 160404ME4	S01225	0.4	2.0	4	●										
	VNGA 160408ME4		0.8	1.8		●										
 Multi Edge	VNGA 160401S01225ME	S01225	0.1	2.6	2		○	●								
	VNGA 160402S01225ME		0.2	2.3		●	○	●	●	●		●	●			
	VNGA 160404S01225ME		0.4	2.0		●	○	●	●	●		●	●	●		
	VNGA 160408S01225ME		0.8	1.8		●	□	●	●	●				●		
	VNGA 160404T01215ME	T01215	0.4	2.0	2						●			●		
	VNGA 160408T01215ME		0.8	1.8							●			●		
 Multi Edge / Tough	VNGA 160404S01730MET	S01730	0.4	2.0	2	●		●	●				●			
	VNGA 160408S01730MET		0.8	1.8		●	□	●	●				●			
 Multi Edge / Interruption	VNGA 160404S04030MEH	S04030	0.4	2.0	2	●										
	VNGA 160408S04030MEH		0.8	1.8		●										
 Small Edge	VNGA 160401S01225SE	S01225	0.1	2.6	1			○					○			
	VNGA 160402S01225SE		0.2	2.3			○	○				○	○			
	VNGA 160404S01225SE		0.4	1.9			□	○				○	○			
	VNGA 160408S01225SE		0.8	2.7			□	□					□			
 Small Edge / Tough	VNGA 160404S01730SET	S01730	0.4	1.9	1			□					○			
	VNGA 160408S01730SET		0.8	2.7				□					□			

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

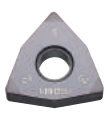
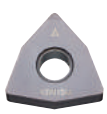
80° Trigon / Negative

(mm)

Description	IC	S	D1
WNGA 0804_	12.70	4.76	5.16

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570
K	Gray Cast Iron (With Scale)										
	Gray Cast Iron (Without Scale)					◕				●	
	Nodular Cast Iron (With Scale)										
H	Hard Materials (Roughing)				✠						
	Hard Materials (Finishing)	●	○	◕				○	◔		
	Hard Materials (Chip Control)										
	Sintered Steel						✠				

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
 Multi Edge / Sharp Edge	**WNGA 080404MEF**	**F**	0.4	2.0	3									●		**D22 F79 F80**
	WNGA 080408MEF		0.8	2.6										●		
 Multi Edge	**WNGA 080404S01225ME**	**S01225**	0.4	2.0	3	●	□	●	●	●			●	●		
	WNGA 080408S01225ME		0.8	2.6		●	□	●	●	●		●	●	●		
	WNGA 080412S01225ME		1.2	2.5		●		●	●							
	WNGA 080404T01215ME	**T01215**	0.4	2.0	3						□			●		
	WNGA 080408T01215ME		0.8	2.6							●			●		
 Multi Edge / Tough	**WNGA 080404S01730MET**	**S01730**	0.4	2.0	3		□	●	●							
	WNGA 080408S01730MET		0.8	2.6			□	●	●							
	WNGA 080412S01730MET		1.2	2.5					●							
 Small Edge	**WNGA 080404S01225SE**	**S01225**	0.4	2.0	1		□									
	WNGA 080408S01225SE		0.8	1.9			□									
 Small Edge / Tough	**WNGA 080404S01730SET**	**S01730**	0.4	2.0	1								□			

● : Std. Item (1 pc boxes) □ : Deleted from the next catalog

CBN & PCD Inserts are sold in 1 piece boxes

80° Rhombic / Positive

*Thickness of CC_0301_ and CC_0401_ are different (mm)

Description		IC	S	D1
CCMW	*0301_	3.5	1.4	1.9
	*0401_	4.3	1.8	2.3
	0602_	6.35	2.38	2.8
	09T3_	9.525	3.97	4.4

(mm)

Description		IC	S	D1
CPGB	0802_	7.94	2.38	3.5
	0903_	9.525	3.18	4.5

Edge Prep.		
Symbol	Cutting Edge Spec.	Example
F	Sharp Edge	F Sharp Edge
E	R-honed Cutting Edge	E008 R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215 0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225 0.12mm x 25° Chamfered and R-honed Cutting Edge

		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570
K	Gray Cast Iron (With Scale)					●				●	
	Gray Cast Iron (Without Scale)										
	Nodular Cast Iron (With Scale)										
H	Hard Materials (Roughing)				✖						
	Hard Materials (Finishing)	●	○	◕				○	◔		
	Hard Materials (Chip Control)										
	Sintered Steel						✖				◕

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
Multi Edge / Sharp Edge	CCMW 09T304MEF 09T308MEF	F	0.4 0.8	1.9 1.8	2									● ●	● ●	Ref. to the table below C15
Multi Edge	CCMW 060202T00815ME 060204T00815ME 060208T00815ME	T00815	0.2 0.4 0.8	2.0 1.9 1.8	2	● ● ●	○ ○ ○	● ● ●	● ● ●	 ● ●		● ● ●	● ● ●	 ● ●		
	CCMW 09T302T00815ME 09T304T00815ME 09T308T00815ME	T00815	0.2 0.4 0.8	2.0 1.9 1.8	2	● ● ●	□ ○ ○	● ● ●	● ● ●	● ● ●	 ● ●	 ● ●	● ● ●	 ● ●		
Multi Edge / General Purpose	CCMW 060204S01225MES 060208S01225MES	S01225	0.4 0.8	1.9 1.8	2	● ●										
	CCMW 09T304S01225MES 09T308S01225MES	S01225	0.4 0.8	1.9 1.8	2	● ●								● ●		
Multi Edge / Tough	CCMW 09T304S01035MET 09T308S01035MET	S01035	0.4 0.8	1.9 1.8	2	● ●	○ ○	● ●	● ●				● ●			
Small Edge	*CCMW 030102T00815SE 030104T00815SE	T00815	0.2 0.4	1.4 1.4	1		○ ○	● ●				● ●	● ●			F19
	*CCMW 040102T00815SE 040104T00815SE	T00815	0.2 0.4	1.4 1.4	1		○ ○	● ●				● ●	● ●			F41
	CCMW 060202T00815SE 060204T00815SE	T00815	0.2 0.4	2.0 1.9	1			 ●				● ●	● ●			Ref. to the table below C15
	CCMW 09T302T00815SE 09T304T00815SE	T00815	0.2 0.4	2.0 1.9	1		□ ○					● ●	● ●			
Small Edge / Tough	*CCMW 030102S01035SET 030104S01035SET	S01035	0.2 0.4	1.4 1.4	1		○ ○	● ●					 ●			F19
	*CCMW 040102S01035SET 040104S01035SET	S01035	0.2 0.4	1.4 1.4	1		○ ○	● ●					 ●			F41
	CCMW 060204S01035SET	S01035	0.4	1.9	1								●			Ref. to the table below C15
	CCMW 09T304S01035SET	S01035	0.4	1.9	1								●			
Multi Edge	CPGB 080204T00815ME	T00815	0.4	1.9	2	●	□	●	●			●	●	●		
	CPGB 090302T00815ME 090304T00815ME 090308T00815ME	T00815	0.2 0.4 0.8	1.9 1.9 2.5	2	● ●	□ □	● ●	 ●	 ●		● ●	● ●	 ● ●		
Multi Edge / General Purpose	CPGB 090304S01225MES 090308S01225MES	S01225	0.4 0.8	1.9 2.5	2	● ●										
Multi Edge / Tough	CPGB 080204S01035MET 080208S01035MET	S01035	0.4 0.8	1.9 2.2	2		□	● ●	●				●			F43
	CPGB 090304S01035MET 090308S01035MET	S01035	0.4 0.8	1.9 2.5	2	● ●	○ □	● ●	 ●				●			
Small Edge	CPGB 080202T00815SE 080204T00815SE	T00815	0.2 0.4	1.9 1.9	1							● ●	● ●			
	CPGB 090302T00815SE 090304T00815SE	T00815	0.2 0.4	1.9 1.9	1		 □					● ●	● ●			
Small Edge / Tough	CPGB 080204S01035SET	S01035	0.4	1.9	1			□								
	CPGB 090304S01035SET	S01035	0.4	1.9	1								●			

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

55° Rhombic / Positive

(mm)

Description	IC	S	D1
DCMW 0702_	6.35	2.38	2.8
11T3_	9.525	3.97	4.4

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		MEGACOAT CBN						CBN				
		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	
K	Gray Cast Iron (With Scale)											See Page for Applicable Toolholders
K	Gray Cast Iron (Without Scale)					●				●		
K	Nodular Cast Iron (With Scale)											
H	Hard Materials (Roughing)				✱							
H	Hard Materials (Finishing)	●	○	●				○	↻			
H	Hard Materials (Chip Control)											
	Sintered Steel						✱				●	

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	
Multi Edge / Sharp Edge	DCMW 11T304MEF	F	0.4	1.7	2									●	●	Ref. to the table below
	DCMW 11T308MEF		0.8	1.9										●	●	
Multi Edge	DCMW 070202T00815ME	T00815	0.2	1.9	2	●	○	●	●	●		●	●	●		
	DCMW 070204T00815ME		0.4	1.7		●	○	●	●	●		●	●	●		
	DCMW 070208T00815ME		0.8	1.9		●		●	●				●			
	DCMW 11T302T00815ME	T00815	0.2	1.9	2	●	○	●	●	●		●	●			
	DCMW 11T304T00815ME		0.4	1.7		●	○	●	●	●	●	●	●	●		
	DCMW 11T308T00815ME		0.8	1.9		●	○	●	●	●	●	●	●	●		
	DCMW 11T312T00815ME		1.2	1.9		●		●	●							
Multi Edge / General Purpose	DCMW 11T302S01225MES	S01225	0.2	1.9	2	●										
	DCMW 11T304S01225MES		0.4	1.7		●								●		
	DCMW 11T308S01225MES		0.8	1.9		●								●		
Multi Edge / Tough	DCMW 070202S01035MET	S01035	0.2	1.9	2		□	●	●							
	DCMW 070204S01035MET		0.4	1.7			□	●	●							
	DCMW 070208S01035MET		0.8	1.9				●	●							
	DCMW 11T302S01035MET	S01035	0.2	1.9	2	●	□	●	●				●			
	DCMW 11T304S01035MET		0.4	1.7		●	○	●	●				●			
	DCMW 11T308S01035MET		0.8	1.9			○	●	●				●			
	DCMW 11T312S01035MET		1.2	1.9			○		●							
Small Edge	DCMW 070202T00815SE	T00815	0.2	1.9	1			●				●	●			
	DCMW 070204T00815SE		0.4	1.7			□	●				●	●			
	DCMW 11T302T00815SE	T00815	0.2	1.9	1							●	●			
	DCMW 11T304T00815SE		0.4	1.7								●	●			
	DCMW 11T308T00815SE		0.8	1.9				●					●			
Small Edge / Tough	DCMW 070204S01035SET	S01035	0.4	1.7	1								●			
	DCMW 11T302S01035SET	S01035	0.2	1.9	1								●			
	DCMW 11T304S01035SET		0.4	1.7									●			
	DCMW 11T308S01035SET		0.8	1.9									●			

