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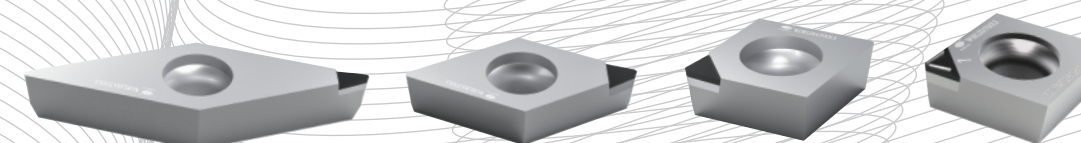
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PCD and CVDD Turning Inserts

Standard/Chip breaker/Wiper

N

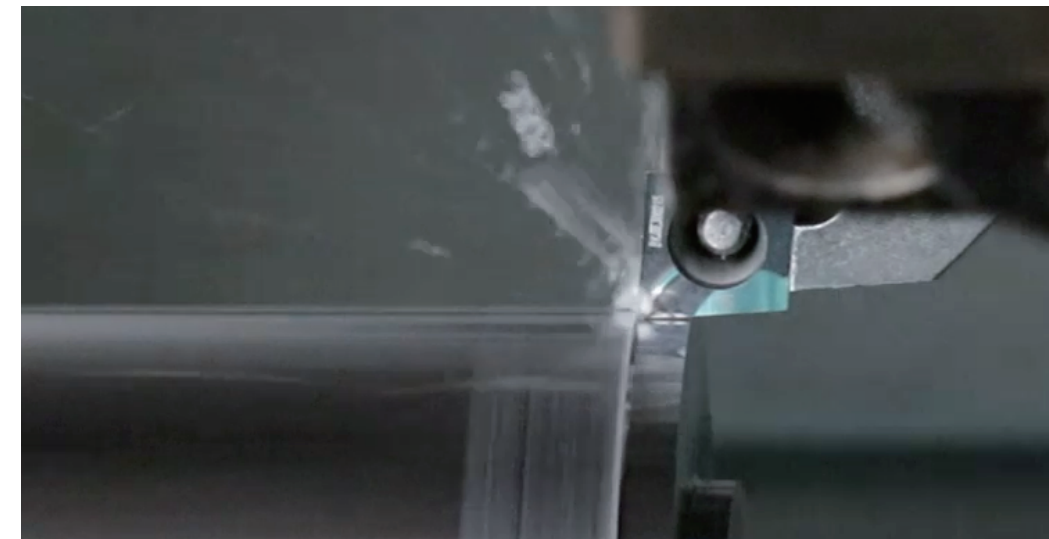


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Worldia PCD Grades Introduction

Standard/Chip breaker/Wiper



Introduction:

Worldia' portfolio comprise of a variety of different PCD and CVD materials that will be selected base on customer specific application requirements, according to grain size and features of material, Worldia provides you with four types of PCD grades:PD01E、PD10E、PD32E and CVDD. These grades are commonly used for non-ferrous machining applications, other successful applications include machining of wood、MDF、MMC、silicon aluminium alloys、carbide、hard rubber、graphite and so on.

This catalogue shows examples of Worldia' s capabilities and recommendations for application-specific made-to-order inserts.

For on-stock standard inserts, please refer to our MANANOVA -Easy Choice -Fast Delivery PCD catalogue.

In order to enable us to recommend the optimum insert for your application, kindly provide us with application data as per page22 of this catalogue.

For your convenience, please feel free to use QR code.

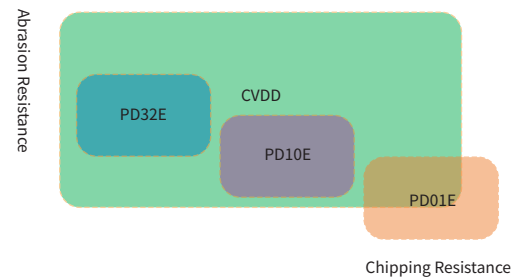


PCD Material Introduction N

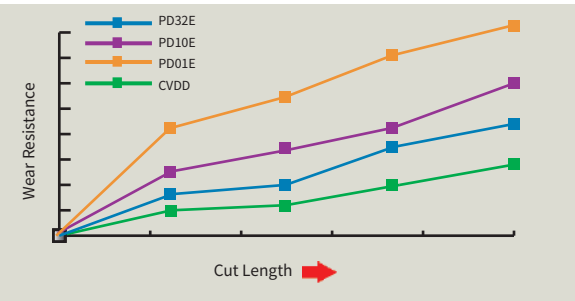
Application Recommendation

Material	Grade size(μm)	Feature	Application
PD01E	1	PD01E fine grain size PCD material(1μm) is suitable for mirror finishing applications.Its high impact resistance and high abrasive resistance are comparable to coarse grain size grade of PCD .	PD01E has excellent chip resistance is suitable for the roughing and interrupt cutting aluminium alloys. This grade is also commonly used for non-ferrous finishing applications. Other successful applications include machining of wood, MDF.
PD10E	10	PD10E is the universal grade in the market. It's the first choice for many applications where a good balance of toughness and wear resistance are required.	This grade is commonly used for non-ferrous finishing applications. Other successful applications include machining of wood, MDF.The machining of low-medium content silicon aluminium alloys, carbide, hard rubber, graphite and so on.
PD32E	2~30	PD32E has a unique combination of wear resistance, edge strength and edge quality. It contains a carefully selected mix of micron diamond (between 2 - 30 μm). The combination of these particle sizes and a specifically developed high pressure sintering process produces a structure with extreme abrasion resistance and good thermal stability.	Application areas include the machining of abrasive workpieces such as MMC, high silicon aluminium alloys as well as for the machining of carbide, hard rubber, graphite and other applications.
CVDD	—	CVDD is a pure carbon material without binder with extreme abrasion resistance and good thermal suitability. Due to its Perfect cutting edge suitable for applications where mirror finishes are required.	Application areas include the machining of abrasive workpieces such as MMC, high silicon aluminium alloys as well as for the machining of carbide, hard rubber,graphite and other applications.

