WORLDIA
SHAPING YOUR WORLD
WITH DIAMOND

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WORLDIA

Ultra-precision Micromachining Tools

ENTERPRISE >>>

Jiaxing Worldia Diamond Tools Co., Ltd. was established in 2016 which is located in Jiaxing city, Zhejiang province. The registered capital is 46 million dollars and covers an area of about 40,000 square meters, Jiaxing WORLDIA is the wholly-owned subsidiary of BEIJING WORLDIA DIAMOND TOOLS CO.,LTD（Stock code：688028）WORLDIA product catalogue mainly covers high-precision CBN/PCD/CVD cutting tools, solid carbide cutting tools，diamond scribing wheels & related accessories，CVD diamond materials & related product and high-end laser machines etc.

INTELLECTUAL PROPERTY

50+ Patents,10+ Inventive Patents,10+ Registered Trademarks

CATALOGUE

WORLDIA

PRECISION EQUIPMENT

Stable quality,Efficient capacity,High precision







TESTING INSTRUMENT

High precision,All testing

MEIJI
Microscope

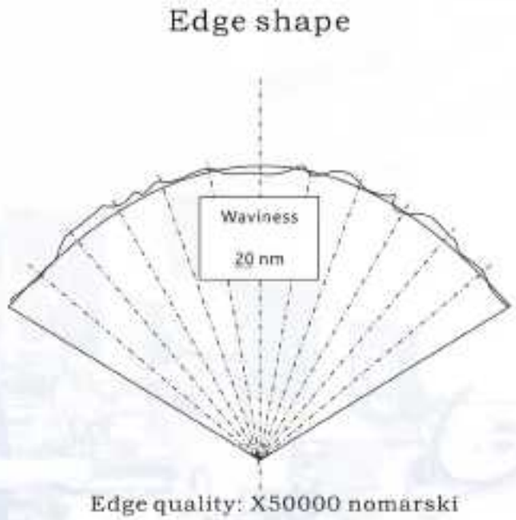
Peter Müller
Contour detector

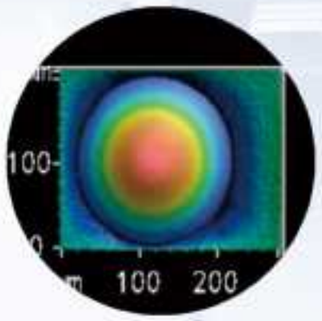
KEYENCE
Microscope

ZOLLER
Cutting tool
preparing instrument

ZOLLER
Contour detector

COBORN
Dynamic balance instrument





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Monocrystal Diamond Tool
MCD Tool

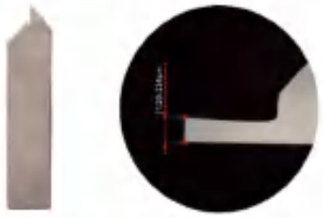
The hardness of the single crystal diamond tool is as high as HV10000, the sharpness of the tool is less than 100nm, the minimum arc radius is 0.004mm, and the contour accuracy can reach below 50nm. It is suitable for the finishing of non-ferrous metals and non-metallic materials, which can ensure extremely high machining accuracy and mirror effect, rough accuracy Ra<0.01um, and longer tool life.

Ultra-precision turning tool

BASIS MATERIAL	Cemented Carbide/ Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond /Natural CVD Diamond
SPECIFICATIO	R0.004-R50 mm/Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Copper, Nickel, Germanium Alloy
TYPICAL APPLICATION	Aspherical mirror, super precision mold processing

Mirror surface tool

BASIS MATERIAL	Cemented Carbide/ Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond /Natural CVD Diamond
SPECIFICATIO	0~90° Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Copper, Nickel, Germanium Alloy, Etc.
TYPICAL APPLICATION	Optical Parts, Radiator, Mirror Decoration, Etc.



Super precision slotting tool

BASIS MATERIAL	Cemented Carbide/ Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond /Natural CVD Diamond
SPECIFICATIO	W0.02-w0.2mm / Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Copper, Nickel, Germanium Alloy, Etc.
TYPICAL APPLICATION	Optical Parts, Precision Mold, Etc.