Insert Description	See Page for Applicable Toolholders
DC..07 type	**E24~E27,E38,F45~F47**
DC..11 type	**E20,E24~E27,E38,F45~F47,F67**

● CC type / TP type

Insert Description	See Page for Applicable Toolholders
CC..0602 type	**E22,E23,E37,F19,F41**
CC..09T3 type	**E22,E23,E37,F41,F67**

Insert Description	See Page for Applicable Toolholders
TP..0802 type	**E29,F51,F53**
TP..0902 type	**F20,F51,F53**

Insert Description	See Page for Applicable Toolholders
TP..1103 type	**E29,F51,F52**
TP..1603 type	**F51,F52**

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

CBN & PCD Inserts are sold in 1 piece boxes

How to read pages of "Turning Inserts" See Page B15

60° Triangle / Positive

(mm)

Description	IC	S	D1
TPGB 0802_	4.76	2.38	2.5
0902_	5.56		3.0

Description	IC	S	D1
TPGB 1103_	6.35	3.18	3.5
1603_	9.525		4.5
TPGW 1604_	9.525	4.76	4.4

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		Insert		Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	MEGACOAT CBN KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
K	Gray Cast Iron (With Scale)	Multi Edge / Sharp Edge		TPGB 110304MEF	F	0.4	2.1	3									●	●	Ref. to the table below C15
	Gray Cast Iron (Without Scale)			110308MEF		0.8	1.8										●	●	
	Nodular Cast Iron (With Scale)	Multi Edge		TPGB 110302T00815ME	T00815	0.2	2.3	3	●	□	●		●		●	●	●		
H	Hard Materials (Roughing)			110304T00815ME		0.4	2.1		●	○	●	●	●		●	●	●		
	Hard Materials (Finishing)			110308T00815ME		0.8	1.8		●	□	●	●	●		□	●	●		
	Hard Materials (Chip Control)			TPGB 160304T00815ME	T00815	0.4	1.8	3	●	□	●	●	●				●		
	Sintered Steel			160308T00815ME		0.8	1.5		●		●	●	●				●		
		Multi Edge / General Purpose		TPGB 110304S01225MES	S01225	0.4	2.1	3	●								●		
				110308S01225MES		0.8	1.8		●								●		
		Multi Edge / Tough		TPGB 110302S01035MET	S01035	0.2	2.3	3		○	●	●							
				110304S01035MET		0.4	2.1		●	○	●	●							
				110308S01035MET		0.8	1.8		●	○	●	●							
				TPGB 160304S01035MET	S01035	0.4	1.8	3		□	●	●				●			
				160308S01035MET		0.8	1.5				●					●			
		Small Edge		TPGB 080202T00815SE	T00815	0.2	1.8	1		□	●				●	●			
				080204T00815SE		0.4	1.6			○	●				●	●			
				TPGB 090202T00815SE	T00815	0.2	1.8	1		○	●				●	●			
				090204T00815SE		0.4	1.6			○	●				●	●			
				TPGB 110302T00815SE	T00815	0.2	1.9	1		○					●	●			
				110304T00815SE		0.4	1.8			○					●	●			
				110308T00815SE		0.8	1.5									●			
				TPGB 160302T00815SE	T00815	0.2	1.9	1		□					●	●			
				160304T00815SE		0.4	1.8			□					●	●			
		Small Edge / Tough		TPGB 080202S01035SET	S01035	0.2	1.8	1		□	●								
				080204S01035SET		0.4	1.6			□	●					●			
				TPGB 090202S01035SET	S01035	0.2	1.8	1		□	●								
				090204S01035SET		0.4	1.6			□	●					●			
				TPGB 110304S01035SET	S01035	0.4	1.8	1								●			
				110308S01035SET		0.8	1.5									●			
				TPGB 160304S01035SET	S01035	0.4	1.8	1								●			
				160308S01035SET		0.8	1.5									●			
		Multi Edge		TPGW 160404T00815ME	T00815	0.4	1.8	3		□	●								-
				160408T00815ME		0.8	1.5			○	●								
		Multi Edge / Tough		TPGW 160404S01035MET	S01035	0.4	1.8	3			●					●			
				160408S01035MET		0.8	1.5				●								
		Small Edge		TPGW 160404T00815SE	T00815	0.4	1.8	1								●			

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

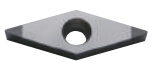
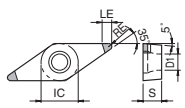
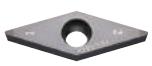
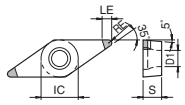
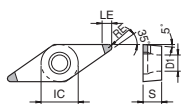
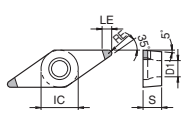
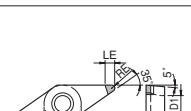
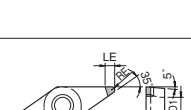
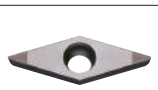
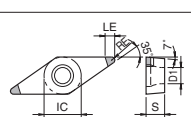
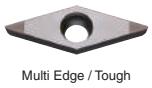
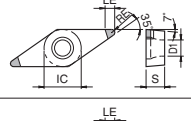
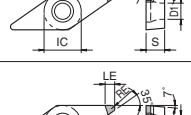
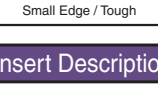
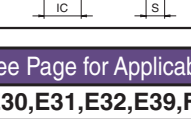
35° Rhombic / Positive

(mm)

Description	IC	S	D1
VBGW 1103_	6.35	3.18	2.8
1604_	9.525	4.76	4.4
VCGW 0802_	4.76	2.38	2.3

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)	Nodular Cast Iron (With Scale)	Hard Materials (Roughing)	Hard Materials (Finishing)	Hard Materials (Chip Control)	Sintered Steel
	K		●					●
	H				✱			
		●	○	◕			○	◔

Insert	Description	Edge Prep.	Dimension (mm) RE	Dimension (mm) LE	No. of Edges	MEGACOAT CBN KBN05M	MEGACOAT CBN KBN10M	MEGACOAT CBN KBN25M	MEGACOAT CBN KBN35M	MEGACOAT CBN KBN60M	MEGACOAT CBN KBN70M	CBN KBN510	CBN KBN525	CBN KBN475	CBN KBN570	See Page for Applicable Toolholders
 Multi Edge / Sharp Edge		VBGW 110304MEF	F	0.4	2.0	2								●	●	Ref. to the table below
		110308MEF		0.8	1.7									●	●	
		VBGW 160404MEF	F	0.4	2.0	2								●	●	
		160408MEF		0.8	1.7									●	●	
 Multi Edge		VBGW 110302T00815ME	T00815	0.2	2.4	2	●	○	●	●	●		●	●	●	
		110304T00815ME		0.4	2.0		●	○	●	●		●	●	●	●	
		110308T00815ME		0.8	1.7		●		●				●	●		
		VBGW 160402T00815ME	T00815	0.2	2.4	2	●	○	●	●			●	●		
		160404T00815ME		0.4	2.0		●	○	●	●	●	●	●	●	●	
		160408T00815ME		0.8	1.7		●	○	●	●	●	□	□	●	●	
 Multi Edge / General Purpose		VBGW 110304S01225MES	S01225	0.4	2.0	2	●							●		
		110308S01225MES		0.8	1.7									●		
		VBGW 160404S01225MES	S01225	0.4	2.0	2	●							●		
		160408S01225MES		0.8	1.7									●		
 Multi Edge / Tough		VBGW 110302S01035MET	S01035	0.2	2.4	2		□	●	●						
		110304S01035MET		0.4	2.0		●	○	●	●			●			
		110308S01035MET		0.8	1.7			□	●	●						
		VBGW 160402S01035MET	S01035	0.2	2.4	2		○	●	●						
		160404S01035MET		0.4	2.0		●	○	●	●			●			
		160408S01035MET		0.8	1.7			○	●	●						
Small Edge		VBGW 110302T00815SE	T00815	0.2	2.8	1		○	●			●	●			
		110304T00815SE		0.4	2.4			○	●			●	●			
		110308T00815SE		0.8	1.7			□				□				
		VBGW 160402T00815SE	T00815	0.2	2.4	1						●	●			
		160404T00815SE		0.4	2.0			○				●	●			
		160408T00815SE		0.8	1.7							●	●			
 Small Edge / Tough		VBGW 110304S01035SET	S01035	0.4	2.0	1			●				●			
		110308S01035SET		0.8	1.7											
		VBGW 160404S01035SET	S01035	0.4	2.0	1							●			
		160408S01035SET		0.8	1.7								●			
 Multi Edge		VCGW 080202T00815ME	T00815	0.2	2.0	2	●	□	●	●		●	●	●		E39 F54 F56 F59
		080204T00815ME		0.4	2.0		●	□	●		●	●	●	●		
		080208T00815ME		0.8	1.7		●							●		
 Multi Edge / Tough		VCGW 080202S01035MET	S01035	0.2	2.0	2		□	●							
		080204S01035MET		0.4	2.0			□	●							
		080208S01035MET		0.8	1.7				●							
 Small Edge		VCGW 080202T00815SE	T00815	0.2	2.4	1		○	●			●	●			
		080204T00815SE		0.4	2.0			○				●	●			
 Small Edge / Tough		VCGW 080204S01035SET	S01035	0.4	2.0	1							●			
		080208S01035SET		0.8	1.8								●			

Insert Description	See Page for Applicable Toolholders
VB..1103 type	E30,E31,E32,E39,F54,F56,F59
VB..1604 type	E31,E32,F54,F56,F59

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

CBN & PCD Inserts are sold in 1 piece boxes

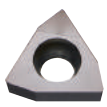
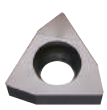
(mm)

Description	IC	S	D1
WBGW 0601_	3.97	1.59	2.3
0802_	4.76	2.38	

80° Trigon / Positive

Edge Prep. Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15°Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)	Nodular Cast Iron (With Scale)	Hard Materials (Roughing)	Hard Materials (Finishing)	Hard Materials (Chip Control)	Sintered Steel
K								
H						●	◕	

Insert (Left-hand Shown)	*Description	Edge Prep.	Dimension (mm) RE	LE	No. of Edges	MEGACOAT CBN KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
 Small Edge	WBGW 060102T00815L-SE	T00815	0.2	1.9	1		○	●				●	●			F21 F61
	WBGW 060104T00815L-SE		0.4	1.9			○	●				●	●			
	WBGW 080202T00815L-SE	T00815	0.2	2.3	1		○	●				●	●			
	WBGW 080204T00815L-SE		0.4	2.3			○	●				●	●			
 Small Edge / Tough	WBGW 060102S01035LSET	S01035	0.2	1.9	1		□	●								
	WBGW 060104S01035LSET		0.4	1.9			□	●					●			
	WBGW 080202S01035LSET	S01035	0.2	2.3	1		□	●								
	WBGW 080204S01035LSET		0.4	2.3			○	●					●			

