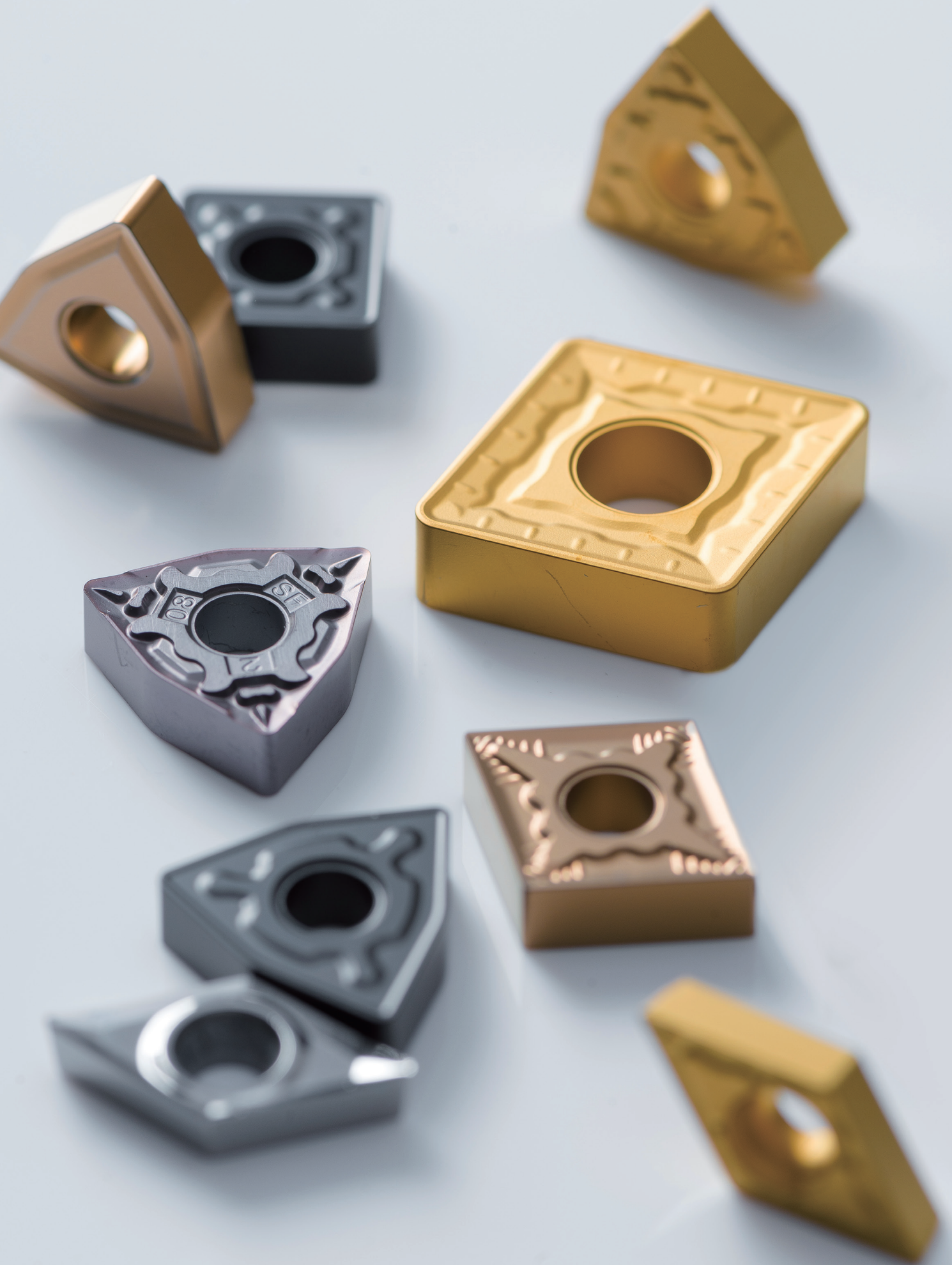


# TURNING TOOLS

PCBN/PCD TURNING







# Contents

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F

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## PCBN/PCD TURNING

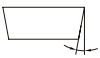


## PCBN/PCD Turning Indexable Inserts Identification System

Symbol	Shape	Corner Angle	Figure
H	Hexagon	120°	
O	Octagon	135°	
P	Pentagon	108°	
S	Square	90°	
T	Triangle	60°	
C	Rhombic	80°	
D		55°	
V		35°	
W	Trigon	80°	
L	Rectangle	90°	
A	Rectangle	85°	
R	Round	--	

① Shape Symbol

Symbol	Corner Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Others



② Relief Angle Symbol

Symbol	Tolerance(mm)			Tolerance(inch)		
	Corner Height(m)	Thickness (S)	I.G.dia. (Ød)	Corner Height(m)	Thickness (S)	I.G.dia. (Ød)
A	±0.005	±0.025	±0.025	±0.0002	±0.001	±0.001
F	±0.005	±0.025	±0.013	±0.0002	±0.001	±0.0005
C	±0.013	±0.025	±0.025	±0.0005	±0.001	±0.001
H	±0.013	±0.025	±0.013	±0.0005	±0.001	±0.0005
E	±0.025	±0.025	±0.025	±0.001	±0.001	±0.001
G	±0.025	±0.13	±0.025	±0.001	±0.005	±0.001
J	±0.005	±0.025	±0.05~0.13	±0.0002	±0.001	±0.002~0.005
K	±0.013	±0.025	±0.05~0.13	±0.0005	±0.001	±0.002~0.005
L	±0.025	±0.025	±0.05~0.13	±0.001	±0.001	±0.002~0.005
M	±0.08~0.18	±0.13	±0.05~0.13	±0.003~0.007	±0.005	±0.002~0.005
N	±0.08~0.18	±0.025	±0.05~0.13	±0.003~0.007	±0.001	±0.002~0.005
U	±0.13~0.38	±0.13	±0.08~0.25	±0.005~0.015	±0.005	±0.003~0.01