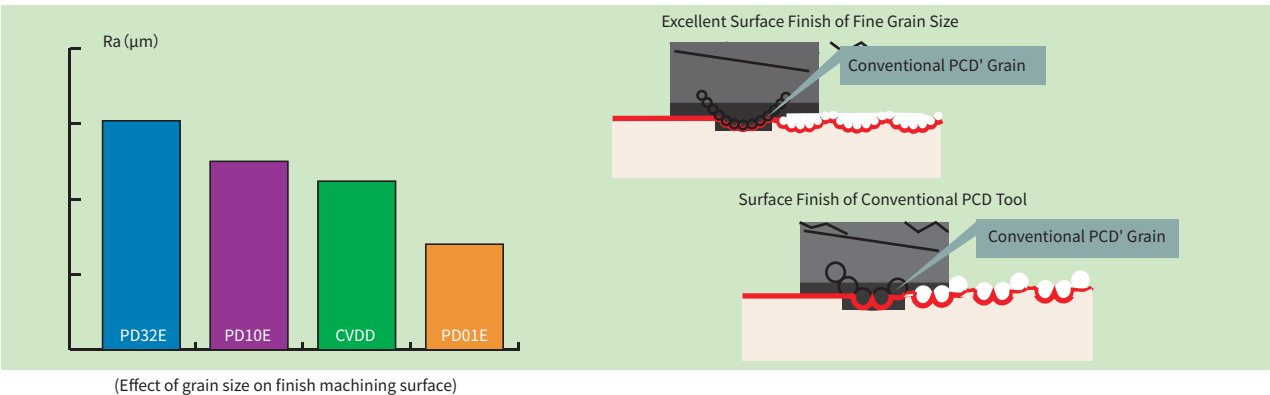
Micro-Structure of PCD Materials



Differences in Abrasive-resistance Among Various Grade of PCD Materials



PCD Grain Size Affects Roughness of Workpiece's Surface



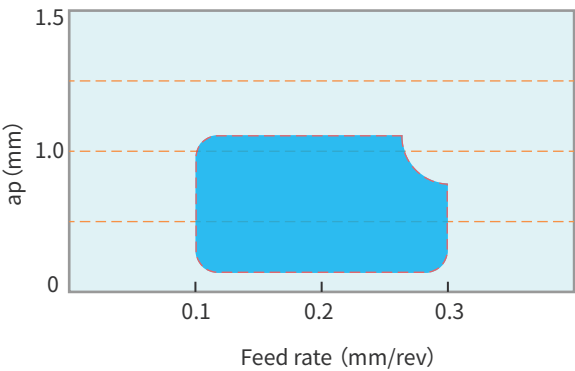
PCD Material Introduction N

PCD Insert with chip-breaker /Wiper

■PCD Insert with chip-breaker(CBC1)

Excellent chip breaking in finishing machining

Scope of Application



Material:A6061

Cutting conditions:Vc=400m/min f=0.1mm/rev ap=0.2mm

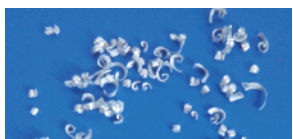
Insert type:CCGW09T308



Material:A6061

Cutting conditions:Vc=400m/min f=0.1mm/rev ap=0.5mm

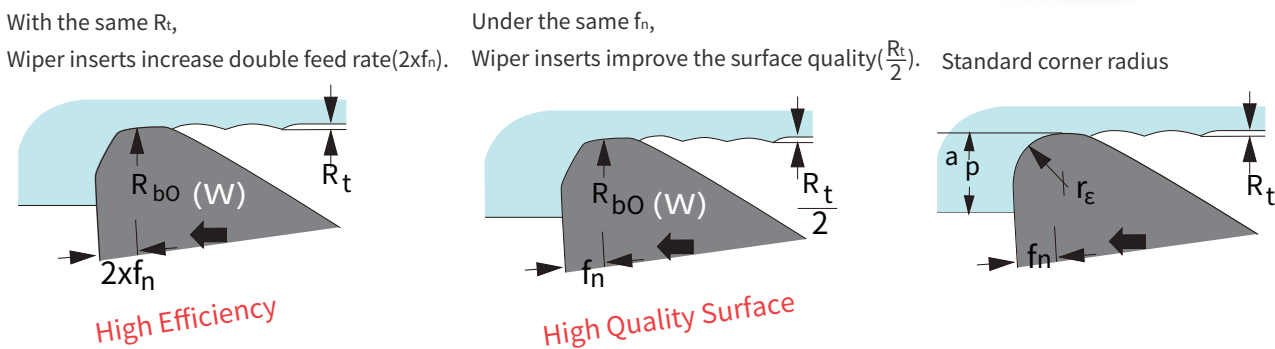
Insert type:CCGW09T308



■PCD Wiper Insert(WG)