Micro diameter milling tool

BASIS MATERIAL	Cemented Carbide/ Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond /Natural CVD Diamond
SPECIFICATIO	D0.2-D2/Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Copper, Nickel, Germanium Alloy And Non-metal Materials
TYPICAL APPLICATION	Optical Parts, Precision Mold, Etc.

Ultra-precision firing pin

BASIS MATERIAL	Cemented Carbide/ Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond /Natural CVD Diamond
SPECIFICATIO	R0.01-R0.3 mm /Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Nickel Alloy, Stainless Steel, Etc.
TYPICAL APPLICATION	Light Mould

Precision milling tool

BASIS MATERIAL	Cemented Carbide/ Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond /Natural CVD Diamond
SPECIFICATIO	D2-D6mm/Non-standard Custom
PROCESSING MATERIALS	Non-metal Material Like Polycarbonate, Acrylic
TYPICAL APPLICATION	Light Guide Plate Polishing

Precision arc turning tool

BASIS MATERIAL	Cemented Carbide/Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond/Natural CVD Diamond
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Copper, Nickel, Germanium Alloy Non-metal Material Like Polycarbonat And Resin
TYPICAL APPLICATION	Glasses, Camera Lens Tube, Mirror Surface Of Optical Parts

Ball head rolling tool

BASIS MATERIAL	Cemented Carbide/Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond/Natural CVD Diamond
SPECIFICATIO	R0.5-R2mm
PROCESSING MATERIALS	Rolled Steel
TYPICAL APPLICATION	Shaft, Hole, Sphere, Valve Seal Parts

Mirror surface Facer

BASIS MATERIAL	Cemented Carbide/Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond/Natural CVD Diamond
SPECIFICATIO	R0.5-R2 mm
PROCESSING MATERIALS	Metal Material Like Aluminium, Copper Alloy And Non-metal Material Like Polycarbonat
TYPICAL APPLICATION	Mirror Machining

WORLDIA

Polycrystalline Diamond Tool

PCD Tool

Polycrystalline diamond (PCD) is made of diamond particles and cemented carbide substrates sintered at high temperature and high pressure. It has both the wear resistance of diamond and the high strength of cemented carbide. PCD tools have extremely high hardness, excellent thermal conductivity, extremely low coefficient of friction and thermal expansion, and have greater chemical inertness with non-ferrous metals and non-metallic materials. PCD tools are mainly used for processing non-ferrous metals and non-metallic materials such as engineering ceramics, stone, wood, carbon fiber plastics, and synthetic wires. At present, it has been widely used in the manufacture of automobile engines and their accessories, high-precision medical equipment, precision electronic components, and aerospace parts.

Micro diameter milling tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	D0.5-D3mm Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	Optical Parts, Precision Mold, Etc.

Disc milling tool

BASIS MATERIAL	Cemented Carbide / Tool Steel
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	BT、HSK Facer D80-d200 Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	Automobile Parts, Etc.

Forming tool

BASIS MATERIAL	Cemented Carbide / Tool Steel
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	Outline Of Aluminum Shell For 3c Products 3c

Shovel tool

BASIS MATERIAL	Cemented Carbide/Tool Steel
CUTTING EDGE MATERIAL	Monocrystal Diamond / Polycrystalline Diamond
SPECIFICATIO	Flat Or Circular Cutting Edge/Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy
TYPICAL APPLICATION	SIM Card Tray, Key, Straight Plane And Arc Plane Of 3c Product Frame SIM

End mill

BASIS MATERIAL	Cemented Carbide / Tool Steel
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	D4-D20mm /Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	End Processing Metal And Non-metal Parts

Multitool

BASIS MATERIAL	Cemented Carbide / Tool Steel
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	End Processing Metal And Non-metal Parts

Texture tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	End Processing Metal And Non-metal Parts

Precision turning tool

BASIS MATERIAL	Cemented Carbide / Tool Steel
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	Rotary Parts Of The Inner And Outer Circle Finishing

Hole processing tool

BASIS MATERIAL	Cemented Carbide / Tool Steel
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	Straight Shank BT HSK BT HSK Non-standard custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	Precision Machining Of Holes In Auto Parts

Ball end tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	D0.6-D6mm / Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	Mirror machining of optical molds and precision parts, Etc.