③ Tolerance Symbol

①
②
③
④
⑤

T
N
G
A
22

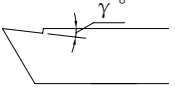
T
N
M
G
22

①
②
③
④
⑤

④ Hole/Chipbreaker Symbol				
Symbol	Hole	Hole Shape	Chipbreaker	Shape
N	Without	—	Without	
R			Single-sided	
F			Double-sided	
A	With Hole	With Hole	Without	
M			Single-sided	
G	With Hole	With Hole	Double-sided	
W			Without	
T	With	With Hole and One Countersink 40°~60°	Single-sided	
Q			Without	
U	With	With Hole and Two Countersinks 40°~60°	Double-sided	
B			Without	
H	With	With Hole and One Countersink 70°~90°	Single-sided	
C			Without	
J	With	With Hole and Two Countersinks 70°~90°	Double-sided	
X			Without	

⑤ Edge Length Symbol (ISO) (mm)															I.C.Size (mm)	
Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol	Length	Symbol		Length
		03	3.97	03	4.0			06	6.9	4	4.8					3.97
		04	4.76	04	4.8			08	8.2	5	5.8					4.76
05	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5
		05	5.56	05	5.6	03	3.8	09	9.6	6	6.8					5.56
06	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6
		06	6.35	06	6.5	04	4.3	11	11	7	7.8	11	11.2			6.35
		07	7.94	08	8.1	05	5.4	13	13.8	9	9.7					7.94
08	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8
09	9.525	09	9.525	09	9.7	06	6.5	16	16.5	11	11.6	16	16.6	16	19.7	9.525
10	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10
12	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12
12	12.7	12	12.7	12	12.9	08	8.7	22	22	15	15.5	22	22.1			12.7
15	15.875	15	15.875	16	16.1	10	10.9	27	27.5	19	19.4					15.875
16	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16
19	19.05	19	19.05	19	19.3	13	13	33	33	23	23.3					19.05
20	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20
		22	22.225	22	22.6			38	38.5	27	27.1					22.225
25	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	25
25	25.4	25	25.4	25	25.8			44	44	31	31					25.4
31	31.75	31	31.75	32	32.2			55	55	38	38.8					31.75
31	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32

# PCBN/PCD Turning Indexable Inserts Identification System

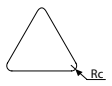


Symbol	Corner-R (mm)
GN	0°
GB	5°
GC	7°
GT	10°

⑩PCD Rake Angle

⑥	⑦	⑧	⑨	⑩
04	08	M	-	3
04	08	M	-	3
GN				GN

⑥ Thickness	
Symbol	Thickness
01	1.59
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52














⑦ Corner Rc Symbol	
	
Symbol	Corner-R(mm)
00	0.03
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
28	2.8
32	3.2

⑧ Tips	
Symbol	Application
LF	Continuous sharp
LE	Continues passivation
LT	Continues Chamfer
L	Continues Standard
M	Continues General
H	Interrupted Strength
LS	Continues Others
MS	Interrupted Sharp
HS	Heavy Interrupted sharp
(空)	None

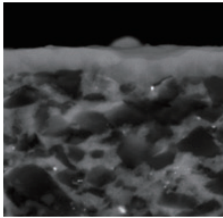
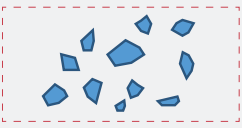
⑨ Number of transpositions	
Item	Number of transpositions
1	1
2	2
3	3
4	4
6	6
8	8

⑩ Geometry
------------

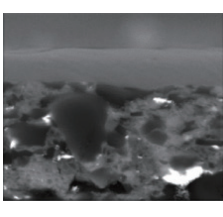

## PCBN Grade Application

Workpiece Material	Turning Insert	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
<b>K</b> Gray cast iron	Continuous Cutting	 BKN115P	400-1500	K01	 
	Interrupted Cutting	 BKC120P	200-500	K10	
				K20	
				K30	
<b>S</b> Powder Metallurgy	Continuous Cutting	 BSN115P	50-300	S01	
	Interrupted Cutting	 BSN115P		S10	
				S20	
				S30	
<b>H</b> Hardened Material	Continuous Cutting	 BHC 115P	100-220	H01	  
	Medium Interrupted Cutting	 BHC 125P	100-200	H10	
				H20	
	Heavy Interrupted Cutting	 BHC 135P	50-130	H30	
				H40	

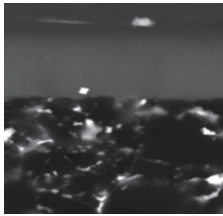
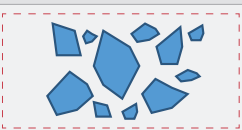
### Continuous Cutting for hardened material Coated PCBN Grade-BHC115P **NEW**

	AITIN Coating		The latest AITIN+coating Excellent heat resistance and oxidation resistance
	AITIN Coating		Ultra – fine CBN substrate Excellent wear resistance and red hardness

### Continuous Cutting for hardened material Coated PCBN Grade-BHC125P **NEW**

	AITIN Coating		The latest AITIN+coating Excellent heat resistance and oxidation resistance
	AITIN Coating		Mixed Crystal CBN Substrate Both wear resistance and impact resistance

### Heavy Interrupted Cutting for hardened material Coated PCBN Grade-BHC135P **NEW**

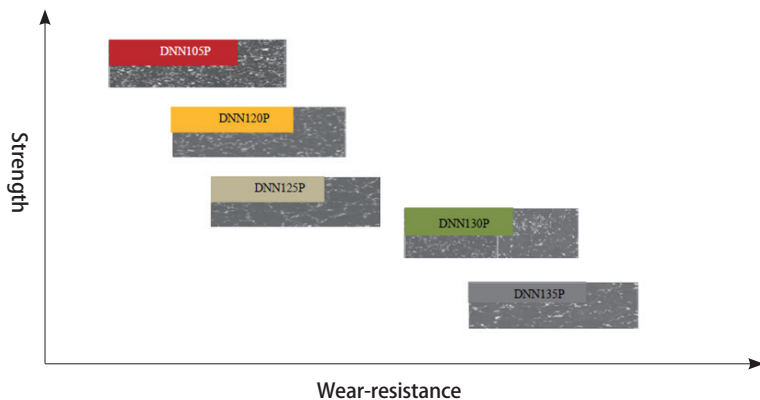
	AITIN Coating		The latest AITIN+coating Excellent heat resistance and oxidation resistance
	AITIN Coating		High ratio CBN substrate Excellent impact resistance and chemical stability