Improve the quality of workpiece surface or processing efficiency

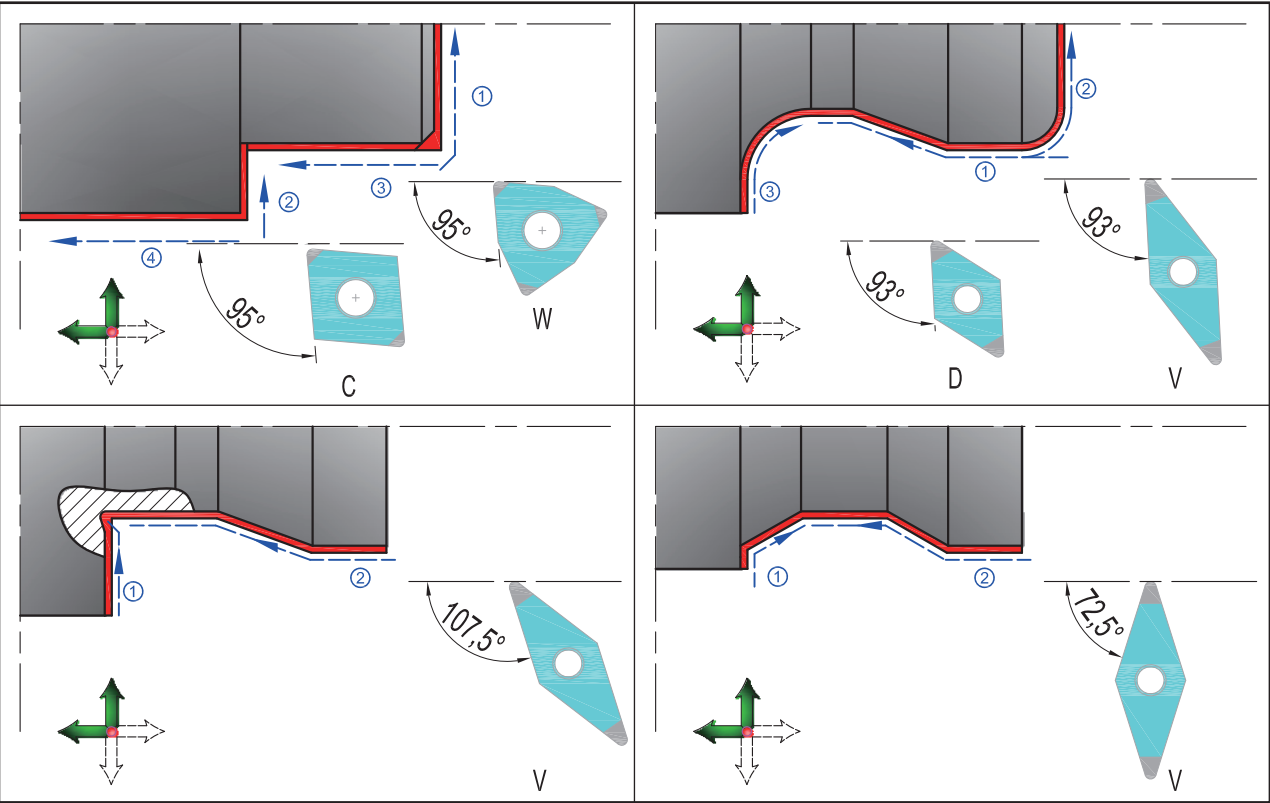
Effect of Wiper Insert



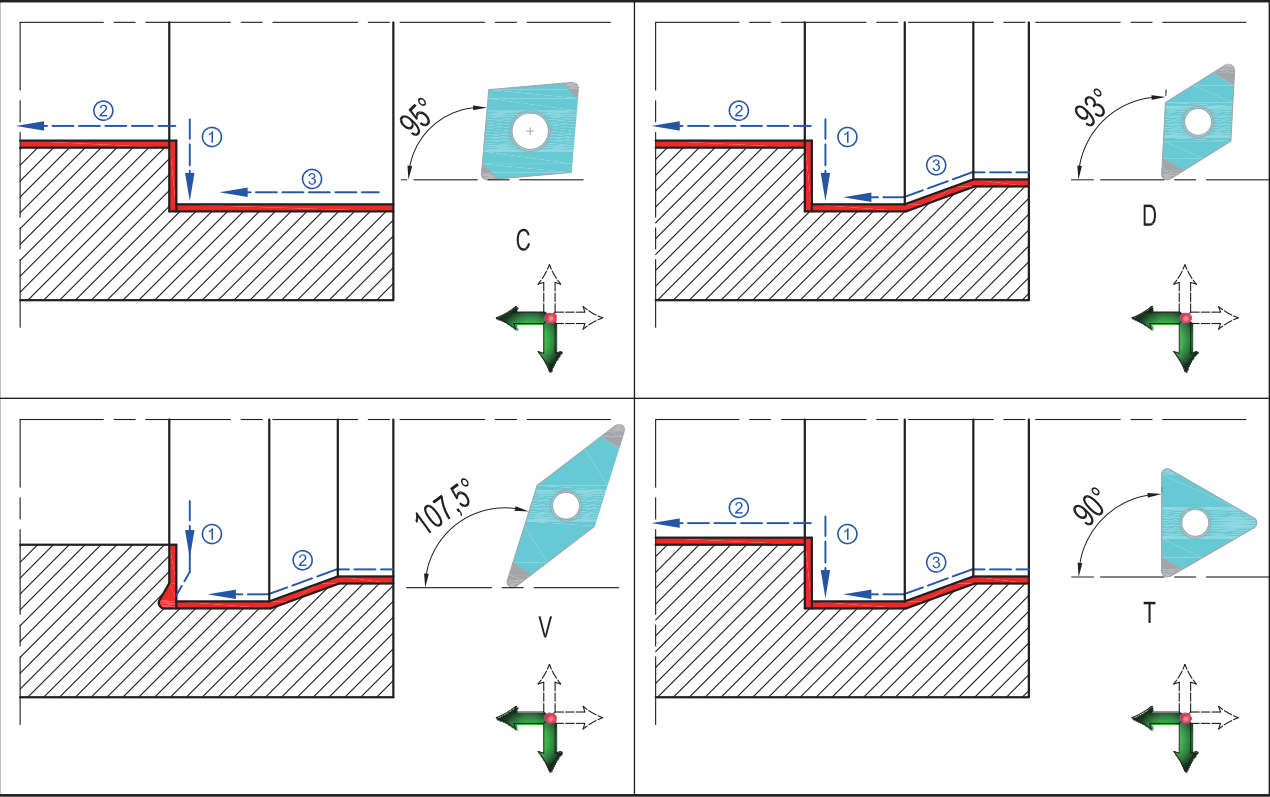
Cutting Direction Recommendation

Recommended cutting direction for turning no-ferrous with PCD tools

External machining



Internal machining

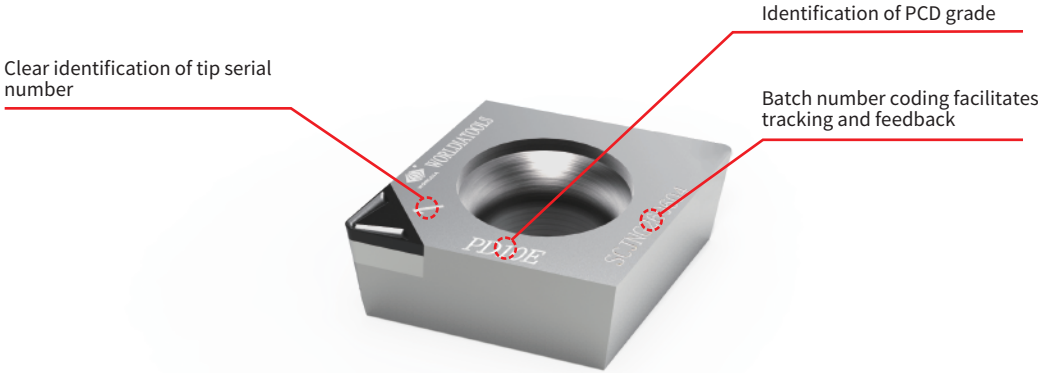


Identification Code and Package Instruction

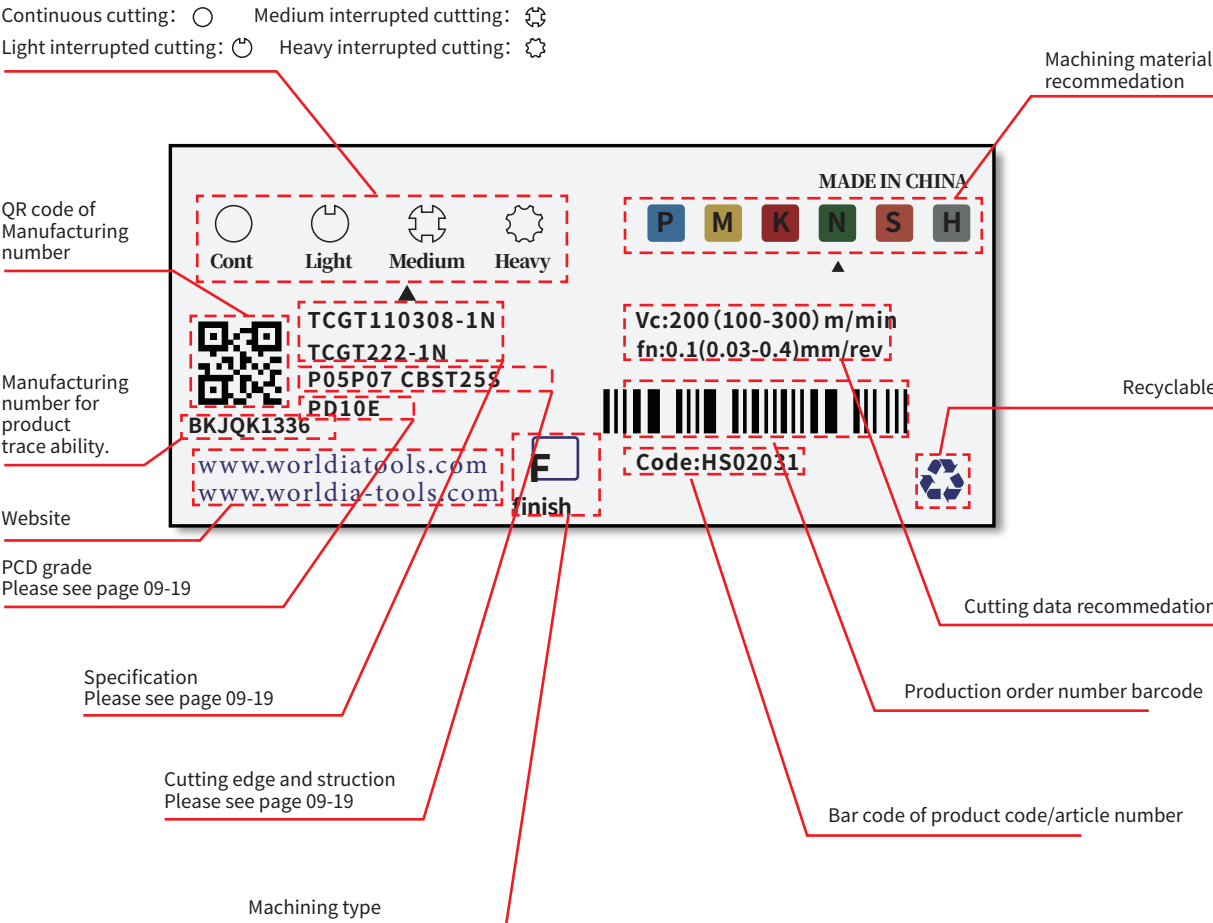
No-ferrous



Insert Identification



Label Identification



Nomenclature

Rule of PCD Insert Code

ISO	Insert Features				Edges		Clearance Description				Cutting Edge Length							
	Clearance Angle		Thickness		Rake Description		Insert Type											
	C	C	G	W	09	T3	04	-1	N	P	00	P	07	CB	ST	30	S	PD10E
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	Shape		Insert Size		Cutting Direction		Clearance Angle		Surface Treatment									
Tolerance Class				Tip radius		Rake Angle		Cutting Edge Design										

1.Shape			
	H	Hexagon	
		120°	
	O	Octagonal	
		135°	
	P	Pentagon	
		108°	
	R	Round	
		90°	
	S	Square	
		90°	
	T	Triangle	
		60°	
			Diamond
			80°
			55°
			75°
			86°
			35°
			Hexagon
			80°
			Rectangular
			90°
			Diamond
			85°
			82°
			55°

2.Clearance Angle			
	A	20°	E
	B	25°	F
	C	30°	G
	D	0°	N
			P
			O

4.Insert Features			
	N		G
	R		W
	F		T
	A		Q
	M		U
			Others
			X

3.Tolerance Class			
	Code	Tolerance	
		m	s
	C	±0.013	±0.025
	H	±0.013	±0.025
	E	±0.025	±0.025
	G	±0.025	±0.13
	K	±0.013	±0.025
	M	±0.08-±0.18	±0.13
	U	±0.13-±0.38	±0.13
	Code	inch	
		m	ic
	C	±.0005	±.001
	H	±.0005	±.0005
	E	±.001	±.001
	G	±.001	±.001
	K	±.0005	±.002-.005
	M	±.002-.005	±.002-.005
	U	±.005-.012	±.005-.010