* Left-hand (L) Only

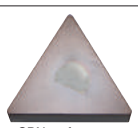
(mm)

Description	IC	S	D1
TBGN 0601_	3.97	1.59	-
TPGN 1103_	6.35	3.18	
1603_	9.525		

60° Triangle / Positive without Hole

Edge Prep. Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15°Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

		Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)	Nodular Cast Iron (With Scale)	Hard Materials (Roughing)	Hard Materials (Finishing)	Hard Materials (Chip Control)	Sintered Steel
K								
H						●	◕	

Insert	Description	Edge Prep.	Dimension (mm) RE	LE	No. of Edges	MEGACOAT CBN KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	CBN KBN510	KBN525	KBN475	KBN570	See Page for Applicable Toolholders
 CBN surface type / Sharp Edge	TBGN 060104F	F	0.4	-	3										●	-
 CBN surface type	TBGN 060102T00815	T00815	0.2	-	3		□						●			
	TBGN 060104T00815		0.4	-			□					●	●			
	TBGN 060108T00815		0.8	-			○					●				
 Multi Edge	TPGN 110302T00815ME	T00815	0.2	2.6	3								●			E45 F63
	TPGN 110304T00815ME		0.4	2.5									●			
 Small Edge	TPGN 110304T00815SE	T00815	0.4	2.5	1							□	●			
	TPGN 110308T00815SE		0.8	2.4									●			
	TPGN 160302T00815SE	T00815	0.2	2.6	1								●			
	TPGN 160304T00815SE		0.4	2.4								●	●			
	TPGN 160308T00815SE		0.8	2.1									●			
 Small Edge / Tough	TPGN 110304S01035SET	S01035	0.4	2.5	1								●			
	TPGN 110308S01035SET		0.8	2.4									●			
	TPGN 160304S01035SET	S01035	0.4	2.4	1								●			

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

Negative (Solid)

(mm)

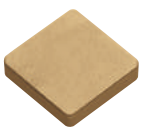
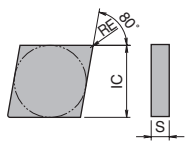
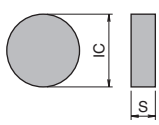
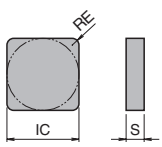
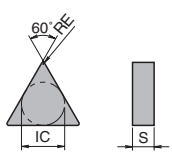
Description	IC	S
CNMN 0903_	9.525	3.18
1204_	12.70	4.76
RNMN 0903_	9.525	3.18
1203_	12.70	3.18
1204_		4.76

(mm)

Description	IC	S
SNMN 0903_	9.525	3.18
1203_	12.70	3.18
1204_		4.76
TNMN 1103_	6.35	3.18
1604_	9.525	4.76

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

K	Gray Cast Iron (With Scale)	✖
	Gray Cast Iron (Without Scale)	✖
	Nodular Cast Iron (With Scale)	
H	Hard Materials (Roughing)	
	Hard Materials (Finishing)	●
	Hard Materials (Chip Control)	
	Sintered Steel	

Insert		Description		Edge Prep.	Dimension (mm) RE	No. of Edges	PVD Coated CBN KBN900	See Page for Applicable Toolholders
 Solid		CNMN	090308S02020	S02020	0.8	4	●	D34
			090312S02020		1.2		●	F83
		CNMN	120408S02020	S02020	0.8		□	D24
			120412S02020		1.2		●	
			120416S02020		1.6		●	
 Solid		RNMN	090300S02020	S02020	-	Depends on ap	●	D35
		RNMN	120300S02020	S02020			●	
		RNMN	120400S02020	S02020			●	D29 D35
 Solid		SNMN	090308S02020	S02020	0.8	8	●	D36 D37
			090312S02020		1.2		●	
		SNMN	120308S02020	S02020	0.8		●	
			120312S02020		1.2		●	
		SNMN	120408S02020	S02020	0.8		●	D27
			120412S02020		1.2		●	D36
			120416S02020		1.6		●	D37
			120420S02020		2.0		●	F81
 Solid		TNMN	110308S02020	S02020	0.8	6	●	D38 F83
		TNMN	160408S02020	S02020	0.8		●	D28
			160412S02020		1.2		●	

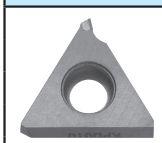
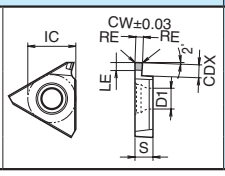
● : Std. Item (1 pc boxes) □ : Deleted from the next catalog

CBN & PCD Inserts are sold in 1 piece boxes

Grooving Inserts (1-edge)

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15°Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

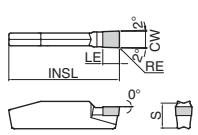
K	Gray Cast Iron (With Scale)	
	Gray Cast Iron (Without Scale)	
	Nodular Cast Iron (Without Scale)	
H	Hard Materials (Roughing)	
	Hard Materials (Finishing)	○ ●
	Hard Materials (Chip Control)	
	Sintered Steel	

Insert (Handed Insert shows Right-hand)	Description		Edge Prep.	Dimension (mm) CW	CDX	RE	IC	S	D1	LE	No. of Edges	CBN KBN510 R	KBN510 L	KBN525 R	KBN525 L	See Page for Applicable Toolholders
 External / Internal Grooving		GBA43R/L	125-020	E008	1.25	2.0	0.2	12.70	4.76	5.5	1.9	1	●	□	●	●	
			150-020	E008	1.50	3.5							●	●	●	●	G9
			200-020	E008	2.00	3.5							●	●	●	●	G10
			250-020	E008	2.50	4.0							●	●	●	●	G62
			300-020	E008	3.00	4.0							●	●	●	●	

Deep Grooving Inserts (1-edge)

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

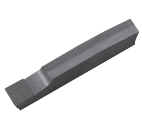
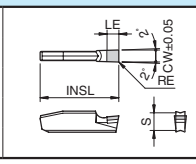
K	Gray Cast Iron (With Scale)	
	Gray Cast Iron (Without Scale)	
	Nodular Cast Iron (Without Scale)	
H	Hard Materials (Roughing)	
	Hard Materials (Finishing)	●
	Hard Materials (Chip Control)	
	Sintered Steel	●

Insert	Description		Edge Prep.	Dimension (mm) CW	CW Tolerance	RE	INSL	S	LE	No. of Edges	MEGA COAT CBN KBN05M	CBN KBN570	See Page for Applicable Toolholders
NEW  External Grooving		GDGS	2020N-020NB	E008	2.0	±0.03	0.2	20	4.3	2.9	1	●		G25 G28 ~ G30
				E002									●	
			3020N-040NB	E008	3.0		0.4					●		G25 G26 G28 ~ G30
				E002									●	
			4020N-040NB	E008	4.0							●		
				E002									●	
			5020N-040NB	E008	5.0							●		G25 G29 G30
				E002									●	
			6020N-040NB	E008	6.0							●		
				E002									●	

Deep Grooving Inserts (1-edge)

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
F	Sharp Edge	F	Sharp Edge
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge

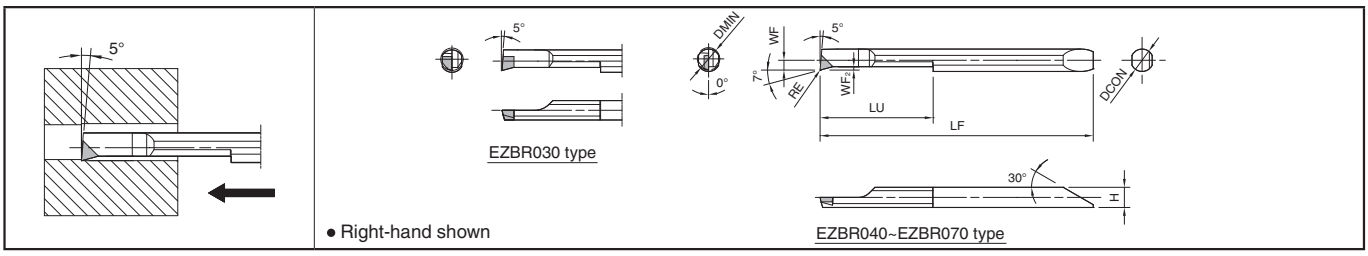
K	Gray Cast Iron (With Scale)	
	Gray Cast Iron (Without Scale)	
	Nodular Cast Iron (Without Scale)	
H	Hard Materials (Roughing)	
	Hard Materials (Finishing)	○ ●
	Hard Materials (Chip Control)	
	Sintered Steel	

Insert	Description		Edge Prep.	Dimension (mm) CW	RE	INSL	S	LE	No. of Edges	CBN KBN510	CBN KBN525	See Page for Applicable Toolholders
 External Grooving		GMN	2	E008	2.0	0.2	20	4.3	2.9	1	○	○	G40,G41
			3	E008	3.0	0.4					○	○	G40
			4	E008	4.0						○	○	G41
			5	E008	5.0						○	○	G42
			6	E008	6.0						○	○	G40,G41

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) ○ : Check Availability □ : Deleted from the next catalog

EZ Bars (EZB-NB · CBN)



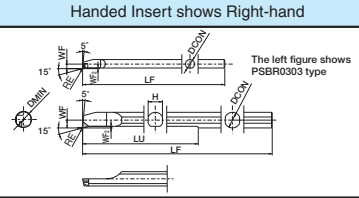
● Right-hand shown

EZ Bars Dimensions

Edge Prep. Symbol	Cutting Edge Spec.	Example		Description	Edge Prep.	Min. Bore Dia. DMIN	DCON	H	LF	LU	WF	WF_2	RE	No. of Edges	MEGACOAT CBN KBN05M		See Page for Applicable Sleeves
F	Sharp Edge	F	Sharp Edge	EZBR 030030-003NB	T00815	3	3	2.6	38.8	13	1.25	0.3	$0.035^{\pm 0.015}$	1	●		F25 ~ F29
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge	040040-003NB	T00815	4	4	3.6	48.8	20	1.75	0.5			●		
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge	050050-003NB	T00815	5	5	4.6	58.1	25	2.25	0.5			●		
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge	060060-003NB	T00815	6	6	5.6	66.1	30	2.75	0.5			●		
				070070-003NB	T00815	7	7	6.6	74.1	35	3.25	0.5			●		

K: Gray Cast Iron (With Scale), Gray Cast Iron (Without Scale), Nodular Cast Iron (Without Scale)
H: Hard Materials (Roughing), Hard Materials (Finishing) ●, Hard Materials (Chip Control)
Sintered Steel