## PCBN Grade Application

Workpiece Material	Turning Insert	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range	
N	Continuous Cutting	DNN105P	300~3000	N01		
		DNN120P				N10
		DNN125P		N20		
		DNN130P				
		DNN135P				
	Interrupted Cutting	DNN105P	200~1500	N20		
		DNN120P		N30		
		DNN125P				
	Non-metallic material	Continuous Cutting	DNN130P	~3000	N01	
			DNN135P		N10	
Interrupted Cutting		DNN130P	N20			
		DNN135P	N30			
Composite material	Continuous Cutting	DNN130P	300~1000	N01		
		DNN135P		N10		
	Interrupted Cutting	DNN130P		N20		
		DNN135P		N30		

## Features&Usage of PCD Grade


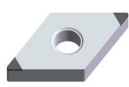



Grade	Advantages	Purpose
DNN105P	High density sintered ultra-fine diamond material contribute to the highest wear resistance and collapse resistance, with superior sharpness.	Mainly used in the processing of medium and low silicon aluminium alloy, copper and copper alloy, cemented carbide and ceramic pre-sintered billet and other materials.
<b>NEW</b> DNN120P	Fine-grained diamond material with good machinability and wear resistance	Mainly used in the processing of aluminium alloy, copper and copper alloy, pressed film products, hard rubber, carbon and ceramic pre-sintered blanks and other materials.
DNN125P	Medium-sized diamond material, with good wear resistance and discharge performance, good impact resistance, strong versatility	Mainly used in the processing of aluminium alloy, copper and copper alloy, pressed film products, hard rubber, carbon and ceramic pre-sintered blanks and other materials.
DNN130P	High content, mixed size diamond material, with excellent wear resistance, high impact strength, good surface quality	It is mainly used for milling of high aluminium alloy, processing of carbon fibers and glass fibers.
DNN135P	Large size diamond material, long tool life, high wear resistance, general surface finish	Mainly used for rough turning and intermittent processing of aluminum alloy, MMC, cemented carbide and other wear-resistant materials with silicon content greater than 14%.








## Range of PCBN Turning Inserts





### PCBN (Negative)

Type	Advantages	Rhombic 80°	Rhombic 55°	Triangle 60°	Rhombic 35°	Trigon 80°
Brazed	<ul style="list-style-type: none"> <li>•High precision and longer tool life</li> <li>•Wide range of insert types</li> <li>•High cost performance</li> </ul>					
		CNGA	DNGA	TNGA	VNGA	WNGA
		P609	P609	P610	P610	P611

### PCBN (Positive)

Type	Advantages	Rhombic 80°	Rhombic 55°	Triangle 60°	Rhombic 35°	Trigon 80°
Brazed	<ul style="list-style-type: none"> <li>•High precision and longer tool life</li> <li>•Wide range of insert types</li> <li>•High cost performance</li> </ul>					
		CCGW	DCGW	TCGW/TPGW	VBGW/VCGW	
		P612	P612	P613	P614	

### PCD (Negative)

Type	Advantages	Rhombic 80°	Rhombic 55°	Triangle 60°	Rhombic 35°
Brazed	<ul style="list-style-type: none"> <li>•High precision and longer tool life</li> <li>•Wide range of insert types</li> <li>•High cost performance</li> </ul>				
		CNGA	DNGA	TNGA	VNGA
		P615	P615	P616	P616

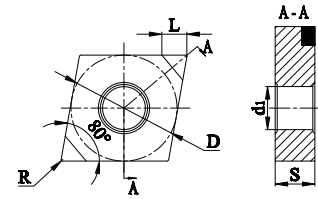
### PCD (Positive)

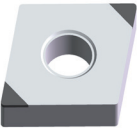
Type	Advantages	Rhombic 80°	Rhombic 55°	Triangle 60°	Rhombic 35°	Round 360°
Brazed	<ul style="list-style-type: none"> <li>•High precision and longer tool life</li> <li>•Wide range of insert types</li> <li>•High cost performance</li> </ul>					
		CC□W/CP□W	DC□W	TC□W/TP□W	VC□W	RDEW
		P617	P619	P620	P622	P622

PCBN (Negative)

# CNGA

Rhombic 80° with Hole

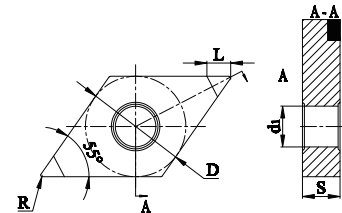



Ordering code	Flute	Dimensions (mm)						PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSN115P	
 CNGA120404L-2	2	2.2	12.7	4.76	5.16	0.4	○	○	●	○	○	○	
CNGA120404M-2	2	2.2	12.7	4.76	5.16	0.4	○	○	●	●	○	○	
CNGA120408L-2	2	2.2	12.7	4.76	5.16	0.8	○	○	○	○	○	○	
CNGA120408M-2	2	2.2	12.7	4.76	5.16	0.8	○	○	●	●	●	●	
CNGA120408H-2	2	2.2	12.7	4.76	5.16	0.8	○	○	○	●	○	○	
CNGA120412M-2	2	2.2	12.7	4.76	5.16	1.2	○	○	●	●	●	○	