5.Insert Size			
ISO		ANSI	
Edge length (accoring insert shape)		IC Size	
C	D	R	S
S4	04	03	03
04	05	04	04
05	06	05	05
-	-	06	-
06	07	06	06
08	09	07	07
-	-	08	-
09	11	09	09
-	-	10	-
-	-	12	-
12	15	12	12
16	19	15	15
-	-	16	-
19	23	19	19
-	-	20	-
22	27	22	22
-	-	25	-
25	31	25	25
32	38	31	31
-	-	32	-

6.Thickness			
ISO		ANSI	
Code	Size	Code	Size
S	mm	S	inch
01	1.59	1	1/16
02	2.38	(1.5)	3/32
T2	2.78	-	-
03	3.18	2	1/8
T3	3.97	(2.5)	5/32
04	4.76	3	3/16
05	5.56	(3.5)	7/32
06	6.35	4	1/4
07	7.94	5	5/16
09	9.525	6	3/8

7.Tip radius			
ISO		ANSI	
Code	Size	Code	Size
R _e	mm	R _e	inch
00	sharp	00	.000
003	0.03	(0.1)	.001
01	0.1	(0.2)	.004
02	0.2	(0.5)	.008
04	0.4	1	1/64
08	0.8	2	1/32
12	1.2	3	3/64
16	1.6	4	1/16
20	2.0	5	5/64
24	2.4	6	3/32
28	2.8	7	7/64
32	3.2	8	1/8
M00	Round		circular

Nomenclature

Rule of PCD Insert Code

ANSI	Standard,Chipbreaker					Edges	Clearance Description				Cutting Edge Length								
	Clearance Angle		Thickness			Rake Description		Insert Type											
	C	C	M	W	3	(2.5)	1	-	1	N	P	00	P	07	CB	ST	30	S	PD10E
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
	Shape		Inscribed Circle Dia.			Cutting Direction		Clearance Angle		Surface Treatment									
Tolerance-ISO		Tip radius			Rake Angle		Cutting Edge Design												

8.Edges			
Code	1	2	3
Edges	1Edge	2Edge	3Edge

9.Cutting Direction			
Code	R	L	N
Edges	1Edge	2Edge	3Edge

10.Rake Description			
P		M	
Positive		Negative angle	

11.Rake Angle			
Code	00	03	05
Size	0	3	5

12.Clearance Description			
P		M	
Positive Clearance		Negative Clearance	

13.Clearance Angle			
Code	00	01	02
Size	0	1	2

14.Insert Type			
SF	SL	SS	CB
Full Face	Solid Tipped Corner	Solid CBN	Standard Tipped Corners