Tip-Bars

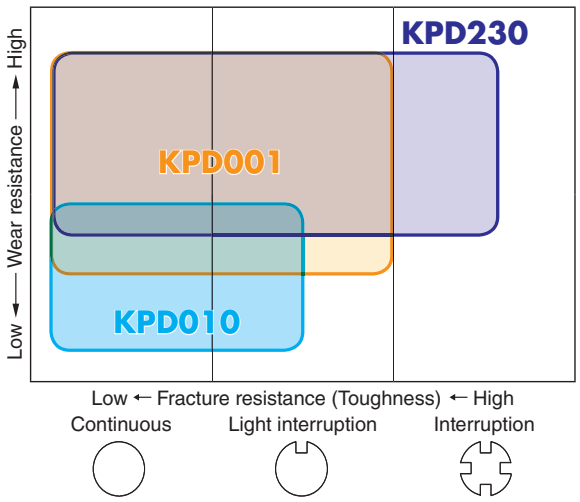
Edge Prep. Symbol	Cutting Edge Spec.	Example		Insert (Handed Insert shows Right-hand)	Description	Edge Prep.	Min. Bore Dia. DMIN	DCON	H	LF	LU	WF	WF_2	RE	No. of Edges	CBN KBN510	KBN525	See Page for Applicable Sleeves
F	Sharp Edge	F	Sharp Edge	 The left figure shows PSBR0303 type	PSBR 0303-50NBS	T00815	3	2.8	-	50	25	1.4	0.15	0.05	1	□	□	F86
E	R-honed Cutting Edge	E008	R0.08mm Honed Cutting Edge		0404-60NBS	T00815	4	3.8	3.6	60	30	1.9	0.3			□	□	
T	Chamfered Cutting Edge	T01215	0.12mm x 15° Chamfered Cutting Edge		0505-70NBS	T00815	5	4.8	4.4	70	40	2.4	0.5			□	□	
S	Chamfered and R-honed Cutting Edge	S01225	0.12mm x 25° Chamfered and R-honed Cutting Edge		0606-70NBS	T00815	6	5.8	5.2		45	2.9				□	□	
					0707-80NBS	T00815	7	6.8	6.2	80	50	3.4				□	□	

K: Gray Cast Iron (With Scale), Gray Cast Iron (Without Scale), Nodular Cast Iron (Without Scale)
H: Hard Materials (Roughing), Hard Materials (Finishing) ○ ●, Hard Materials (Chip Control)
Sintered Steel

● : Std. Item (1 pc boxes) □ : Deleted from the next catalog

CBN & PCD Inserts are sold in 1 piece boxes

Application Map



About Insert Grades

Grades	Applications	Features
KPD001 (Ave. Grain Size under 0.5μm)	● High speed machining of non-ferrous metals and brass ● High speed machining of plastics ● Machining of carbide	● The world highest level micro-grain diamond ● High edge strength, and superior to wear resistance, fracture resistance and edge sharpening performance
KPD010 (Ave. Grain Size 10μm)	● High speed machining of non-ferrous metals and brass ● High speed machining of plastics ● Machining of carbide	● Good balance of wear resistance and flexural strength ● General purpose
KPD230 (Mixture of fine grain with the Ave. grain size 2~30 μm and rough grain)	● High speed machining of non-ferrous metals and brass ● High speed machining of plastics	● High density PCD with mixture of coarse and fine grains features excellent abrasive wear resistance and fracture resistance
KPD250 (Ave. Grain Size 25μm) (Made to order)	● High speed machining of high silicon aluminum alloy ● Machining of carbide	● Coarse grain PCD (Ave. Grain Size 25μm) ● Superior to wear resistance

Identification System (Turning Insert)

C	N	M	M	12	04	02	M	-	SE
C	C	G	W	04	01	01			SE

"Turning Indexable Inserts Identification System" See Page **B2**

Insert Type	Description	Manufacture's Option 1	Manufacture's Option 2	Series Name	Edge Length	No. of Edges	Regrinding
Negative	CNMM120402M-SE	M (Indicates the tool is for negative toolholders)	SE	Small Edge	Short (Small Edge)	1	Not Recommended
	CNMM120402M-NE		NE	New Value Edge	Long (85% length compared with no Indication's cutting edge)	1	Possible
	CNMM120402M		Without Indication	-	Long	1	
Positive	CCGW040101SE	-	SE	Small Edge	Short (Small Edge)	1	Not Recommended
	CCGW040101NE		NE	New Value Edge	Long (85% length compared with no Indication's cutting edge)	1	Possible
	CCGW040101		Without Indication	-	Long	1	

Note) 1. No edge preparation symbols for PCD inserts. Most of the PCD inserts' edge prep. are sharp edge.
2. "M" in manufacturer's option 1 indicates the inserts are applicable to negative toolholders.
3. See page B3 for insert color.

● About Regrinding
1) Regrinding is possible with the inserts with "NE" and no symbol in manufacturer's option 2.
Regrinding cannot be available depending on the edge condition.
2) Regrinding is not recommended for inserts with "SE" in manufacturer's option 2.

Recommended Cutting Conditions (Turning)

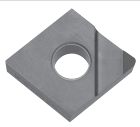
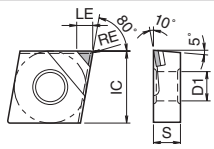
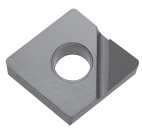
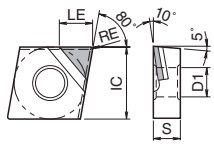
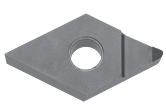
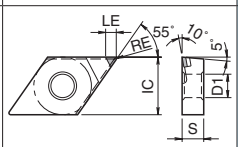
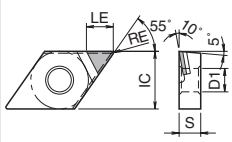
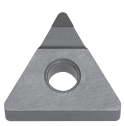
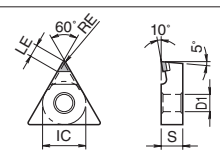
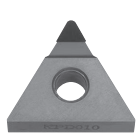
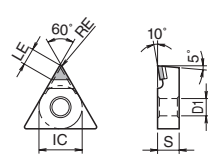
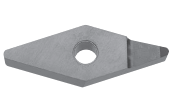
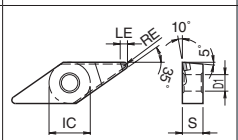
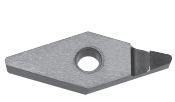
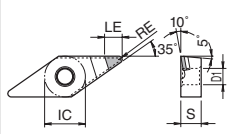
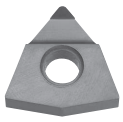
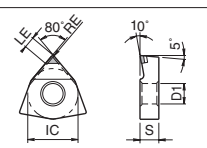
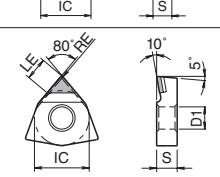
Workpiece Material	Insert Grades		Cutting Conditions				Remarks
	KPD001	KPD010	Vc (m/min)	ap(mm) Small Edge and Positive (Inserts)	ap(mm) Negative (Inserts)	f (mm/rev)	
Aluminum alloys Zinc alloys	★	☆	300~1,500	~1.0	~2.0	0.03~0.5	Both Dry and Coolant
Copper, Brass, Bronze	★	☆	300~1,000	~1.0	~2.0	0.03~0.5	
Magnesium Alloys	★	☆	400~1,200	~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 plastics 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

Negative

N	Non-ferrous Metals (With interruption)	●			
	Non-ferrous Metals (Without interruption)	●			
S	Titanium Alloys (With interruption)	●			
	Titanium Alloys (Without interruption)	●			

Edge Prep.	
PCD all items	Sharp Edge

Insert		Description		Dimension (mm)					No. of Edges	PCD				See Page for Applicable Toolholders
				IC	S	D1	RE	LE		KPD001	KPD010	KPD230	KPD250	
 Small Edge		**CNMM**	**120402M-SE**	12.70	4.76	5.16	0.2	2.8	1	●	●			**D8 D9 F65 F69 F70**
			120404M-SE				0.4	2.8		●	●			
			120408M-SE				0.8	2.7		●	●			
		**CNMM**	**120402M-NE**	12.70	4.76	5.16	0.2	5.1	1	●				
			120404M-NE				0.4	5.0		●				
			120408M-NE				0.8	4.9		●				
		CNMM	**120402M**				0.2	5.8		●	●			
			120404M				0.4	5.8		●	●			
			120408M				0.8	5.7		●	●			
			120412M				1.2	5.6		●	●			
 Small Edge		**DNMM**	**150402M-SE**	12.70	4.76	5.16	0.2	2.8	1	●	●			**D12 D13 F66 F72 F73**
			150404M-SE				0.4	2.6		●	●			
			150408M-SE				0.8	2.2		●	●			
		**DNMM**	**150402M-NE**	12.70	4.76	5.16	0.2	5.2	1	●				
			150404M-NE				0.4	5.0		●				
			150408M-NE				0.8	4.6		●				
		DNMM	**150402M**				0.2	5.9		●	●			
			150404M				0.4	5.8		●	●			
			150408M				0.8	5.4		●	●			
			150412M				1.2	5.0		●				
 Small Edge		**TNMM**	**160402M-SE**	9.525	4.76	3.81	0.2	2.7	1	●	●			**D16 D17 F66 F76 F77**
			160404M-SE				0.4	2.6		●	●			
			160408M-SE				0.8	2.3		●	●			
		**TNMM**	**160402M-NE**	9.525	4.76	3.81	0.2	3.2	1	●				
			160404M-NE				0.4	3.1		●				
			160408M-NE				0.8	2.8		●				
		TNMM	**160402M**				0.2	3.8		●	●			
			160404M				0.4	3.6		●	●			
			160408M				0.8	3.3		●	●			
			160412M				1.2	3.0			●			
 Small Edge		**VNMM**	**160402M-SE**	9.525	4.76	3.81	0.2	2.9	1	●	●			**D18 D19 D20**
			160404M-SE				0.4	2.5		●	●			
			160408M-SE				0.8	1.6		●	●			
		**VNMM**	**160402M-NE**	9.525	4.76	3.81	0.2	4.7	1	●				
			160404M-NE				0.4	4.2		●				
			160408M-NE				0.8	3.4		●				
		VNMM	**160402M**				0.2	5.3		●	●			
			160404M				0.4	4.8		●	●			
			160408M				0.8	4.0		●	●			
			160412M				1.2	3.1			●			
 Small Edge		**WNMM**	**080402M-SE**	12.70	4.76	5.16	0.2	2.8	1	●	●			**D22 F79 F80**
			080404M-SE				0.4	2.8		●	●			
			080408M-SE				0.8	2.7			●			
		**WNMM**	**080402M-NE**	12.70	4.76	5.16	0.2	5.0	1	●				
			080404M-NE				0.4	5.0		●				
		WNMM	**080404M**				0.4	5.8			●			

· SE : Small Edge / NE: New Value Edge

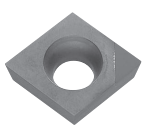
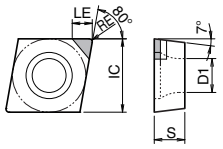
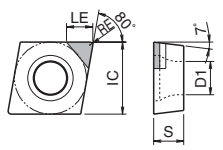
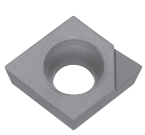
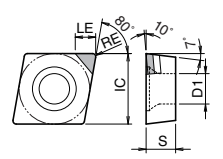
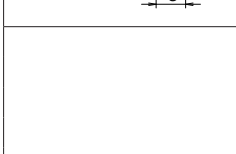
● : Std. Item (1 pc boxes)