Countersink

BASIS MATERIAL	Cemented Carbide / Tool Steel
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Carbon Fiber And Its Composite Materials
TYPICAL APPLICATION	Processing Of Automobile And Aircraft Shell

Thread milling tool

BASIS MATERIAL	Cemented Carbide / Tool Steel
CUTTING EDGE MATERIAL	Polycrystalline Diamond
SPECIFICATIO	D6-D20mm / Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	Thread Machining Of Automobile And Aircraft Parts

PCD tool numbering rules(1)

TCGW 08 02 08

Tool shape

Code	ketch Map	Tool shape	Angle
S		square	90°
T		regular triangle	60°
C		rhombus	80°
D			55°
E			75°
M			86°
V			35°
W		hexagon	80°
H		regular hexagon	120°
O		regular octagon	135°
P		regular pentagon	108°
L		rectangle	90°
A		parallelogram	85°
B			82°
N/K			55°
R		round	-

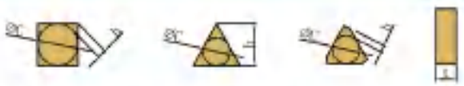
Tool clearance

Code	Tool clearance
N	0°
A	3°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°
G	30°
O	Other clearance

Chip breaker

Code	hole	chip breaker	schematic diagram
N	no hole	no chip breaker groove	
R		one side with chip breaker groove	
F		both sides with chip breaker grooves	
A	round straight hole	no chip breaker groove	
M		one side with chip breaker groove	
G		both sides with chip breaker grooves	
W	one side with countersunk head holes(40°-60°)	no chip breaker groove	
T		one side with chip breaker groove	
Q	both sides with countersunk head holes(40°-60°)	no chip breaker groove	
U		both sides with chip breaker grooves	
B	one side with countersunk head holes(70°-90°)	no chip breaker groove	
H		one side with chip breaker groove	
C	both sides with countersunk head holes(70°-90°)	no chip breaker groove	
J		both sides with chip breaker grooves	
X	other types		

Tolerance



Code	Tools-tip height(h) Tolerance (mm)	Incircle (ipC) Tolerance (mm)	Thickness (t) Tolerance (mm)	Code	Tools-tip height(h) Tolerance (mm)	Incircle (ipC) Tolerance (mm)	Thickness (t) Tolerance (mm)
A	±0.005	±0.025	±0.025	J	±0.005	±0.05-±0.13	±0.025
F	±0.005	±0.013	±0.025	K	±0.013	±0.05-±0.13	±0.025
C	±0.013	±0.025	±0.025	L	±0.025	±0.05-±0.13	±0.025
H	±0.013	±0.013	±0.025	M	±0.08-±0.18	±0.05-±0.13	±0.13
E	±0.025	±0.025	±0.025	N	±0.08-±0.18	±0.05-±0.13	±0.025
G	±0.025	±0.025	±0.13	U	±0.13-±0.38	±0.08-±0.25	±0.13

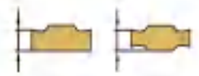
PCD tool numbering rules(2)

1E Number Of Cutting Edges — **P00** Rake Angle — **P07** Clearance Angle

Cutter parameter

Incircle (mm)	Cutting edge length C	D	S	T	V	W	R
3.97				06			03
4.76				08			04
5.0							05
5.56				09	09		05
6.0							06
6.35	06	07	06	11	11	04	06
7.94	08	09					07
8.0							08
9.525	09	11	09	16	16	06	09
10.0							10
12.0							12
12.7	12	15	12	22	22	08	12
15.875	16		15	27			15
16.0		19					16
19.05	19		19	33			19
20.0							20
25.0	25	25					25
25.4			25				25
31.75							31
32.0							32

Thickness



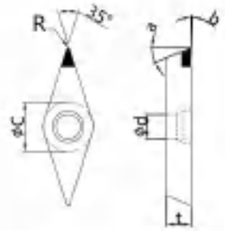
Code	Thickness (mm)	Code	Thickness (mm)
01	1.59	06	6.35
T1	1.98	07	7.94
02	2.38	08	8.0
T2	2.58	09	9.52
03	3.18	10	10.0
T3	3.97	11	11.11
04	4.76	12	12.0
05	5.56	12	12.7