15.Cutting Edge Design			
ST	WG	WG00	CBC1
Nose Radius	Wiper	0°Wiper	C1 Chip Breaker

16. Cutting Edge Length			
Code	25	30	35
Nose Radius	2.8	3.0	3.5

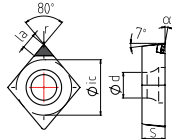
17.Surface Treatment			
S	Uncoated		

Standard PCD Turning Inserts

PCD Tipped for Non-ferrous

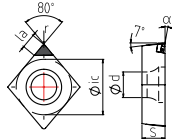
CC	80°Positive Screw-down
	Standard
	CC◆◆0602◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	CCGW—P00P07			
	CCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	CCGW060202-1N	CCGW2(1.5)(0.5)-1N		ST25S	1	6.35	2.8	2.38	0.2	2.5
	CCGW060204-1N	CCGW/T2(1.5)1-1N							0.4	
	CCGT060202-1N	CCGT2(1.5)(0.5)-1N							0.2	
	CCGT060204-1N	CCGT2(1.5)1-1N							0.4	

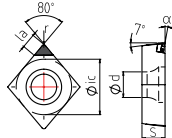
CC	80°Positive Screw-down
	Standard
	CC◆◆09T3◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	CCGW—P00P07			
	CCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	CCGW09T302-1N	CCGW3(2.5)(0.5)-1N		ST25S	1	9.525	4.4	3.97	0.2	2.5
	CCGW09T304-1N	CCGW3(2.5)1-1N							0.4	
	CCGW09T308-1N	CCGW3(2.5)2-1N							0.8	
	CCGT09T302-1N	CCGT3(2.5)(0.5)-1N							0.2	
	CCGT09T304-1N	CCGT3(2.5)1-1N							0.4	
	CCGT09T308-1N	CCGT3(2.5)2-1N							0.8	

CC	80°Positive Screw-down
	Standard
	CC◆◆1204◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	CCGW—P00P07			
	CCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	CCGW120402-1N	CCGW43(0.5)-1N		ST25S	1	9.525	4.4	3.97	0.2	2.5
	CCGW120404-1N	CCGW431-1N							0.4	
	CCGW120408-1N	CCGW432-1N							0.8	
	CCGT120402-1N	CCGT43(0.5)-1N							0.2	
	CCGT120404-1N	CCGT431-1N							0.4	
	CCGT120408-1N	CCGT432-1N							0.8	

Notes: Inserts with more than 1 tip on customer request

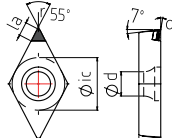
Standard PCD Turning Inserts

PCD Tipped for Non-ferrous



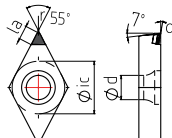
DC	55°Positive Screw-down
	Standard
	DC◆◆0702◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	DCGW—P00P07			
	DCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	DCGW070202-1N	DCGW2(1.5)(0.5)-1N		ST25S	1	6.35	2.8	2.38	0.2	2.5
	DCGW070204-1N	DCGW2(1.5)1-1N							0.4	
	DCGW070208-1N	DCGW2(1.5)2-1N							0.8	
	DCGT070202-1N	DCGT2(1.5)(0.5)-1N							0.2	
	DCGT070204-1N	DCGT2(1.5)1-1N							0.4	
	DCGT070208-1N	DCGT2(1.5)2-1N							0.8	

DC	55°Positive Screw-down
	Standard
	DC◆◆11T3◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	DCGW—P00P07			
	DCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	DCGW11T302-1N	DCGW3(2.5)(0.5)-1N		ST25S	1	9.525	4.4	3.97	0.2	2.5
	DCGW11T304-1N	DCGW3(2.5)1-1N							0.4	
	DCGW11T308-1N	DCGW3(2.5)2-1N							0.8	
	DCGT11T302-1N	DCGT3(2.5)(0.5)-1N							0.2	
	DCGT11T304-1N	DCGT3(2.5)1-1N							0.4	
	DCGT11T308-1N	DCGT3(2.5)2-1N							0.8	

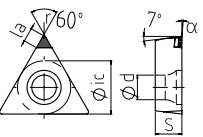
Notes: Inserts with more than 1 tip on customer request

Standard PCD Turning Inserts

PCD Tipped for Non-ferrous

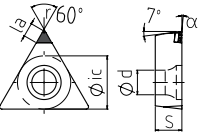
TC	60°Positive Screw-down
	Standard
	TC◆◆0802◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	TCGW—P00P07			
	TCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	TCGW080202-1N	TCGW(1.5)(1.5)(0.5)-1N		ST25S	1	4.76	2.4	2.38	0.2	2.5
	TCGW080204-1N	TCGW(1.5)(1.5)1-1N							0.4	
	TCGW080208-1N	TCGW(1.5)(1.5)2-1N							0.8	
	TCGT080202-1N	TCGT(1.5)(1.5)(0.5)-1N							0.2	
	TCGT080204-1N	TCGT(1.5)(1.5)1-1N							0.4	
	TCGT080208-1N	TCGT(1.5)(1.5)2-1N							0.8	

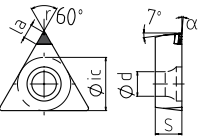
TC	60°Positive Screw-down
	Standard
	TC◆◆1103◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	TCGW—P00P07			
	TCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	TCGW110302-1N	TCGW22(0.5)-1N		ST25S	1	6.35	2.8	3.18	0.2	2.5
	TCGW110304-1N	TCGW221-1N							0.4	
	TCGW110308-1N	TCGW222-1N							0.8	
	TCGT110302-1N	TCGT22(0.5)-1N							0.2	
	TCGT110304-1N	TCGT221-1N							0.4	
	TCGT110308-1N	TCGT222-1N							0.8	

TC	60°Positive Screw-down
	Standard
	TC◆◆1604◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	TCGW—P00P07			
	TCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	TCGW160402-1N	TCGW33(0.5)-1N		ST25S	1	9.525	4.4	4.76	0.2	2.5
	TCGW160404-1N	TCGW331-1N							0.4	
	TCGW160408-1N	TCGW332-1N							0.8	
	TCGT160402-1N	TCGT33(0.5)-1N							0.2	
	TCGT160404-1N	TCGT331-1N							0.4	
	TCGT160408-1N	TCGT332-1N							0.8	