CBN & PCD Inserts are sold in 1 piece boxes

Positive

N	Non-ferrous Metals (With interruption)	●			
	Non-ferrous Metals (Without interruption)	●			
S	Titanium Alloys (With interruption)	●			
	Titanium Alloys (Without interruption)	●			

Edge Prep.: PCD all items / Sharp Edge

Insert		Description		Dimension (mm) IC	S	D1	RE	LE	No. of Edges	PCD KPD001	KPD010	KPD230	KPD250	See Page for Applicable Toolholders
		*CCGW	040101SE	4.3	1.8	2.3	0.1	1.3	1	●				F19 F41
			040102SE				0.2	1.3		●				
			040104SE				0.4	1.3		●				
		CCGW	060201SE	6.35	2.38	2.8	0.1	2.3		●				Ref. to the table below
			060202SE				0.2	2.3		●				
			060204SE				0.4	2.3		●				
		CCGW	09T302SE	9.525	3.97	4.4	0.2	2.7		●				
			09T304SE				0.4	2.7		●				
			09T308SE				0.8	2.7		●				
		*CCGW	040101NE	4.3	1.8	2.3	0.1	1.7	1	●				F19 F41
			040102NE				0.2	1.6		●				
			040104NE				0.4	1.6		●				
		CCGW	060201NE	6.35	2.38	2.8	0.1	3.1		●				Ref. to the table below
			060202NE				0.2	3.0		●				
			060204NE				0.4	3.0		●				
		CCGW	09T301NE	9.525	3.97	4.4	0.1	3.4		●				
			09T302NE				0.2	3.4		●				
			09T304NE				0.4	3.4		●				
			09T308NE				0.8	3.3		●				
		*CCGW	040101	4.3	1.8	2.3	0.1	1.9	1	●	●			F19 F41
			040102				0.2	1.9		●	●			
			040104				0.4	1.9		●	●			
		CCGW	060201	6.35	2.38	2.8	0.1	3.5			●			Ref. to the table below
			060202				0.2	3.5			●			
			060204				0.4	3.5			●			
		CCGW	09T301	9.525	3.97	4.4	0.1	3.8		●	●			
			09T302				0.2	3.8		●	●			
			09T304				0.4	3.7		●	●			
			09T308				0.8	3.6			●			
		CCMT	060202SE	6.35	2.38	2.8	0.2	2.2	1	●				
			060204SE				0.4	2.2		●				
		CCMT	09T301SE	9.525	3.97	4.4	0.1	2.7		●				
			09T302SE				0.2	2.7		●				
			09T304SE				0.4	2.7		●				
			09T308SE				0.8	2.7		●				
		CCMT	060201NE	6.35	2.38	2.8	0.1	2.8	1	●				
			060202NE				0.2	2.8		●				
			060204NE				0.4	2.8		●				
		CCMT	09T301NE	9.525	3.97	4.4	0.1	3.4		●				
			09T302NE				0.2	3.4		●				
			09T304NE				0.4	3.4		●				
			09T308NE				0.8	3.3		●				
		CCMT	060201	6.35	2.38	2.8	0.1	3.3		●	●			
			060202				0.2	3.3		●	●			
			060204				0.4	3.2		●	●			
		CCMT	09T301	9.525	3.97	4.4	0.1	3.9		●	●			
			09T302				0.2	3.9		●	●			
			09T304				0.4	3.9		●	●			
			09T308				0.8	3.8			●			

· SE : Small Edge / NE: New Value Edge

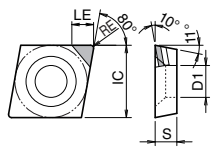
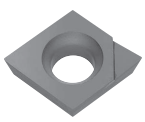
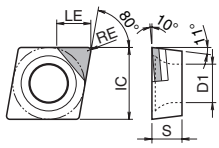
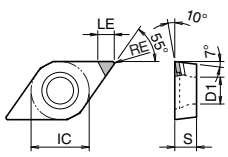
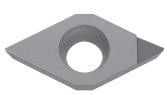
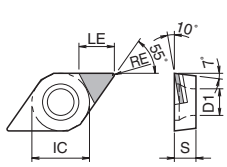
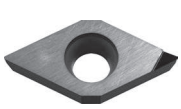
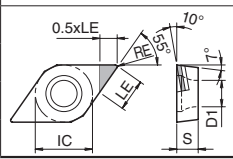
Insert Description	See Page for Applicable Toolholders
CC..0602 type	E22,E23,E37,F19,F41
CC..09T3 type	E22,E23,E37,F41,F67

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes)

Positive

N	Non-ferrous Metals (With interruption)													
	Non-ferrous Metals (Without interruption)													
S	Titanium Alloys (With interruption)													
	Titanium Alloys (Without interruption)													

Edge Prep.				Dimension (mm)						PCD				
PCD all items	Sharp Edge	Insert Handed Insert shows Left-hand	Description	IC	S	D1	RE	LE	No. of Edges	KPD001	KPD010	KPD230	KPD250	See Page for Applicable Toolholders
			**CPMH 090302SE**	9.525	3.18	4.5	0.2	2.7	1	●				F43
			CPMH 090304SE				0.4	2.7		●				
			**CPMH 080202NE**	7.94	2.38	3.5	0.2	3.2	1	●				
			CPMH 080204NE				0.4	3.2		●				
			CPMH 090301NE	9.525	3.18	4.5	0.1	3.4		●				
			CPMH 090302NE				0.2	3.4		●				
			CPMH 090304NE				0.4	3.4		●				
			CPMH 090308NE				0.8	3.3		●				
			CPMH 080201	7.94	2.38	3.5	0.1	3.7	1	●	●			
			CPMH 080202				0.2	3.7		●	●			
			CPMH 080204				0.4	3.7		●	●			
			CPMH 090301	9.525	3.18	4.5	0.1	4.0			●			
			CPMH 090302				0.2	3.9		●	●			
			CPMH 090304				0.4	3.9		●	●			
			CPMH 090308				0.8	3.8			●			
			**DCMT 070201SE**	6.35	2.38	2.8	0.1	2.7	1	●				Ref. to the table below
			DCMT 070202SE				0.2	2.7		●				
			DCMT 070204SE				0.4	2.7		●				
			DCMT 11T301SE	9.525	3.97	4.4	0.1	2.7		●				
			DCMT 11T302SE				0.2	2.7		●				
			DCMT 11T304SE				0.4	2.7		●				
			DCMT 11T308SE				0.8	2.7		●				
			**DCMT 070201NE**	6.35	2.38	2.8	0.1	3.4	1	●				
			DCMT 070202NE				0.2	3.4		●				
			DCMT 070204NE				0.4	3.2		●				
			DCMT 11T301NE	9.525	3.97	4.4	0.1	3.4		●				
			DCMT 11T302NE				0.2	3.3		●				
			DCMT 11T304NE				0.4	3.2		●				
			DCMT 11T308NE				0.8	2.8		●				
			DCMT 070201	6.35	2.38	2.8	0.1	4.0	1	●	●			
			DCMT 070202				0.2	3.9		●	●			
			DCMT 070204				0.4	3.7		●	●			
			DCMT 11T301	9.525	3.97	4.4	0.1	4.0		●	●			
			DCMT 11T302				0.2	3.9		●	●			
			DCMT 11T304				0.4	3.7		●	●			
			DCMT 11T308				0.8	3.3		●	●			
			**DCMT 070202R/L-NE**	6.35	2.38	2.8	0.2	3.3	1	●				
			DCMT 070204R/L-NE				0.4	3.2		●				
			DCMT 11T302R/L-NE	9.525	3.97	4.4	0.2	3.3		●				
			DCMT 11T304R/L-NE				0.4	3.2		●				

· SE : Small Edge / NE: New Value Edge

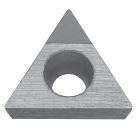
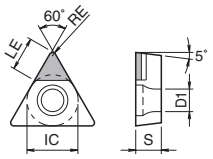
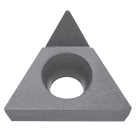
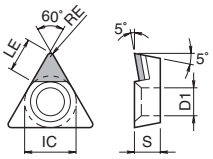
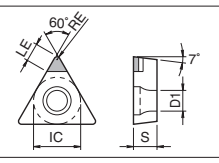
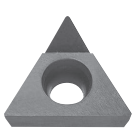
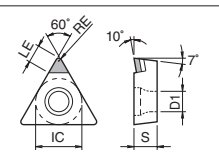
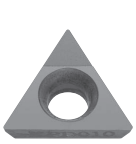
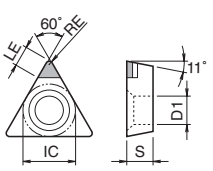
Insert Description	See Page for Applicable Toolholders
DC..07 type	**E24~E27,E38,F45~F47**
DC..11 type	**E20,E24~E27,E38,F45~F47,F67**

● : Std. Item (1 pc boxes)

CBN & PCD Inserts are sold in 1 piece boxes

Positive

N	Non-ferrous Metals (With interruption)	KPD001	KPD010	KPD230	KPD250
	Non-ferrous Metals (Without interruption)	●			
S	Titanium Alloys (With interruption)	◐			
	Titanium Alloys (Without interruption)	●			

Edge Prep.	Insert	Description		Dimension (mm)					No. of Edges	PCD				See Page for Applicable Toolholders
PCD all items / Sharp Edge				IC	S	D1	RE	LE		KPD001	KPD010	KPD230	KPD250	
	 	TBGW	060102NE	3.97	1.59	2.3	0.2	2.1	1	●				F51 F53
			060104NE				0.4	1.9		●				
		TBGW	060102				0.2	2.4		●	●			
			060104				0.4	2.2		●				
	 	TBMT	060101NE	3.97	1.59	2.3	0.1	2.2	1	●				
			060102NE				0.2	2.1		●				
			060104NE				0.4	2.0		●				
			060108NE				0.8	1.7		●				
		TBMT	060102				0.2	2.5		●	●			
			060104				0.4	2.3			●			
			060108				0.8	2.0		●				
	 	TCGW	110302SE	6.35	3.18	2.8	0.2	2.5	1		●			E29
			110304SE				0.4	2.4			●			
		TCGW	110302NE				0.2	3.3	1	●				
			110304NE				0.4	3.2		●				
		TCGW	110302				0.2	3.9	1		●			
			110304				0.4	3.7			□			
	 	TCMT	110301SE	6.35	3.18	2.8	0.1	2.6	1		●			
			110302SE				0.2	2.5			●			
			110304SE				0.4	2.4			●			
		TCMT	080202NE	4.76	2.38	2.3	0.2	2.1	1	●				
		TCMT	110302NE	6.35	3.18	2.8	0.2	3.4		●				
			110304NE				0.4	3.3		●				
		TCMT	080202	4.76	2.38	2.3	0.2	2.4	1		●			
			080204				0.4	2.2			●			
		TCMT	110302	6.35	3.18	2.8	0.2	3.9			●			
	 	TPGB	090202SE	5.56	2.38	3.0	0.2	2.1	1	●				Ref. to the table below
			090204SE				0.4	2.1		●				
			090208SE				0.8	2.1		●				
		TPGB	110301SE	6.35	3.18	3.3	0.1	2.7		●	●			
			110302SE				0.2	2.6		●	●			
			110304SE				0.4	2.5		●	●			
		TPGB	160302SE	9.525	3.18	4.5	0.2	2.6		●	●			
			160304SE				0.4	2.4		●	●			