● Stock ○ Available upon Order

# DNGA

Rhombic 55° with Hole



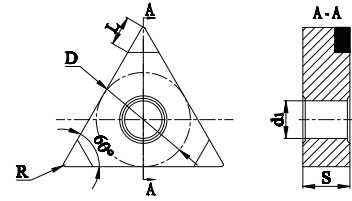
Ordering code	Flute	Dimensions (mm)						PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSN115P	
 DNGA150404L-2	2	2.2	12.7	4.76	5.16	0.4	●	○	●	○	○	○	
DNGA150404M-2	2	2.2	12.7	4.76	5.16	0.4	○	○	○	●	○	○	
DNGA150408L-2	2	2.2	12.7	4.76	5.16	0.8	○	○	●	○	○	○	
DNGA150408M-2	2	2.2	12.7	4.76	5.16	0.8	●	○	○	●	○	●	
DNGA150412M-2	2	2.2	12.7	4.76	5.16	1.2	○	○	○	○	○	○	
DNGA150604M-2	2	2.2	12.7	6.35	5.16	0.4	○	○	○	○	○	○	
DNGA150608M-2	2	2.2	12.7	6.35	5.16	0.8	○	○	○	○	○	○	
DNGA150612M-2	2	2.2	12.7	6.35	5.16	1.2	○	○	○	○	○	○	

● Stock ○ Available upon Order

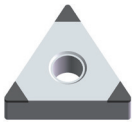
PCBN (Negative)

# TNGA

Triangle 60° with Hole



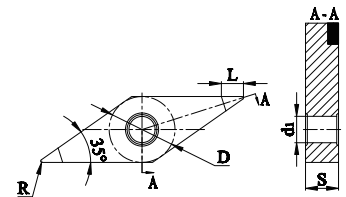
Ordering code	Flute	Dimensions (mm)					PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSN115P
TNGA160404L-3	3	2.2	9.525	4.76	3.81	0.4	○	○	●	○	○	○
TNGA160404M-3	3	2.2	9.525	4.76	3.81	0.4	○	○	●	●	○	○
TNGA160408L-3	3	2.2	9.525	4.76	3.81	0.8	○	○	●	●	○	○
TNGA160408M-3	3	2.2	9.525	4.76	3.81	0.8	○	○	●	●	●	○
TNGA160408H-3	3	2.2	9.525	4.76	3.81	0.8	○	○	○	●	○	○
TNGA160412M-3	3	2.2	9.525	4.76	3.81	1.2	○	○	○	○	○	○
TNGA160416H-3	3	2.2	9.525	4.76	3.81	1.6	○	○	○	○	●	○



● Stock ○ Available upon Order

# VNGA

Rhombic 35° with Hole



Ordering code	Flute	Dimensions (mm)					PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSN115P
VNGA160404L-2	2	2.2	9.525	4.76	3.81	0.4	○	○	○	○	○	○
VNGA160404M-2	2	2.2	9.525	4.76	3.81	0.4	○	○	○	●	●	○
VNGA160408L-2	2	2.2	9.525	4.76	3.81	0.8	○	○	●	○	○	○
VNGA160408M-2	2	2.2	9.525	4.76	3.81	0.8	○	○	○	●	●	○
VNGA160412M-2	2	2.2	9.525	4.76	3.81	1.2	○	○	●	○	○	○

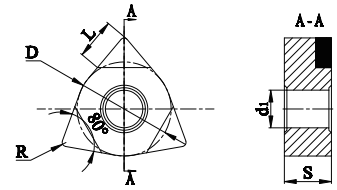


● Stock ○ Available upon Order

PCBN (Negative)

# WNGA

Trigon 80° with Hole



Ordering code	Flute	Dimensions (mm)					PCBN Grade					
		L	D	S	di	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSN115P
WNGA080404L-3	3	2.2	12.7	4.76	3.81	0.4	○	○	○	○	○	○
WNGA080404M-3	3	2.2	12.7	4.76	3.81	0.4	○	○	○	●	○	○
WNGA080408L-3	3	2.2	12.7	4.76	3.81	0.8	○	○	○	○	○	○
WNGA080408M-3	3	2.2	12.7	4.76	3.81	0.8	●	○	○	○	●	○
WNGA080408H-3	3	2.2	12.7	4.76	3.81	0.8	○	○	○	●	○	○
WNGA080412M-3	3	2.2	12.7	4.76	3.81	1.2	○	○	○	○	○	○



● Stock ○ Available upon Order

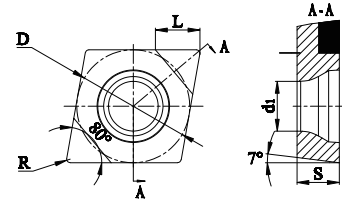
● Stock ○ Available upon Order



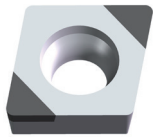
PCBN (Positive)

# CCGW

Rhombic 80° with Hole



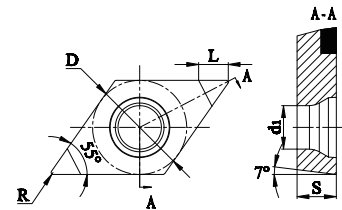
Ordering code	Flute	Dimensions (mm)					PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSN115P
CCGW060202L-2	2	2	6.35	2.38	2.8	0.2	○	○	○	○	○	○
CCGW060204L-2	2	2	6.35	2.38	2.8	0.4	○	○	●	●	○	○
CCGW060204M-2	2	2	6.35	2.38	2.8	0.4	○	○	○	○	○	○
CCGW060208L-2	2	2	6.35	2.38	2.8	0.8	○	○	○	○	○	○
CCGW060208M-2	2	2	6.35	2.38	2.8	0.8	○	○	●	○	○	○
CCGW09T302L-2	2	2	9.525	3.97	4.4	0.2	○	○	○	○	○	○
CCGW09T304L-2	2	2	9.525	3.97	4.4	0.4	●	○	●	○	○	○
CCGW09T304M-2	2	2	9.525	3.97	4.4	0.4	○	○	○	●	●	○
CCGW09T308L-2	2	2	9.525	3.97	4.4	0.8	○	○	○	○	○	○
CCGW09T308M-2	2	2	9.525	3.97	4.4	0.8	●	○	●	●	●	○
CCGW09T308H-2	2	2	9.525	3.97	4.4	0.8	○	○	○	●	○	○