Notes: Inserts with more than 1 tip on customer request

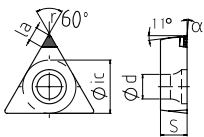
Standard PCD Turning Inserts

PCD Tipped for Non-ferrous



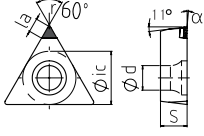
TP	60°Positive Screw-down
	Standard
	TP◆◆0802◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	TPGW—P00P11			
	TPGT—P05P11 /P10P11			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	TPGW080202-1N	TPGW(1.5)(1.5)(0.5)-1N		ST25S	1	4.76	2.4	2.38	0.2	2.5
	TPGW080204-1N	TPGW(1.5)(1.5)1-1N							0.4	
	TPGW080208-1N	TPGW(1.5)(1.5)2-1N							0.8	
	TPGT080202-1N	TPGT(1.5)(1.5)(0.5)-1N							0.2	
	TPGT080204-1N	TPGT(1.5)(1.5)1-1N							0.4	
	TPGT080208-1N	TPGT(1.5)(1.5)2-1N							0.8	

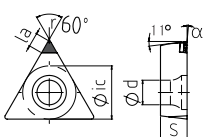
TP	60°Positive Screw-down
	Standard
	TP◆◆1103◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	TPGW—P00P11			
	TPGT—P05P11 /P10P11			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	TPGW110302-1N	TPGW22(0.5)-1N		ST25S	1	6.35	3.3	3.18	0.2	2.5
	TPGW110304-1N	TPGW221-1N							0.4	
	TPGW110308-1N	TPGW222-1N							0.8	
	TPGT110302-1N	TPGT22(0.5)-1N							0.2	
	TPGT110304-1N	TPGT221-1N							0.4	
	TPGT110308-1N	TPGT222-1N							0.8	

TP	60°Positive Screw-down
	Standard
	TP◆◆1603◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	TPGW—P00P11			
	TPGT—P05P11 /P10P11			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	TPGW160302-1N	TPGW32(0.5)-1N		ST25S	1	6.35	3.3	3.18	0.2	2.5
	TPGW160304-1N	TPGW321-1N							0.4	
	TPGW160308-1N	TPGW322-1N							0.8	
	TPGT160302-1N	TPGT32(0.5)-1N							0.2	
	TPGT160304-1N	TPGT321-1N							0.4	
	TPGT160308-1N	TPGT322-1N							0.8	

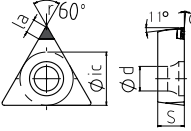
Notes: Inserts with more than 1 tip on customer request

Standard PCD Turning Inserts

PCD Tipped for Non-ferrous

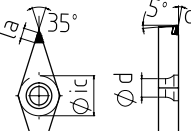
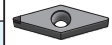
TP	60°Positive Screw-down
	Standard
	TP◆◆1604◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	TPGW—P00P11			
	TPGT—P05P11 /P10P11			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	rε	la
	TPGW160402-1N	TPGW33(0.5)-1N		ST25S	1	6.35	3.3	4.76	0.2	2.5
	TPGW160404-1N	TPGW331-1N							0.4	
	TPGW160408-1N	TPGW332-1N							0.8	
	TPGT160402-1N	TPGT33(0.5)-1N							0.2	
	TPGT160404-1N	TPGT331-1N							0.4	
	TPGT160408-1N	TPGT332-1N							0.8	

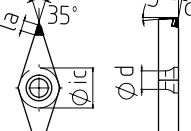
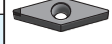
VB	35°Positive Screw-down
	Standard
	VB◆◆1103◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	VBGW—P00P05			
	VBGT—P05P05 /P10P05			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	rε	la
	VBGW110302-1N	VBGW22(0.5)-1N		ST30S	1	6.35	2.8	3.18	0.2	3.0
	VBGW110304-1N	VBGW221-1N							0.4	
	VBGW110308-1N	VBGW222-1N							0.8	
	VBGT110302-1N	VBGT22(0.5)-1N							0.2	
	VBGT110304-1N	VBGT221-1N							0.4	
	VBGT110308-1N	VBGT222-1N							0.8	

VB	35°Positive Screw-down
	Standard
	VB◆◆1604◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	VBGW—P00P05			
	VBGT—P05P05 /P10P05			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	rε	la
	VBGW160402-1N	VBGW33(0.5)-1N		ST30S	1	9.525	3.3	4.76	0.2	3.0
	VBGW160404-1N	VBGW331-1N							0.4	
	VBGW160408-1N	VBGW332-1N							0.8	
	VBGT160402-1N	VBGT33(0.5)-1N							0.2	
	VBGT160404-1N	VBGT331-1N							0.4	
	VBGT160408-1N	VBGT332-1N							0.8	

Notes: Inserts with more than 1 tip on customer request

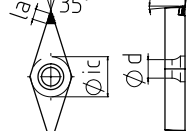
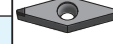
Standard PCD Turning Inserts

PCD Tipped for Non-ferrous



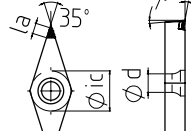
VC	35°Positive Screw-down
	Standard
	VC◆◆1103◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	VCGW—P00P07			
	VCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	rε	la
	VCGW110302-1N	VCGW22(0.5)-1N		ST30S	1	6.35	2.8	3.18	0.2	3.0
	VCGW110304-1N	VCGW221-1N							0.4	
	VCGW110308-1N	VCGW222-1N							0.8	
	VCGT110302-1N	VCGT22(0.5)-1N							0.2	
	VCGT110304-1N	VCGT221-1N							0.4	
	VCGT110308-1N	VCGT222-1N							0.8	

VC	35°Positive Screw-down
	Standard
	VC◆◆1604◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	VCGW—P00P07			
	VCGT—P05P07 /P10P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	rε	la
	VCGW160402-1N	VCGW33(0.5)-1N		ST30S	1	9.525	4.4	4.76	0.2	3.0
	VCGW160404-1N	VCGW331-1N							0.4	
	VCGW160408-1N	VCGW332-1N							0.8	
	VCGT160402-1N	VCGT33(0.5)-1N							0.2	
	VCGT160404-1N	VCGT331-1N							0.4	
	VCGT160408-1N	VCGT332-1N							0.8	

Notes: Inserts with more than 1 tip on customer request

Standard PCD Turning Inserts

PCD Tipped for Non-ferrous

CN

80°Negative Screw-down

Standard

CN◆◆1204◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	CNGA—P00P00			
	CNGM—P10P00			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	CNGA120402-1N	CNGA43(0.5)-1N		ST25S	1	12.7	5.16	4.76	0.2	2.5
	CNGA120404-1N	CNGA431-1N							0.4	
	CNGA120408-1N	CNGA432-1N							0.8	
	CNGM120402-1N	CNGM43(0.5)-1N							0.2	
	CNGM120404-1N	CNGM431-1N							0.4	
	CNGM120408-1N	CNGM432-1N							0.8	