· SE : Small Edge / NE: New Value Edge

Insert Description	See Page for Applicable Toolholders
TP..0802 type	**E29,F51,F53**
TP..0902 type	**F20,F51,F53**

Insert Description	See Page for Applicable Toolholders
TP..1103 type	**E29,F51,F52**
TP..1603 type	**F51,F52**

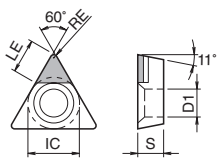
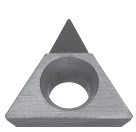
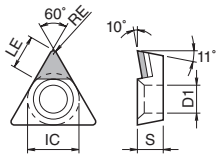
CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) □ : Deleted from the next catalog

Positive

N	Non-ferrous Metals (With interruption)	◕			
	Non-ferrous Metals (Without interruption)	●			
S	Titanium Alloys (With interruption)	◕			
	Titanium Alloys (Without interruption)	●			

Edge Prep.	
PCD all items	Sharp Edge

Insert		Description		Dimension (mm)					No. of Edges	PCD				See Page for Applicable Toolholders
				IC	S	D1	RE	LE		KPD001	KPD010	KPD230	KPD250	
		TPGB	080202NE	4.76	2.38	2.5	0.2	2.2	1	●				Ref. to the table below **C26**
			080204NE				0.4	2.1		●				
			080208NE				0.8	1.8		●				
		TPGB	090202NE	5.56	2.38	3.0	0.2	2.7		●				
			090204NE				0.4	2.6		●				
			090208NE				0.8	2.3		●				
		TPGB	110302NE	6.35	3.18	3.3	0.2	3.4		●				
			110304NE				0.4	3.3		●				
			110308NE				0.8	3.0		●				
		TPGB	160304NE	9.525	3.18	4.5	0.4	3.2		●				
			160308NE				0.8	2.9		●				
		TPGB	080202	4.76	2.38	2.5	0.2	2.6		●	●			
			080204				0.4	2.4		●	●			
		TPGB	090202	5.56	2.38	3.0	0.2	3.2		●	●			
			090204				0.4	3.0	1	●	●			
		TPGB	110302	6.35	3.18	3.3	0.2	3.9		●	●			
			110304				0.4	3.7		●	●			
			110308				0.8	3.4			●			
		TPMH	080202SE	4.76	2.38	2.5	0.2	2.0		●				
			080204SE				0.4	1.8		●				
		TPMH	090202SE	5.56	2.38	3.0	0.2	2.4	1	●				
			090204SE				0.4	2.2		●				
		TPMH	110301SE	6.35	3.18	3.3	0.1	2.7			●			
			110302SE				0.2	2.6		●	●			
			110304SE				0.4	2.5	1	●	●			
		TPMH	160302SE	9.525	3.18	4.5	0.2	2.6		●				
			160304SE				0.4	2.4		●	●			
		TPMH	080201NE	4.76	2.38	2.5	0.1	2.3		●				
			080202NE				0.2	2.2		●				
			080204NE				0.4	2.1		●				
		TPMH	090201NE	5.56	2.38	3.0	0.1	2.7		●				
			090202NE				0.2	2.6		●				
			090204NE				0.4	2.5		●				
			090208NE				0.8	2.2	1	●				
		TPMH	110301NE	6.35	3.18	3.3	0.1	3.4		●				
			110302NE				0.2	3.3		●				
			110304NE				0.4	3.2		●				
			110308NE				0.8	2.9		●				
		TPMH	160304NE	9.525	3.18	4.5	0.4	3.3		●				
			160308NE				0.8	3.0		●				
		TPMH	080202	4.76	2.38	2.5	0.2	2.5		●	●			
			080204				0.4	2.3		●	●			
		TPMH	090201	5.56	2.38	3.0	0.1	3.0		●	●			
			090202				0.2	2.9		●	●			
			090204				0.4	2.8		●	●			
			090208				0.8	2.5			●			
		TPMH	110301	6.35	3.18	3.3	0.1	3.9	1	●	●			
			110302				0.2	3.9		●	●			
			110304				0.4	3.7		●	●			
			110308				0.8	3.4			●			
		TPMH	160302	9.525	3.18	4.5	0.2	4.0		●	●			
			160304				0.4	3.8		●	●			
			160308				0.8	3.6			●			

· SE : Small Edge / NE: New Value Edge

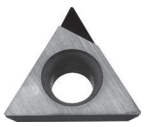
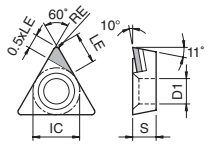
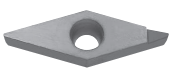
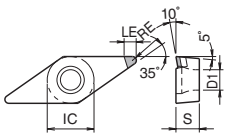
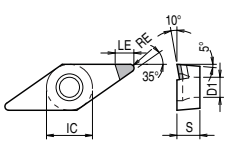
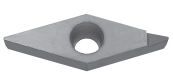
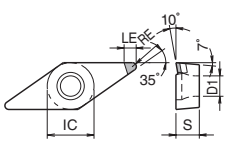
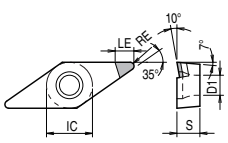
● : Std. Item (1 pc boxes)

CBN & PCD Inserts are sold in 1 piece boxes

Positive

N	Non-ferrous Metals (With interruption)	◕			
	Non-ferrous Metals (Without interruption)	●			
S	Titanium Alloys (With interruption)	◕			
	Titanium Alloys (Without interruption)	●			

Edge Prep.	
PCD all items	Sharp Edge

Insert (Handed Insert shows Left-hand)		Description		Dimension (mm) IC	S	D1	RE	LE	No. of Edges	PCD KPD001	KPD010	KPD230	KPD250	See Page for Applicable Toolholders
		TPMH	110302L-NE	6.35	3.18	3.3	0.2	3.8	1	●				Ref. to the table below C26
			110304L-NE				0.4	3.6		●				
		VBMT	110301SE	6.35	3.18	2.8	0.1	2.5	1	●				Ref. to the table below
			110302SE				0.2	2.3		●				
			110304SE				0.4	1.9		●				
			110308SE				0.8	1.9		●				
		VBMT	160401SE	9.525	4.76	4.4	0.1	2.7		●				
			160402SE				0.2	2.5		●				
			160404SE				0.4	2.1		●				
			160408SE				0.8	2.0		●				
		VBMT	110301NE	6.35	3.18	2.8	0.1	2.6	1	●				
			110302NE				0.2	2.4		●				
			110304NE				0.4	2.0		●				
			110308NE				0.8	3.1		●				
		VBMT	160401NE	9.525	4.76	4.4	0.1	2.8		●				
			160402NE				0.2	2.6		●				
			160404NE				0.4	2.2		●				
			160408NE				0.8	3.0		●				
		VBMT	110301	6.35	3.18	2.8	0.1	3.0	1	●	●			
			110302				0.2	2.8		●	●			
			110304				0.4	2.4		●	●			
			110308				0.8	3.5		●	●			
		VBMT	160401	9.525	4.76	4.4	0.1	3.2		●	●			
			160402				0.2	3.0		●	●			
			160404				0.4	2.6		●	●			
			160408				0.8	3.5		●	●			
		VCMT	080202SE	4.76	2.38	2.3	0.2	1.4	1	●				E39 F54 F56 F59
			080204SE				0.4	1.4		●				
			080208SE				0.8	1.4		●				
		VCMT	080201NE				0.1	1.7	1	●				
			080202NE				0.2	1.7		●				
			080204NE				0.4	1.8		●				
			080208NE				0.8	1.9		●				
		VCMT	080201				0.1	2.0	1		●			
			080202				0.2	2.0		●	●			
			080204				0.4	2.1		●	●			
			080208				0.8	2.2		●	●			

· SE : Small Edge / NE: New Value Edge

Insert Description	See Page for Applicable Toolholders
VB..1103 type	E30,E31,E32,E39,F54,F56,F59
VB..1604 type	E31,E32,F54,F56,F59

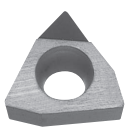
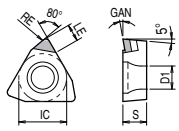
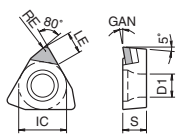
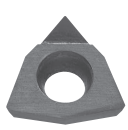
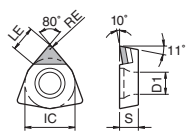
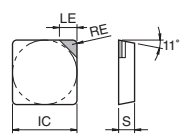
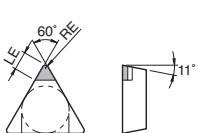
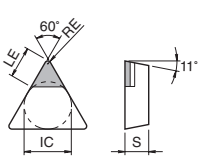
CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes)

Positive

N	Non-ferrous Metals (With interruption)	◕			
	Non-ferrous Metals (Without interruption)	●			
S	Titanium Alloys (With interruption)	◕			
	Titanium Alloys (Without interruption)	●			

Edge Prep.	
PCD all items	Sharp Edge

Insert (Handed Insert shows Left-hand)		Description		Dimension (mm) IC	S	D1	RE	LE	Angle GAN	No. of Edges	PCD KPD001	KPD010	KPD230	KPD250	See Page for Applicable Toolholders
		WBMT	060102L-SE	3.97	1.59	2.3	0.2	1.3	5°	1	●				F21 F61
		WBMT	080202L-SE	4.76	2.38	2.3	0.2	1.6	10°	1	●				
		WBMT	060101L-NE	3.97	1.59	2.3	0.1	1.7	5°	1	●				
			060102L-NE				0.2	1.6			●				
			060104L-NE				0.4	1.6			●				
		WBMT	080202L-NE	4.76	2.38	2.3	0.2	2.1	10°	1	●				
			080204L-NE				0.4	2.1			●				
		WBMT	060101L	3.97	1.59	2.3	0.1	1.9	5°	1	●				
			060102L				0.2	1.9			●	●			
			060104L				0.4	1.9			●	●			
		WBMT	080202L	4.76	2.38	2.3	0.2	2.4	10°	1	●	●			
			080204L				0.4	2.3			●	●			
		WPMT	110202SE	6.35	2.38	2.8	0.2	2.1	-	1	●				
		WPMT	110202NE				0.2	2.7			●				
		WPMT	110202				0.2	3.1				●			
		SPGN	120304NE	12.70	3.18	-	0.4	3.6	-	1	●				E44 F62
		SPGN	120304					4.2				●			
		TPGN	110301SE	6.35	3.18	-	0.1	2.6	-	1	●				
			110302SE				0.2	2.5			●	●			
			110304SE				0.4	2.4			●	●			
		TPGN	160301SE	9.525	3.18		0.1	2.6				●			
			160302SE				0.2	2.6			●	●			
			160304SE				0.4	2.4			●	●			
		TPGN	160304NE	9.525	3.18	-	0.4	3.2	-	1	●				E45 F63
			160308NE				0.8	2.9			●				
		TPGN	110302	6.35	3.18		0.2	3.9			●	●			
			110304				0.4	3.7			●	●			
			110308				0.8	3.4				●			
		TPGN	160302	9.525	3.18		0.2	3.9			●	□			
			160304				0.4	3.7			●	●			
			160308				0.8	3.4				●			