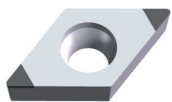
● Stock ○ Available upon Order

# DCGW

Rhombic 55° with Hole



Ordering code	Flute	Dimensions (mm)					PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSN115P
DCGW070202L-2	2	2	6.35	2.38	2.8	0.2	○	○	○	●	○	○
DCGW070204L-2	2	2	6.35	2.38	2.8	0.4	○	○	●	●	○	○
DCGW070204M-2	2	2	6.35	2.38	2.8	0.4	○	○	○	○	○	○
DCGW070208L-2	2	2	6.35	2.38	2.8	0.8	○	○	○	○	○	○
DCGW070208M-2	2	2	6.35	2.38	2.8	0.8	○	○	○	○	○	○
DCGW11T302L-2	2	2	9.525	3.97	4.4	0.2	○	○	○	○	○	○
DCGW11T304L-2	2	2	9.525	3.97	4.4	0.4	●	○	○	○	○	○
DCGW11T304M-2	2	2	9.525	3.97	4.4	0.4	○	○	●	●	●	○
DCGW11T308L-2	2	2	9.525	3.97	4.4	0.8	○	○	○	○	○	○
DCGW11T308M-2	2	2	9.525	3.97	4.4	0.8	○	○	●	●	●	●

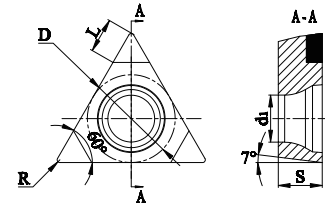


● Stock ○ Available upon Order

PCBN (Positive)

# TCGW

Triangle 60° with Hole



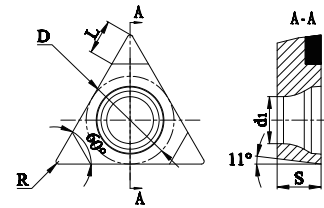
Ordering code	Flute	Dimensions (mm)					PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSN115P
TCGW110302L-3	3	2	6.35	3.18	3.4	0.2	○	○	○	○	○	○
TCGW110304L-3	3	2	6.35	3.18	3.4	0.4	●	○	○	○	○	○
TCGW110304M-3	3	2	6.35	3.18	3.4	0.4	○	○	○	●	○	○
TCGW110308L-3	3	2	6.35	3.18	3.4	0.8	○	○	○	○	○	○
TCGW110308M-3	3	2	6.35	3.18	3.4	0.8	○	○	○	○	○	○



● Stock ○ Available upon Order

# TPGW

Triangle 60° with Hole



Ordering code	Flute	Dimensions (mm)					PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSN115P
TPGW080202L-1	1	2	4.76	2.38	2.3	0.2	○	○	○	○	○	○
TPGW080204L-1	1	2	4.76	2.38	2.3	0.4	○	○	○	○	○	○
TPGW080208L-1	1	2	4.76	2.38	2.3	0.8	○	○	○	○	○	○
TPGW090202L-3	3	2	5.56	2.38	2.8	0.2	○	○	○	○	○	○
TPGW090204L-3	3	2	5.56	2.38	2.8	0.4	●	○	○	●	○	○
TPGW090208L-3	3	2	5.56	2.38	2.8	0.8	●	○	○	○	○	○
TPGW110202L-3	3	2	6.35	2.38	2.8	0.2	○	○	○	○	○	○
TPGW110204L-3	3	2	6.35	2.38	2.8	0.4	○	○	○	○	○	○
TPGW110208M-3	3	2	6.35	2.38	2.8	0.8	○	○	○	○	○	○
TPGW110302L-3	3	2	6.35	3.18	3.4	0.2	○	○	○	○	○	○
TPGW110304L-3	3	2	6.35	3.18	3.4	0.4	○	○	○	○	○	●
TPGW110304M-3	3	2	6.35	3.18	3.4	0.4	○	○	○	○	○	○
TPGW110308L-3	3	2	6.35	3.18	3.4	0.8	○	○	●	●	○	○
TPGW110308M-3	3	2	6.35	3.18	3.4	0.8	○	○	○	○	○	○

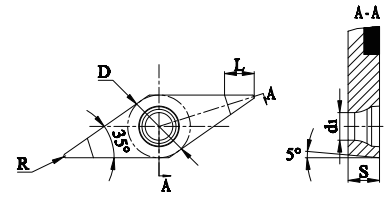


● Stock ○ Available upon Order

PCBN (Positive)

# VBGW

Rhombic 35° with Hole



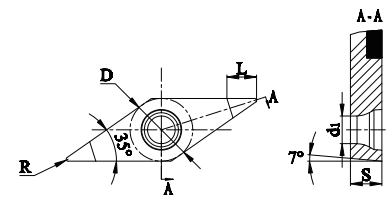
Ordering code	Flute	Dimensions (mm)					PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BHN115P	BHC115P	BHC125P	BHC135P	BHC135P
VBGW110302L-2	2	2	6.35	3.18	2.8	0.2	○	○	○	○	○	○
VBGW110304L-2	2	2	6.35	3.18	2.8	0.4	○	○	○	●	○	○
VBGW110308L-2	2	2	6.35	3.18	2.8	0.8	○	○	○	●	○	○
VBGW110308M-2	2	2	6.35	3.18	2.8	0.8	○	○	○	○	○	○
VBGW160402L-2	2	2	9.525	4.76	4.4	0.2	○	○	○	○	○	○
VBGW160404L-2	2	2	9.525	4.76	4.4	0.4	●	○	○	○	○	○
VBGW160408L-2	2	2	9.525	4.76	4.4	0.8	●	○	○	○	○	○
VBGW160408M-2	2	2	9.525	4.76	4.4	0.8	○	○	●	●	○	○