DN

55°Negative Screw-down

Standard

DN◆◆1504◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	DNGA—P00P00			
	DNGM—P10P00			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	DNGA150402-1N	DNGA43(0.5)-1N		ST25S	1	12.7	5.16	4.76	0.2	2.5
	DNGA150404-1N	DNGA431-1N							0.4	
	DNGA150408-1N	DNGA432-1N							0.8	
	DNGM150402-1N	DNGM43(0.5)-1N							0.2	
	DNGM150404-1N	DNGM431-1N							0.4	
	DNGM150408-1N	DNGM432-1N							0.8	

TN

60°Negative Screw-down

Standard

TN◆◆1604◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	TNGA—P00P00			
	TNGM—P10P00			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	TNGA160402-1N	TNGA33(0.5)-1N		ST30S	1	9.525	3.81	4.76	0.2	2.5
	TNGA160404-1N	TNGA331-1N							0.4	
	TNGA160408-1N	TNGA332-1N							0.8	
	TNGM160402-1N	TNGM33(0.5)-1N							0.2	
	TNGM160404-1N	TNGM331-1N							0.4	
	TNGM160408-1N	TNGM332-1N							0.8	

Notes: Inserts with more than 1 tip on customer request

Standard PCD Turning Inserts

PCD Tipped for Non-ferrous



VN

35°Negative Screw-down

Standard

VN◆◆1604◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	VNGA—P00P00			
	VNGM—P10P00			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	VNGA160402-1N	VNGA33(0.5)-1N		ST30S	1	9.525	3.81	4.76	0.2	3.0
	VNGA160404-1N	VNGA331-1N							0.4	
	VNGA160408-1N	VNGA332-1N							0.8	
	VNGM160402-1N	VNGM33(0.5)-1N							0.2	
	VNGM160404-1N	VNGM331-1N							0.4	
	VNGM160408-1N	VNGM332-1N							0.8	

Notes: Inserts with more than 1 tip on customer request

Chip-breaker PCD Turning Inserts

PCD Tipped for Non-ferrous

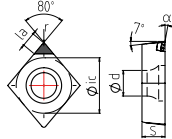
CC

80°Positive Screw-down

Chip-breaker

CC◆◆0602◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	P00P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	CCGT060202-1N	CCGT2(1.5)(0.5)-1N		CBC125S	1	6.35	2.8	2.38	0.2	2.5
	CCGT060204-1N	CCGT2(1.5)1-1N							0.4	
	CCGT09T302-1N	CCGT3(2.5)(0.5)-1N				9.525	4.4	3.97	0.2	
	CCGT09T304-1N	CCGT3(2.5)1-1N							0.4	
	CCGT09T308-1N	CCGT3(2.5)2-1N							0.8	

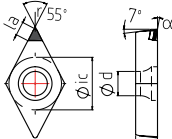
DC

55°Positive Screw-down

Chip-breaker

DC◆◆0702/11T3◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	P00P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	DCGT070202-1N	DCGT2(1.5)(0.5)-1N		CBC125S	1	6.35	2.8	2.38	0.2	2.5
	DCGT070204-1N	DCGT2(1.5)1-1N							0.4	
	DCGT11T302-1N	DCGT3(2.5)(0.5)-1N				9.525	4.4	3.97	0.2	
	DCGT11T304-1N	DCGT3(2.5)1-1N							0.4	
	DCGT11T308-1N	DCGT3(2.5)2-1N							0.8	

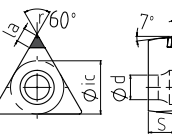
TC

60°Positive Screw-down

Chip-breaker

TC◆◆0802/1103/1604◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	P00P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	TCGT080202-1N	TCGT (1.5) (1.5)(0.5)-1N		CBC125S	1	4.76	2.4	2.38	0.2	2.5
	TCGT080204-1N	TCGT (1.5) (1.5)1-1N							0.4	
	TCGT110302-1N	TCGT22(0.5)-1N				6.35	2.8	3.18	0.2	
	TCGT110304-1N	TCGT221-1N							0.4	
	TCGT160402-1N	TCGT33(0.5)-1N				9.525	4.4	4.76	0.2	
	TCGT160404-1N	TCGT331-1N							0.4	
	TCGT160408-1N	TCGT332-1N							0.8	

Notes: Inserts with more than 1 tip on customer request

Chip-breaker PCD Turning Inserts

PCD Tipped for Non-ferrous

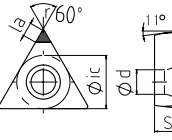
TP

60°Positive Screw-down

Chip-breaker

TP◆◆0802/1103/1604◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	P00P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	TPGT080202-1N	TPGT (1.5) (1.5)(0.5)-1N		CBC125S	1	4.76	2.4	2.38	0.2	2.5
	TPGT080204-1N	TPGT (1.5) (1.5)1-1N							0.4	
	TPGT110302-1N	TPGT22(0.5)-1N				6.35	2.8	3.18	0.2	
	TPGT110304-1N	TPGT221-1N							0.4	
	TPGT160402-1N	TPGT33(0.5)-1N				9.525	4.4	4.76	0.2	
	TPGT160404-1N	TPGT331-1N							0.4	
	TPGT160408-1N	TPGT332-1N							0.8	

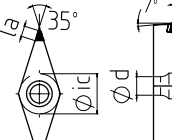
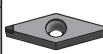
VC

35°Positive Screw-down

Chip-breaker

VC◆◆0602/09T3◆◆

N				
Tips type	CB	CB	CB	SL
Cutting edge	P00P07			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	VCGT110302-1N	VCGT22(0.5)-1N		CBC125S	1	6.35	3.3	3.18	0.2	2.5
	VCGT110304-1N	VCGT221-1N							0.4	
	VCGT160402-1N	VCGT33(0.5)-1N				9.525	4.4	4.76	0.2	
	VCGT160404-1N	VCGT331-1N							0.4	
	VCGT160408-1N	VCGT332-1N							0.8	

Notes: Inserts with more than 1 tip on customer request

PCD Tipped for Non-ferrous



N				
Tips type	CB	CB	CB	SL
Cutting edge	P00P00			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	CCGW060202-1N	CCGW2(1.5)(0.5)-1N		WG25S	1	6.35	2.8	2.38	0.2	2.5
	CCGW060204-1N	CCGW2(1.5)1-1N							0.4	
	CCGW09T302-1N	CCGW3(2.5)(0.5)-1N							0.2	
	CCGW09T304-1N	CCGW3(2.5)1-1N							0.4	
	CCGW09T308-1N	CCGW3(2.5)2-1N							0.8	
	CCGW120402-1N	CCGW43(0.5)-1N							0.2	
	CCGW120404-1N	CCGW431-1N							0.4	
	CCGW120408-1N	CCGW432-1N							0.8	