· SE : Small Edge / NE: New Value Edge

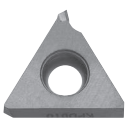
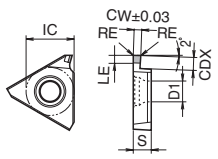
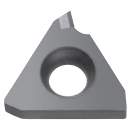
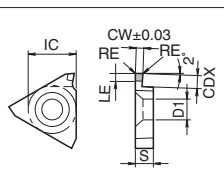
● : Std. Item (1 pc boxes) □ : Deleted from the next catalog

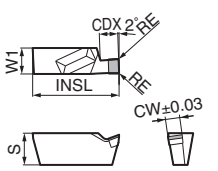
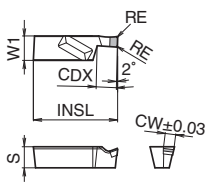
CBN & PCD Inserts are sold in 1 piece boxes

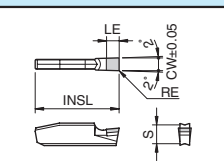
Grooving Inserts (1-edge)

N	Non-ferrous Metals (With interruption)	●
	Non-ferrous Metals (Without interruption)	●
S	Titanium Alloys (With interruption)	●
	Titanium Alloys (Without interruption)	●

Edge Prep.: PCD all items / Sharp Edge

Insert (Handed Insert shows Right-hand)		Description		Dimension (mm) CW	CDX	RE	IC	S	D1	LE	No. of Edges	PCD KPD001 R	KPD001 L	KPD010 R	KPD010 L	See Page for Applicable Toolholders
 External / Internal Grooving		**GBA32R**	**125-010**	1.25	2.0	0.1	9.525	3.18	4.4	1.7	1			●		**G9**
			150-010	1.50								●		●		**G10**
		GBA43R/L	**125-010**	1.25	2.0									●	●	**G62**
			150-010	1.50	3.5							●	●	●	●	
			200-010	2.00								●	●	●	●	
			250-010	2.50	4.0							●	●	●	●	
			300-010	3.00								●	●	●	●	
 External Grooving		**TGF32R**	**125-010**	1.25	2.0	0.1	9.525	3.18	4.5	1.7	1	●				**G18** **G19**
			150-010	1.50								●				
			200-010	2.00	2.5					1.9		●				

Insert (Handed Insert shows Right-hand)		Description		Dimension (mm) CW	CDX	RE	W1	INSL	S	No. of Edges	PCD KPD001 R	KPD001 L	KPD010 R	KPD010 L	See Page for Applicable Toolholders
 Internal Grooving		**GVR/L**	**145-020A**	1.45	2.3	0.2	4.0	12	5.0	1			●		**G61**
			200-020A	2.00									●		
			300-020A	3.00									MTO		
		GVR/L	**200-020B**	2.00	3.2	0.2	4.5	15	5.5				●		
			250-020B	2.50									●		
			300-020B	3.00	4.2								MTO		
		GVR/L	**300-020C**	3.00	4.5	0.2	5.8	21	6.5				MTO		
			400-020C	4.00	5.5								MTO		
 Face Grooving		**GVFR/L**	**250-020B**	2.50	4.8	0.2	5.8	20	5.0	1			●	●	**G96** ~ **G99** **G106**
			300-020B	3.00	4.8								●	●	
			400-020B	4.00	5.3								MTO	MTO	
		GVFR/L	**350-020C**	3.50	6.8	0.2	7.0	27	7.0				MTO		
			400-020C	4.00	6.8								MTO		
		GVFR/L	**350-040C**	3.50	6.8	0.4	7.0	27	7.0				MTO		
			400-040C	4.00	6.8								MTO		

Insert		Description		Dimension (mm) CW	RE	INSL	S	LE	No. of Edges	PCD KPD001	KPD010	See Page for Applicable Toolholders
 External Deep Grooving		**GMN**	**2**	2.0	0.2	20	4.3	2.9	1	○	○	G40,G41
			3	3.0						○	○	**G40**
			4	4.0						○	○	**G41**
			5	5.0						○	○	**G42**
			6	6.0							○	G40,G41

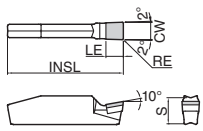
CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) ○ : Check Availability MTO : Made to order

Deep Grooving Inserts (1-edge)

Edge Prep.	
PCD all items	Sharp Edge

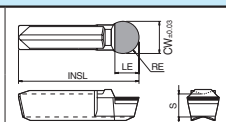
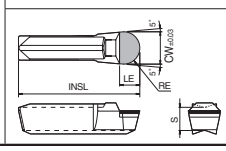
N	Non-ferrous Metals (With interruption)	●
	Non-ferrous Metals (Without interruption)	●
S	Titanium Alloys (With interruption)	●
	Titanium Alloys (Without interruption)	●

Insert		Description		Dimension (mm) CW	CW Tolerance	RE	INSL	S	LE	No. of Edges	PCD KPD001		See Page for Applicable Toolholders
 External Deep Grooving		GDGS	2020N-020NB	2.0	±0.03	0.2	20	4.3	2.9	1	●		G25 G28 ~ G30
			3020N-020NB	3.0							●		G25 G26 G28 ~ G30
			4020N-020NB	4.0							●		
			5020N-020NB	5.0							●		G25 G29 G30
			6020N-020NB	6.0							●		

For Aluminum Wheel (1-edge)

Edge Prep.	
GMGW	R-honed Cutting Edge

N	Non-ferrous Metals (With interruption)	●
	Non-ferrous Metals (Without interruption)	●
S	Titanium Alloys (With interruption)	●
	Titanium Alloys (Without interruption)	●

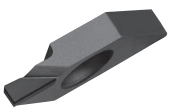
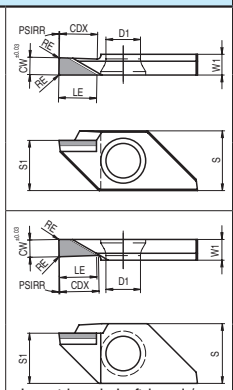
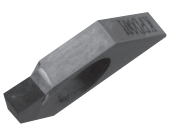
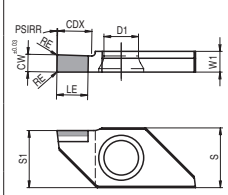
Insert		Description		Dimension (mm) CW	RE	INSL	S	LE		No. of Edges	PCD KPD001	KPD010	See Page for Applicable Toolholders
		GMGW	6030-30R	6	3	30	5.5	4.5		1	●		G46
			8030-40R	8	4			6			●		
		GMGW	8030-40R-HR	8	4	30	5.5	5			●		

● : Std. Item (1 pc boxes)

CBN & PCD Inserts are sold in 1 piece boxes

Turning / Grooving (1-edge)

N	Non-ferrous Metals (With interruption)	●
	Non-ferrous Metals (Without interruption)	●
S	Titanium Alloys (With interruption)	●
	Titanium Alloys (Without interruption)	●

Edge Prep.		Dimension (mm)								Angle	No. of Edges	PCD		See Page for Applicable Toolholders
PCD all items	Sharp Edge	CW	CDX	RE	W1	S	S1	D1	LE	PSIR$^{R}_{L}$		KPD001 R	KPD001 L	
Insert (Handed Insert shows Right-hand)	Description													
 Turning / Grooving	 ● Insert hand : Left-hand / PCD edge hand: Right-hand	TKF12$^{R}_{L}$ 200-AS		2.0	5	$^{+0}_{-0.05}$ 0.1	3	8.7	7.3	5	5.3	0°	1	●	●	E12
		250-AS		2.5	5									●		
		TKF16$^{R}_{L}$ 250-AS		2.5	8		4	9.5	8.0		6.3			●	●	
		TKF12L 200-ASR		2.0	5	$^{+0}_{-0.05}$ 0.1	3	8.7	7.3	5	5.3	0°	1		●	
		TKF16L 250-ASR		2.5	8		4	9.5	8.0		6.3				●	
 External Grooving (Turning is possible)		TKF12$^{R}_{L}$ 150-NB		1.5	3.5	$^{+0}_{-0.05}$ 0.1	3	8.7	8.3	5	2.0	0°	1	●	●	
		200-NB		2.0	4						3.0			●	●	
		250-NB		2.5	4									●		
		250-NB4.5		2.5	5						4.5			●		

* Lead angle (Front cutting edge angle: PSIR$^{R}_{L}$) shows the angle when installed in toolholder.
* PCD Inserts of TKF type only for Turning and Grooving.
* Cut-off is not recommended.
* CDX shows available grooving depth.

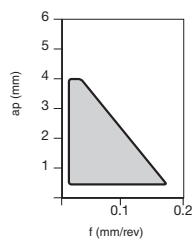
Inserts Identification System

TKF	12	R	200	-	AS		
TKF	12	L	200	-	AS	R	

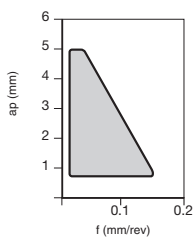
Insert Type	Insert Size	Insert Hand	Width (Edge Width)	Name of Chipbreaker	PCD insert hand
		R : Right-hand L : Left-hand		AS : AS Chipbreaker NB : Without Chipbreaker	Without Indication : The edge hand is same as the insert hand R : Right-hand

Applicable Range

TKF12-AS/-ASR



TKF16-AS/-ASR



* PCD Inserts of TKF only for Turning and Grooving.
* Cut-off is not recommended.

Note 1) The cutting edge of the TKF-AS/-ASR will be 1mm lower than the center line when attached to the KTKF toolholder (See Fig. 1). Adjust the height by making NC lathe parameter settings or inserting a plate.

2) If the 1mm adjustment is not possible on your automatic lathe, use the TKF-NB (See Fig. 2).