刃口

Code	Corner radius(mm)
00	No
02	0.2
04	0.4
08	0.8
10	1.0
12	1.2
16	1.6
20	2.0
24	2.4
32	3.2
X	Other
Round	
04	4.0
05	5.0
08	8.0
10	10.0

VC

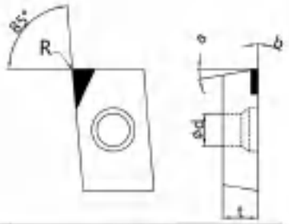
RHOMBU(35°)



Code	Cutter parameters							Particle size		
	φC	φd	R	a	b	t	chip breaker	1um	10um	2-30um
VCGW110302-1EP00P07	6.35	2.8	0.2	7°	0°	3.18	/	◆	◆	◆
VCGT110302-1EP05P07	6.35	2.8	0.2	7°	5°	3.18	/	◆	◆	◆
VCGW110304-1EP00P07	6.35	2.8	0.4	7°	0°	3.18	◆	◆	◆	◆
VCGT110304-1EP05P07	6.35	2.8	0.4	7°	5°	3.18	◆	◆	◆	◆
VCGW110308-1EP00P07	6.35	2.8	0.8	7°	0°	3.18	◆	◆	◆	◆
VCGT110308-1EP05P07	6.35	2.8	0.8	7°	5°	3.18	◆	◆	◆	◆
VCGW160402-1EP00P07	9.525	4.4	0.2	7°	0°	4.76	/	◆	◆	◆
VCGT160402-1EP05P07	9.525	4.4	0.2	7°	5°	4.76	/	◆	◆	◆
VCGW160404-1EP00P07	9.525	4.4	0.4	7°	0°	4.76	◆	◆	◆	◆
VCGT160404-1EP05P07	9.525	4.4	0.4	7°	5°	4.76	◆	◆	◆	◆
VCGW160408-1EP00P07	9.525	4.4	0.8	7°	0°	4.76	◆	◆	◆	◆
VCGT160408-1EP05P07	9.525	4.4	0.8	7°	5°	4.76	◆	◆	◆	◆

AP

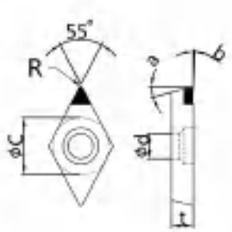
PARALLELOGRAM



Code	Cutter parameters							Particle size		
	φC	φd	R	a	b	t	chip breaker	1um	10um	2-30um
APKT11T302-1EP08P11	/	2.8	0.2	11°	8°	3.97	/	◆	◆	◆
APKT11T304-1EP08P11	/	2.8	0.4	11°	8°	3.97	◆	◆	◆	◆
APKT11T308-1EP08P11	/	2.8	0.8	11°	8°	3.97	◆	◆	◆	◆
APKT11T310-1EP08P11	/	2.8	1.0	11°	8°	3.97	◆	◆	◆	◆
APKT160402-1EP08P11	/	4.4	0.2	11°	8°	4.76	/	◆	◆	◆
APKT160404-1EP08P11	/	4.4	0.4	11°	8°	4.76	◆	◆	◆	◆
APKT160408-1EP08P11	/	4.4	0.8	11°	8°	4.76	◆	◆	◆	◆
APKT160410-1EP08P11	/	4.4	1.0	11°	8°	4.76	◆	◆	◆	◆

DC

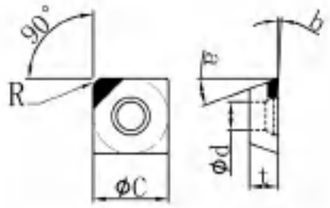
RHOMBUS(55°)