N				
Tips type	CB	CB	CB	SL
Cutting edge	P00P00			
Grade	PD01E	PD10E	PD32E	CVDD

Shape	ISO	ANSI	Tips form and size		Tips	ic	φd	S	re	la
	CNGA120402-1N	CNGA43(0.5)-1N		WG25S	1	12.7	5.16	4.76	0.2	2.5
	CNGA120404-1N	CNGA431-1N							0.4	
	CNGA120408-1N	CNGA432-1N							0.8	

Notes: Inserts with more than 1 tip on customer request

Spindle Speed Recommendation

Cutting speed—Workpiece/Tool Diameter

Cutting speed Vc(m/min)	Workpiece/Tool Diameter (mm)													
	12	16	20	25	32	50	63	80	100	125	160	175	200	250
80	2123	1592	1274	1019	796	510	404	318	255	204	159	146	127	102
90	2389	1791	1433	1146	896	573	455	358	287	229	179	164	143	115
100	2654	1990	1592	1274	995	637	506	398	318	255	199	182	159	127
110	2919	2189	1752	1401	1095	701	556	438	350	280	219	200	175	140
120	3185	2389	1911	1529	1194	764	607	478	382	306	239	218	191	153
140	3715	2787	2229	1783	1393	892	708	557	446	357	279	255	223	178
160	4246	3185	2548	2038	1592	1019	809	637	510	408	318	291	255	204
180	4777	3583	2866	2293	1791	1146	910	717	573	459	358	328	287	229
200	5308	3981	3185	2548	1990	1274	1011	796	637	510	398	364	318	255
220	5839	4379	3503	2803	2189	1401	1112	876	701	561	438	400	350	280
240	6369	4777	3822	3057	2389	1529	1213	955	764	611	478	437	382	306
260	6900	5175	4140	3312	2588	1656	1314	1035	828	662	518	473	414	331
280	7431	5573	4459	3567	2787	1783	1415	1115	892	713	557	510	446	357
300		5971	4777	3822	2986	1911	1517	1194	955	764	597	546	478	382
400						2548	2022	1592	1274	1019	796	728	637	510
600						3822	3033	2389	1911	1529	1194	1092	955	764
800						5096	4044	3185	2548	2038	1592	1456	1274	1019
1000						6369	5055	3981	3185	2548	1990	1820	1592	1274

Precautions of How to Use Turning Tools

Hazard and Countermeasure

Products	Hazard	Countermeasure
All Turning Tools	Cutting tools have sharp cutting edges, which may cause injury if handled	※Take precautions such as wearing gloves especially when handling tools and during installation
	Improper use of tools and application of inappropriate cutting conditions may cause the tool to break and be expelled from the machine providing risk of injury.	※Ensure safety guards and goggles are used ※Use tools under recommended cutting conditions ※Refer to handling explanatory notes and catalogues
	Impact load and rapid increase of cutting resistance due to excessive wear may cause the tool to break and be expelled from the machine providing risk of injury.	※Wear personal protective equipment when using tools, e.g. gloves and safety glasses ※Replace tools timely
	Expelled hot chips produced in cutting produces risk of injuries and burns	※Wear personal protective equipment when using tools, e.g. gloves and safety glasses ※During swarf removal and machine cleaning ensure the machine is stopped and wear gloves. Please use tools under safety circumstance.
	Cutting tools and workpieces become extremely hot during cutting.Touching them with bare hands may cause burns	※Wear personal protective equipment when using tools, e.g. gloves and safety glasses
	Sparks, hot chips and heat generation during cutting caused by tool breakage provides a risk of igniting a fire	※Do not use in places where there is a danger of flammability or explosion ※Take fire prevention measures when using non-water soluble cutting tools
	Using machines, chucks, and tools with poor balance at high revolutionsmay cause tools to break providing risk of injuries	※Ensure safety guards and goggles are used ※Be sure there is no vibration or unusual noise before starting the operation
	Handling machined parts with burrs using bare hands may cause injuries	※Do not touching them with bare hands
Welding and Clamping Tools	If inserts and spare parts are not held securely, they may become loose and be expelled producing risk of injuries	※Ensure inserts are brazed securely before using tools. ※Do not use them under conditions which produce very high temperature over melting point
	The inserts are in danger of damaging after several brazes	※Use them strictly for the prescribed application
	Machinery or tools may break if used in applications not recommended by the manufacturer	※Use them strictly for the prescribed application
	If the inserts are not securely fastened during machining, there is a risk of it becoming loose, damaged, or unusable.	※Ensure that there are no foreign objects present before installing the inserts. ※Confirm stability and use only the tools prescribed application by the manufacturer.
	Clamping inserts and spare parts too tightly by using tools such as extension pipes may cause them to break and be expelled	※Do not use any auxiliary tool such as extension pipes ※Please use the suitable wrench
	When applying high cutting speed, spare parts and inserts may be expelled due to centrifugal force. Pay special attention to safety	※Use tools under recommended cutting conditions ※Refer to handling explanatory notes and catalogues

NOTE: This catalogue provides essential safety precautions for the proper use of our company's products.
For further information, please refer to the guideline, catalogues or contact support team. We are not responsible for any accidents from the any unauthorized modifications.



Questionnaire for Customized PCD Turning Inserts

Customer Basic Information

Customer Basic Information			
Company Name* :		Contact Person's Name* :	Contact Tel* :
Demand from End User* : _____ pcs/ order, _____ pcs/ month, _____ pcs/ year			
Machining Information			
Workpiece Information		Insert Information	
Drawing: ☐ Yes ☐ No		Drawing: ☐ Yes ☐ No	
Workpiece Name* :	Mode:	☐ Insert Style* :	Insert Specification: Holder/shank:
Workpiece Material* :	Material Grade:	☐ Tips Type* : (L) mm ; (W) mm; (H) mm; (Dia mm)	
Workpiece Hardness* :	Surface Finish Required* :	Cutting Speed V (m/min)*	
Result Required		Feed Rate (f)* : mm/rev Allowance/ Side* : mm	
Processing* :		Depth of Cut (AP1)* : mm Depth of Cut (AP2)* : mm	
☐ End face ☐ Surface ☐ Profile		Cutting Type* : ☐ Continuous ☐ Light interrupted ☐ Medium interrupted ☐ Heavy interrupted	
☐ Through-hole ☐ Blind hole ☐ Chamfer ☐ Others		Coolant Type* : ☐ Dry cutting ☐ Air ☐ Wet cutting ☐ Water ☐ Oil	
Expected Result:			
Machine Tool Information		Lead Time requested	
Machine Type: ☐ M/C ☐ CNC lathe (horizontal) ☐ Vertical lathe ☐ Mill-Turn-machine		☐ 1 week ☐ 2 weeks ☐ others ☐ 3 weeks ☐ 4 weeks ☐ 5 weeks ☐ 6 weeks	
Items marked with* required			