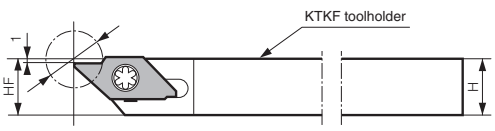


Fig. 1 When a TKF-AS/-ASR insert is attached
(The cutting edge is 1mm lower than the center line)

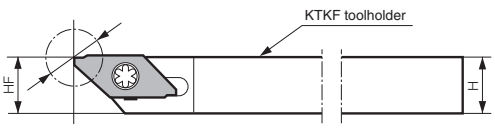
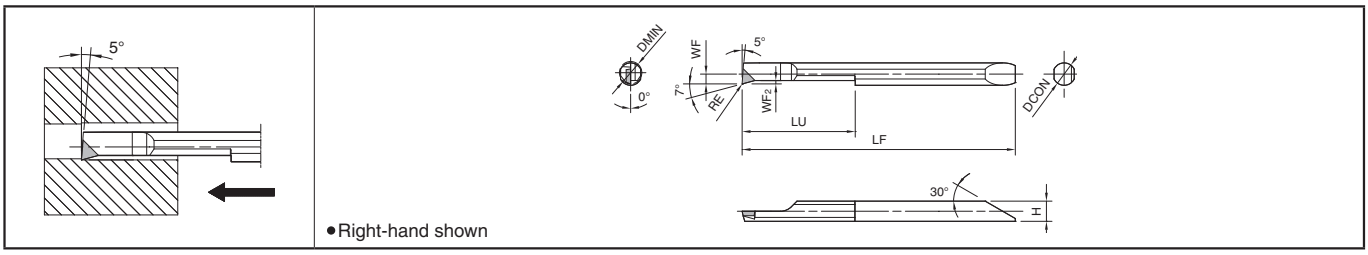


Fig. 2 When a TKF-NB insert is attached

CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes)

EZ Bars (EZB-NB · PCD)



●Right-hand shown

EZ Bars Dimensions

N	Non-ferrous Metals (With interruption)	●	
	Non-ferrous Metals (Without interruption)	●	
S	Titanium Alloys (With interruption)	●	
	Titanium Alloys (Without interruption)	●	

Edge Prep.	
PCD all items	Sharp Edge

Description		Min. Bore Dia.	Dimension (mm)								No. of Edges	PCD		See Page for Applicable Sleeves
		DMIN	DCON	H	LF	LU	WF	WF_2	RE			KPD001		
EZBR	040040-003NB	4	4	3.6	48.8	20	1.75	0.5	$0.035^{+0.015}$		1	●		F25 ~ F29
	050050-003NB	5	5	4.6	58.1	25	2.25					●		
	060060-003NB	6	6	5.6	66.1	30	2.75					●		
	070070-003NB	7	7	6.6	74.1	35	3.25					●		

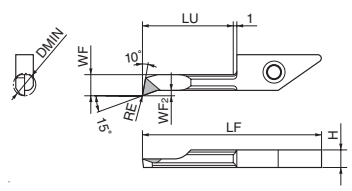
● : Std. Item (1 pc boxes)

CBN & PCD Inserts are sold in 1 piece boxes

System Tip-Bars

Edge Prep.	
PCD all items	Sharp Edge

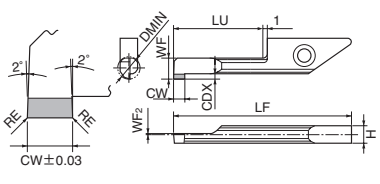
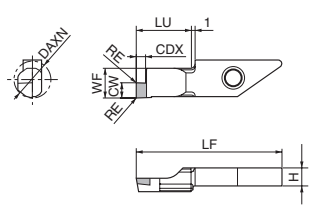
N	Non-ferrous Metals (With interruption)	●
	Non-ferrous Metals (Without interruption)	●
S	Titanium Alloys (With interruption)	●
	Titanium Alloys (Without interruption)	●

Insert (Handed Insert shows Right-hand)	Description		Min. Bore Dia.	Dimension (mm)							No. of Edges	PCD		See Page for Applicable Toolholders
			DMIN	H	LF	LU	WF	WF_2	RE			KPD001	KPD010	
 Micro Boring	VNBR	0411-02NB	4	3.9	30.8	11	3.5	0.5	0.2		1	●	●	F32 F33
		0420-02NB			39.8	20						●	●	
	VNBR	0511-02NB	5	3.9	30.8	11	4.5	0.7	0.2			●	●	
		0520-02NB			39.8	20						●	●	
	VNBR	0620-02NB	6	3.9	39.8	20	5.3	1.0	0.2			●	●	
		0630-02NB			49.8	30						●	●	
	VNBR	0720-02NB	7	3.9	39.8	20	6.2	1.0	0.2			●	●	
		0730-02NB			49.8	30						●	□	

System Tip-Bars

Edge Prep.	
PCD all items	Sharp Edge

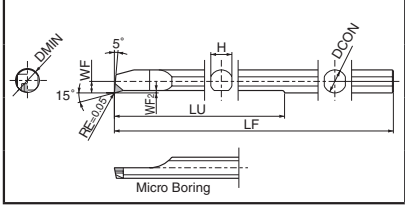
N	Non-ferrous Metals (With interruption)	●
	Non-ferrous Metals (Without interruption)	●
S	Titanium Alloys (With interruption)	●
	Titanium Alloys (Without interruption)	●

Insert (Handed Insert shows Right-hand)	Description		Min. Bore Dia.	Dimension (mm)									No. of Edges	PCD		See Page for Applicable Toolholders
			DMIN DAXN	CW	RE	H	LF	LU	WF	WF_2	CDX		KPD001	KPD010	
 Micro Grooving	VNGR	0410-11NB	4	1.0	0.05	3.9	30.8	11	3.5	0.1	0.8	1	MTO	MTO	F32 F33
		0420-11NB		2.0	0.10								MTO	MTO	
	VNGR	0510-11NB	5	1.0	0.05	3.9	30.8	11	4.4	0.1	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	5.2	0.3	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	6.2	0.3	2.0		MTO	MTO	
		0720-20NB		2.0	0.10								MTO	MTO	
 Micro Face Grooving	VNFGR	0820-10NB	8	2.0	0.05	3.9	39.8	10	7.3	-	2.0	1	MTO	MTO	
		0830-10NB	8	3.0							3.0		MTO	MTO	

Tip-Bars

Edge Prep.	
PCD all items	Sharp Edge

N	Non-ferrous Metals (With interruption)	●
	Non-ferrous Metals (Without interruption)	●
S	Titanium Alloys (With interruption)	●
	Titanium Alloys (Without interruption)	●

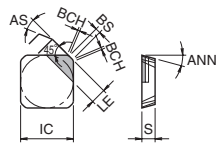
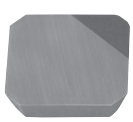
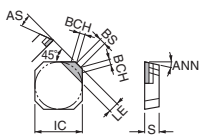
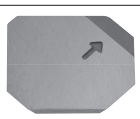
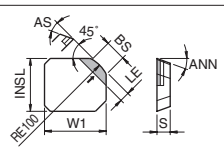
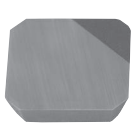
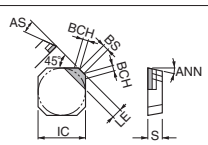
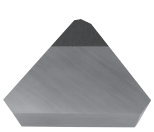
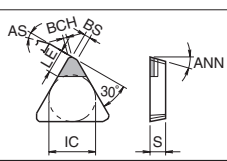
Insert (Handed Insert shows Right-hand)	Description		Min. Bore Dia.	Dimension (mm)							No. of Edges	PCD				See Page for Applicable Sleeves
			DMIN	DCON	H	LF	LU	WF	WF_2		KPD001		KPD010		
											R	L	R	L	
 Micro Boring	PSB$^{R}_{L}$	0404-60NBS	4	3.8	3.6	60	30	1.9	0.3	1	□		□		F86
		0505-70NBS	5	4.8	4.4	70	40	2.4	0.5		□		□	□	
		0606-70NBS	6	5.8	5.2		45	2.9			□		□		
		0707-80NBS	7	6.8	6.2	80	50	3.4			□		□		

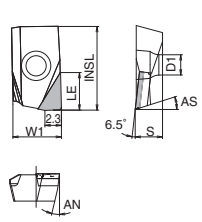
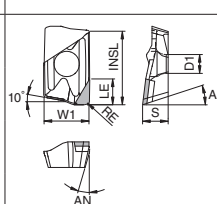
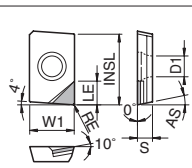
CBN & PCD Inserts are sold in 1 piece boxes

● : Std. Item (1 pc boxes) □ : Deleted from the next catalog MTO : Made to order

Milling Inserts

Edge Prep.		N	Non-ferrous Metals (With interruption)														
PCD all items	Sharp Edge	S	Titanium Alloys (With interruption)														

Insert	Description	Dimension (mm)						Angle		No. of Edges	PCD			See Page for Applicable Toolholders
		IC INSL	S	BCH	BS	LE	W1	ANN	AS		KPD001	KPD010	KPD230	
 	SDKN 1203AUFN-NE	12.70	3.18	0.5	1.2	3.1	-	15°	23°	1	●			-
	SDKN 1203AUFN					3.6					●	●		
 	SEEN 1203AFFN-NE	12.70	3.18	0.5	1.4	3.0	-	20°	25°	1	●			-
	SEEN 1203AFFN					3.5					●	●		
 With Wiper Edge 	SEEN 1203AFFR-W	12.50	3.18	-	3.5	1.7	14.56	20°	25°	1	●			-
 	SOKN 13T3AXFN-NE	13.494	3.97	0.4	1.1	3.0	-	27°	32°	1			○	M42
 	TEEN 1603PTFR-NE	9.525	3.18	0.6	1.4	4.1	-	20°	22°	1	●		●	-
	TEEN 1603PTFR					4.7					●	●		
	TEKN 2204PTFR-NE	12.70	4.76	0.7	1.8	4.2	-	20°	22°	1	●		●	-
	TEKN 2204PTFR					4.8					●	●		

Insert	Description	Dimension (mm)						Angle		No. of Edges	PCD			See Page for Applicable Toolholders
		W1	S	D1	INSL	RE	LE	AS	AN		KPD001	KPD010	KPD230	
 	BDGT 11T302FR	6.7	3.8	2.8	11.5	0.2	3.8	18°	13°	1	●		●	M56 M57 M58 M59
	BDGT 11T304FR					0.4					●		●	
	BDGT 11T308FR					0.8					●		●	
	BDGT 11T302FR-LE					0.2	5.2			1	●		●	
	BDGT 11T304FR-LE					0.4					●		●	
	BDGT 11T308FR-LE					0.8					●		●	
 	BDMT 11T302FR	6.7	3.8	2.8	11.0	0.2	3.6	18°	13°	1	●		●	
	BDMT 11T304FR					0.4					●		●	
	BDMT 170402FR	9.6	4.9	4.4	17.0	0.2	4.4	18°	13°	1	●		●	M57 M58 M59
	BDMT 170404FR					0.4					●		●	
 	NDCW 150302FRX-NE	9.525	3.18	4.4	15.0	0.2	5.1	15°	-	1	●		●	M106
	NDCW 150302FRX						5.7				●	●		

● : Std. Item (1 pc boxes) ○ : Check Availability

CBN & PCD Inserts are sold in 1 piece boxes