● Stock ○ Available upon Order

# VCGW

Rhombic 35° with Hole



Ordering code	Flute	Dimensions (mm)					PCBN Grade					
		L	D	S	d <sub>1</sub>	R	BKN115P	BKC120P	BHC115P	BHC125P	BHC135P	BSNT115P
VCGW110302L-2	2	2	6.35	3.18	2.8	0.2	○	○	○	○	○	○
VCGW110304L-2	2	2	6.35	3.18	2.8	0.4	●	○	○	○	○	○
VCGW110308L-2	2	2	6.35	3.18	2.8	0.8	○	○	○	○	○	○
VCGW110308M-2	2	2	6.35	3.18	2.8	0.8	●	○	○	○	○	○
VCGW160402L-2	2	2	9.525	4.76	4.4	0.2	○	○	○	○	○	○
VCGW160404L-2	2	2	9.525	4.76	4.4	0.4	○	○	○	○	○	○
VCGW160408L-2	2	2	9.525	4.76	4.4	0.8	○	○	○	○	○	○
VCGW160408M-2	2	2	9.525	4.76	4.4	0.8	○	○	○	●	○	○

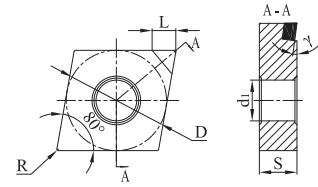



● Stock ○ Available upon Order

PCD (Negative)

# CNGA

Rhombic 80° with Hole

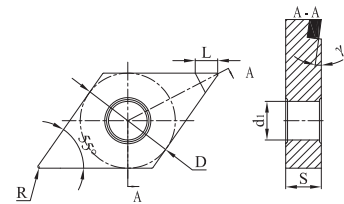



Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d <sub>1</sub>	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
 CNGA120404	1	3	12.7	4.76	5.16	0.4	○	○	○	○	○
CNGA120408	1	3	12.7	4.76	5.16	0.8	○	○	○	○	○

● Stock ○ Available upon Order

# DNGA

Rhombic 55° with Hole



Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d <sub>1</sub>	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
 DNGA150404	1	5	12.7	4.76	5.16	0.4	○	○	○	○	○
DNGA150408	1	5	12.7	4.76	5.16	0.8	○	○	○	○	○

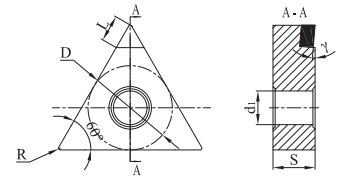
● Stock ○ Available upon Order




PCD insert(Negative)

# TNGA

Triangle 60° with Hole

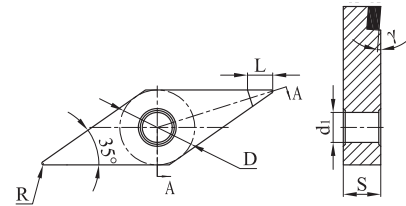



Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d1	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
 TNGA160404 TNGA160408	1	3	9.525	4.76	3.81	0.4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1	3	9.525	4.76	3.81	0.8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

● Stock ○ Available upon Order

# VNGA

Rhombic 35° with Hole



Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d1	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
 VNGA160404 VNGA160408	1	3	9.525	4.76	3.81	0.4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	1	3	9.525	4.76	3.81	0.8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

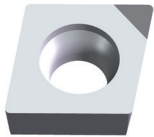
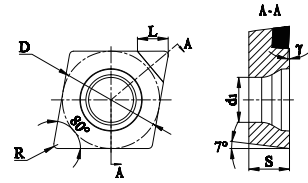
● Stock ○ Available upon Order

PCD (Positive)

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**CC□W**

Rhombic 80° with Hole



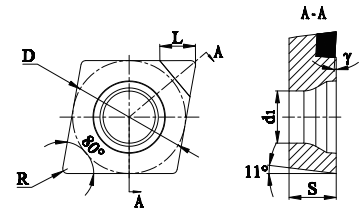
Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d <sub>1</sub>	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
CCGW060202	1	2.5	6.35	2.38	2.8	0.2	○	○	○	○	○
CCGW060204	1	2.5	6.35	2.38	2.8	0.4	○	○	○	○	○
CCGW060208	1	2.5	6.35	2.38	2.8	0.8	○	○	○	○	○
CCMW060202M	1	2.5	6.35	2.38	2.8	0.2	○	○	○	○	○
CCMW060204M	1	2.5	6.35	2.38	2.8	0.4	○	○	●	○	○
CCMW060208M	1	2.5	6.35	2.38	2.8	0.8	○	○	○	○	○
CCGW09T302	1	3.0	9.525	3.97	4.4	0.2	○	○	○	○	○
CCGW09T304	1	3.0	9.525	3.97	4.4	0.4	●	○	●	○	○
CCGW09T308	1	3.0	9.525	3.97	4.4	0.8	○	○	○	○	○
CCMW09T302M	1	3.0	9.525	3.97	4.4	0.2	○	○	●	○	○
CCMW09T304M	1	3.0	9.525	3.97	4.4	0.4	○	○	●	○	○
CCMW09T308M	1	3.0	9.525	3.97	4.4	0.8	○	○	○	○	○
CCGW120402	1	3.0	12.7	4.76	5.5	0.2	○	○	○	○	○
CCGW120404	1	3.0	12.7	4.76	5.5	0.4	○	○	○	○	○
CCGW120408	1	3.0	12.7	4.76	5.5	0.8	○	○	○	○	○
CCMW120402M	1	3.0	12.7	4.76	5.5	0.2	○	○	○	○	○
CCMW120404M	1	3.0	12.7	4.76	5.5	0.4	○	○	●	○	○
CCMW120408M	1	3.0	12.7	4.76	5.5	0.8	○	○	○	○	○

● Stock ○ Available upon Order

PCD (Positive)