Code	Cutter parameters							Particle size		
	φC	φd	R	a	b	t	chip breaker	1um	10um	2-30um
DCGW070202-1EP00P07	6.35	2.8	0.2	7°	0°	2.38	/	◆	◆	◆
DCGT070202-1EP05P07	6.35	2.8	0.2	7°	5°	2.38	/	◆	◆	◆
DCGW070204-1EP00P07	6.35	2.8	0.4	7°	0°	2.38	◆	◆	◆	◆
DCGT070204-1EP05P07	6.35	2.8	0.4	7°	5°	2.38	◆	◆	◆	◆
DCGW070208-1EP00P07	6.35	2.8	0.8	7°	0°	2.38	◆	◆	◆	◆
DCGT070208-1EP05P07	6.35	2.8	0.8	7°	5°	2.38	◆	◆	◆	◆
DCGW11T302-1EP00P07	9.525	4.4	0.2	7°	0°	3.97	/	◆	◆	◆
DCGT11T302-1EP05P07	9.525	4.4	0.2	7°	5°	3.97	/	◆	◆	◆
DCGW11T304-1EP00P07	9.525	4.4	0.4	7°	0°	3.97	◆	◆	◆	◆
DCGT11T304-1EP05P07	9.525	4.4	0.4	7°	5°	3.97	◆	◆	◆	◆
DCGW11T308-1EP00P07	9.525	4.4	0.8	7°	0°	3.97	◆	◆	◆	◆
DCGT11T308-1EP05P07	9.525	4.4	0.8	7°	5°	3.97	◆	◆	◆	◆

SE

SQUARE



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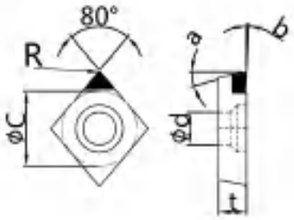
	φC	φd	R	a	b	t	chip breaker	1um	10um	2-30um
SEHT120404-1EP00P20	12.7	5.5	0.4	20°	0°	4.76	◆	◆	◆	◆
SEHT120408-1EP00P20	12.7	5.5	0.8	20°	0°	4.76	◆	◆	◆	◆
SEHT120412-1EP00P20	12.7	5.5	1.2	20°	0°	4.76	◆	◆	◆	◆
SEHT120404-1EP05P20	12.7	5.5	0.4	20°	5°	4.76	◆	◆	◆	◆
SEHT120408-1EP05P20	12.7	5.5	0.8	20°	5°	4.76	◆	◆	◆	◆
SEHT120412-1EP05P20	12.7	5.5	1.2	20°	5°	4.76	◆	◆	◆	◆

CC

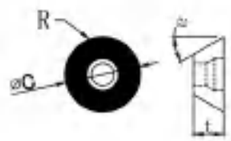
RHOMBUS(80°)



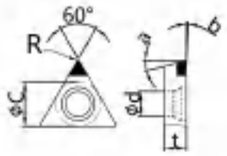
Code	Cutter parameters							Particle size		
	φC	φd	R	a	b	t	chip breaker	1um	10um	2-30um
CCGW060202-1EP00P07	6.35	2.8	0.2	7°	0°	2.38	/	◆	◆	◆
CCGT060202-1EP00P07	6.35	2.8	0.2	7°	5°	2.38	/	◆	◆	◆
CCGW060204-1EP05P07	6.35	2.8	0.4	7°	0°	2.38	◆	◆	◆	◆
CCGT060204-1EP05P07	6.35	2.8	0.4	7°	5°	2.38	◆	◆	◆	◆
CCGW060208-1EP05P07	6.35	2.8	0.8	7°	0°	2.38	◆	◆	◆	◆
CCGT060208-1EP05P07	6.35	2.8	0.8	7°	5°	2.38	◆	◆	◆	◆
CCGW09T302-1EP00P07	9.525	4.4	0.2	7°	0°	3.97	/	◆	◆	◆
CCGT09T302-1EP05P07	9.525	4.4	0.2	7°	5°	3.97	/	◆	◆	◆
CCGW09T304-1EP00P07	9.525	4.4	0.4	7°	0°	3.97	◆	◆	◆	◆
CCGT09T304-1EP05P07	9.525	4.4	0.4	7°	5°	3.97	◆	◆	◆	◆
CCGW09T308-1EP00P07	9.525	4.4	0.8	7°	0°	3.97	◆	◆	◆	◆
CCGT09T308-1EP05P07	9.525	4.4	0.8	7°	5°	3.97	◆	◆	◆	◆
CCGW120402-1EP00P07	12.7	5.5	0.2	7°	0°	4.76	/	◆	◆	◆
CCGT120402-1EP05P07	12.7	5.5	0.2	7°	5°	4.76	/	◆	◆	◆
CCGW120404-1EP00P07	12.7	5.5	0.4	7°	0°	4.76	◆	◆	◆	◆
CCGT120404-1EP05P07	12.7	5.5	0.4	7°	5°	4.76	◆	◆	◆	◆
CCGW120408-1EP00P07	12.7	5.5	0.8	7°	0°	4.76	◆	◆	◆	◆
CCGT120408-1EP05P07	12.7	5.5	0.8	7°	5°	4.76	◆	◆	◆	◆