**CP□W**

Rhombic 80° with Hole



Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d <sub>1</sub>	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
CPGW060202	1	2.5	6.35	2.38	2.8	0.2	○	○	○	○	○
CPGW060204	1	2.5	6.35	2.38	2.8	0.4	○	○	○	○	○
CPGW060208	1	2.5	6.35	2.38	2.8	0.8	○	○	○	○	○
CPMW060202M	1	2.5	6.35	2.38	2.8	0.2	○	○	○	○	○
CPMW060204M	1	2.5	6.35	2.38	2.8	0.4	○	○	○	○	○
CPMW060208M	1	2.5	6.35	2.38	2.8	0.8	○	○	○	○	○
CPGW09T302	1	3.0	9.525	3.97	4.4	0.2	○	○	○	○	○
CPGW09T304	1	3.0	9.525	3.97	4.4	0.4	●	○	●	○	○
CPGW09T308	1	3.0	9.525	3.97	4.4	0.8	○	○	○	○	○
CPMW09T302M	1	3.0	9.525	3.97	4.4	0.2	○	○	●	○	○
CPMW09T304M	1	3.0	9.525	3.97	4.4	0.4	○	○	●	○	○
CPMW09T308M	1	3.0	9.525	3.97	4.4	0.8	○	○	○	○	○
CPGW120402	1	3.0	12.7	4.76	5.5	0.2	○	○	○	○	○
CPGW120404	1	3.0	12.7	4.76	5.5	0.4	○	○	○	○	○
CPGW120408	1	3.0	12.7	4.76	5.5	0.8	○	○	○	○	○
CPMW120402M	1	3.0	12.7	4.76	5.5	0.2	○	○	○	○	○
CPMW120404M	1	3.0	12.7	4.76	5.5	0.4	○	○	●	○	○
CPMW120408M	1	3.0	12.7	4.76	5.5	0.8	○	○	○	○	○

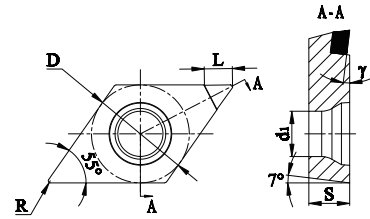


●Stock ○Available upon Order

PCD (Positive)

**DC□W**

Rhombic 55° with Hole



Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d <sub>1</sub>	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
DCGW070204	1	2.5	6.35	2.38	2.8	0.4	○	○	○	○	○
DCMW070204M	1	2.5	6.35	2.38	2.8	0.4	○	○	●	○	○
DCGW11T302	1	3.0	9.525	3.97	4.4	0.2	○	○	○	○	○
DCGW11T304	1	3.0	9.525	3.97	4.4	0.4	●	○	●	○	○
DCGW11T308	1	3.0	9.525	3.97	4.4	0.8	○	○	○	○	○
DCMW11T302M	1	3.0	9.525	3.97	4.4	0.2	○	○	●	○	○
DCMW11T304M	1	3.0	9.525	3.97	4.4	0.4	○	○	●	○	○
DCMW11T308M	1	3.0	9.525	3.97	4.4	0.8	○	○	○	○	○



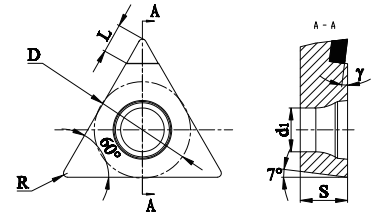
● Stock ○ Available upon Order



PCD (Postive)

# TC□W

Triangle 60° with Hole



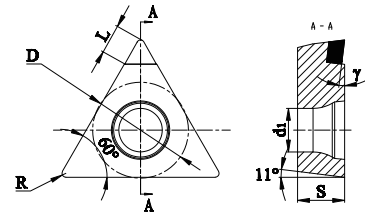
Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d <sub>1</sub>	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
TCGW080202	1	2.5	4.76	2.38	2.5	0.2	○	○	○	○	○
TCGW080204	1	2.5	4.76	2.38	2.5	0.4	●	○	○	○	○
TCMW080202M	1	2.5	4.76	2.38	2.5	0.2	○	○	●	○	○
TCMW080204M	1	2.5	4.76	2.38	2.5	0.4	○	○	●	○	○
TCGW090202	1	2.5	5.56	2.38	2.5	0.2	○	○	○	○	○
TCGW090204	1	2.5	5.56	2.38	2.5	0.4	○	○	○	○	○
TCMW090202M	1	2.5	5.56	2.38	2.5	0.2	○	○	●	○	○
TCMW090204M	1	2.5	5.56	2.38	2.5	0.4	○	○	●	○	○
TCGW110302	1	3.0	6.35	3.18	2.8	0.2	○	○	○	○	○
TCGW110304	1	3.0	6.35	3.18	2.8	0.4	●	○	○	○	○
TCGW110308	1	3.0	6.35	3.18	2.8	0.8	○	○	○	○	○
TCMW110302M	1	3.0	6.35	3.18	2.8	0.2	○	○	●	○	○
TCMW110304M	1	3.0	6.35	3.18	2.8	0.4	○	○	●	○	○
TCMW110308M	1	3.0	6.35	3.18	2.8	0.8	○	○	○	○	○
TCGW160402	1	3.0	9.525	4.76	4.4	0.2	○	○	○	○	○
TCGW160404	1	3.0	9.525	4.76	4.4	0.4	○	○	○	○	○
TCGW160408	1	3.0	9.525	4.76	4.4	0.8	○	○	○	○	○
TCMW160402M	1	3.0	9.525	4.76	4.4	0.2	○	○	○	○	○
TCMW160404M	1	3.0	9.525	4.76	4.4	0.4	○	○	○	○	○
TCMW160408M	1	3.0	9.525	4.76	4.4	0.8	○	○	○	○	○

● Stock ○ Available upon Order

PCD (Positive)

TP□W

Triangle 60° with Hole



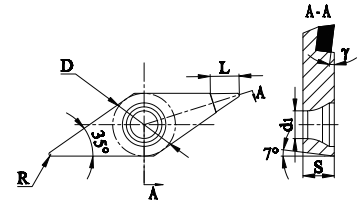
Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d1	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
TPGW080202	1	2.5	4.76	2.38	2.5	0.2	○	○	○	○	○
TPGW080204	1	2.5	4.76	2.38	2.5	0.4	○	○	○	○	○
TPMW080202M	1	2.5	4.76	2.38	2.5	0.2	○	○	○	○	○
TPMW080204M	1	2.5	4.76	2.38	2.5	0.4	○	○	●	○	○
TPGW090202	1	2.5	5.56	2.38	2.5	0.2	○	○	○	○	○
TPGW090204	1	2.5	5.56	2.38	2.5	0.4	○	○	●	○	○
TPMW090202M	1	2.5	5.56	2.38	2.5	0.2	○	○	○	○	○
TPMW090204M	1	2.5	5.56	2.38	2.5	0.4	○	○	●	○	○
TPGW110302	1	3.0	6.35	3.18	2.8	0.2	○	○	○	○	○
TPGW110304	1	3.0	6.35	3.18	2.8	0.4	○	○	○	○	○
TPGW110308	1	3.0	6.35	3.18	2.8	0.8	○	○	○	○	○
TPMW110302M	1	3.0	6.35	3.18	2.8	0.2	○	○	○	○	○
TPMW110304M	1	3.0	6.35	3.18	2.8	0.4	○	○	●	○	○
TPMW110308M	1	3.0	6.35	3.18	2.8	0.8	○	○	○	○	○
TPGW160402	1	3.0	9.525	4.76	4.4	0.2	○	○	○	○	○
TPGW160404	1	3.0	9.525	4.76	4.4	0.4	○	○	○	○	○
TPGW160408	1	3.0	9.525	4.76	4.4	0.8	○	○	○	○	○
TPMW160402M	1	3.0	9.525	4.76	4.4	0.2	○	○	○	○	○
TPMW160404M	1	3.0	9.525	4.76	4.4	0.4	○	○	○	○	○
TPMW160408M	1	3.0	9.525	4.76	4.4	0.8	○	○	○	○	○

● Stock ○ Available upon Order

PCD (Positive)

# VC□W

Rhombic 35° with Hole



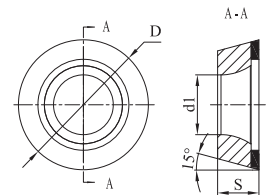
Ordering code	Flute	Dimensions (mm)					PCD Grade				
		L	D	S	d <sub>1</sub>	R	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
VCGW110302	1	3.0	6.35	3.18	2.8	0.2	○	○	○	○	○
VCGW110304	1	3.0	6.35	3.18	2.8	0.4	○	○	●	○	○
VCGW110308	1	3.0	6.35	3.18	2.8	0.8	○	○	○	○	○
VCMW110302M	1	3.0	6.35	3.18	2.8	0.2	○	○	●	○	○
VCMW110304M	1	3.0	6.35	3.18	2.8	0.4	○	○	○	○	○
VCMW110308M	1	3.0	6.35	3.18	2.8	0.8	○	○	○	○	○
VCGW160402	1	3.0	9.525	4.76	4.4	0.2	○	○	○	○	○
VCGW160404	1	3.0	9.525	4.76	4.4	0.4	○	○	●	○	○
VCGW160408	1	3.0	9.525	4.76	4.4	0.8	○	○	○	○	○
VCGW160412	1	3.0	9.525	4.76	4.4	1.2	○	○	○	○	○
VCMW160402M	1	3.0	9.525	4.76	4.4	0.2	○	○	○	○	○
VCMW160404M	1	3.0	9.525	4.76	4.4	0.4	○	○	●	○	○
VCMW160408M	1	3.0	9.525	4.76	4.4	0.8	○	○	○	○	○
VCMW160412M	1	3.0	9.525	4.76	4.4	1.2	○	○	○	○	○



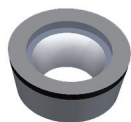
● Stock ○ Available upon Order

# RDEW

Round 80° with Hole



Ordering code	Flute	Dimensions (mm)			PCD Grade				
		D	S	d <sub>1</sub>	DNN105P	DNN120P	DNN125P	DNN130P	DNN135P
RDEW0803	1	8	3.18	2.94	○	○	○	○	○
RDEW1003	1	10	3.18	4.4	○	○	○	○	○
RDEW1204	1	12	4.76	4.4	○	○	○	○	○



● Stock ○ Available upon Order

## Recommended Cutting Data

### PCBN Tool

ISO	Workpiece Material	Hardness	Cutting Range	Purpose	Geometry	Grade	Min-Optimum-Max		
							Vc(m/min)	ap(mm)	f(mm/rev)
K	Gray cast iron	HB200~230	Finishing	General	/	BKN115P	400-600-1500	0.05-0.20-0.50	0.05-0.20-0.40
	Alloy cast iron	≥HB200	Finishing	General	/	BKN115P	200-400-800	0.05-0.20-0.50	0.05-0.20-0.40
	Powder Metallurgy	QT450~QT700	Finishing	General	/	BKC120P	150-300-500	0.10-0.20-0.50	0.05-0.12-0.3
S	Hardened Material	HRB50~90	Finishing	Continuous	/	BSN115P	50-150-300	0.05-0.20-0.5	0.05-0.12-0.30
H	Hardened Material	≥HRC50	Finishing	Continuous	/	BHC115P	120-150-220	0.05-0.10-0.20	0.05-0.10-0.20
	Hardened Material	≥HRC50	Roughing-Finishing	General	/	BHC125P	100-130-180	0.05-0.10-0.50	0.05-0.10-0.20
	Hardened Material	≥HRC50	Finishing-Semi-finishing	Interrupted	/	BHC135P	80-100-150	0.05-0.10-0.40	0.05-0.10-0.20

### PCD Tool

ISO	Workpiece Material	Vc (m/min)	f(mm/rev)	ap(mm)
N	Aluminum Alloy	~3000	~0.2	~3
	Copper Alloy	~1000	~0.2	~3
	Reinforced plastics	~1000	~0.4	~3
	Wood and inorganic board	~4000	~0.4	-
	Cemented Alloy	10~30	~0.2	~0.5
	Graphite	100~600	~1	~3