RE/RG/RC

ROUND



Code	Cutter parameters							Particle size		
	φC	φd	R	a	b	t	chip breaker	1um	10um	2-30um
REET100305-1EP00P20	10	3.81	5.0	20°	0°	3.18	◆	◆	◆	◆
RGET16T408-1EP00P30	16	5.16	8.0	30°	0°	4.96	◆	◆	◆	◆
RCET200610-1EP00P20	20	6.0	10	7°	0°	6.35	◆	◆	◆	◆



TC

REGULAR TRIANGL

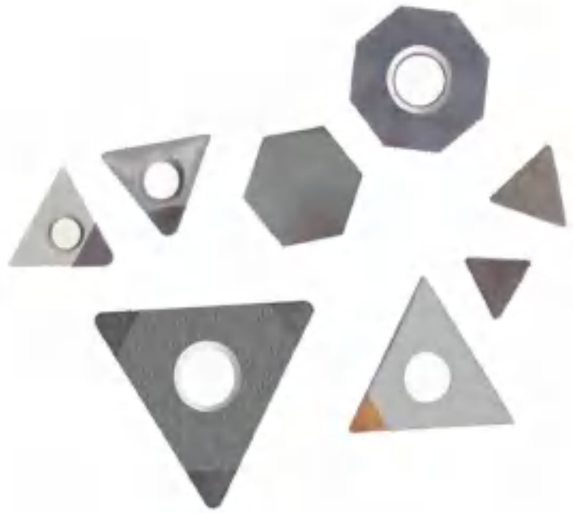
Code	Cutter parameters							Particle size		
	φC	φd	R	a	b	t	chip breaker	1um	10um	2-30um
TCGW080202-1EP00P07	4.76	2.4	0.2	7°	0°	2.38	/	◆	◆	◆
TCGT080202-1EP05P07	4.76	2.4	0.2	7°	5°	2.38	/	◆	◆	◆
TCGW080204-1EP00P07	4.76	2.4	0.4	7°	0°	2.38	◆	◆	◆	◆
TCGT080204-1EP05P07	4.76	2.4	0.4	7°	5°	2.38	◆	◆	◆	◆
TCGW080208-1EP00P07	4.76	2.4	0.8	7°	0°	2.38	◆	◆	◆	◆
TCGT080208-1EP05P07	4.76	2.4	0.8	7°	5°	2.38	◆	◆	◆	◆
TCGW110302-1EP00P07	6.35	2.8	0.2	7°	0°	3.18	/	◆	◆	◆
TCGT110302-1EP05P07	6.35	2.8	0.2	7°	5°	3.18	/	◆	◆	◆
TCGW110304-1EP00P07	6.35	2.8	0.4	7°	0°	3.18	◆	◆	◆	◆
TCGT110304-1EP05P07	6.35	2.8	0.4	7°	5°	3.18	◆	◆	◆	◆
TCGW110308-1EP00P07	6.35	2.8	0.8	7°	0°	3.18	◆	◆	◆	◆
TCGT110308-1EP05P07	6.35	2.8	0.8	7°	5°	3.18	◆	◆	◆	◆
TCGW160402-1EP00P07	9.525	4.4	0.2	7°	0°	4.76	/	◆	◆	◆
TCGT160402-1EP05P07	9.525	4.4	0.2	7°	5°	4.76	/	◆	◆	◆
TCGW160404-1EP00P07	9.525	4.4	0.4	7°	0°	4.76	◆	◆	◆	◆
TCGT160404-1EP05P07	9.525	4.4	0.4	7°	5°	4.76	◆	◆	◆	◆
TCGW160408-1EP00P07	9.525	4.4	0.8	7°	0°	4.76	◆	◆	◆	◆
TCGT160408-1EP05P07	9.525	4.4	0.8	7°	5°	4.76	◆	◆	◆	◆

Chip breaker PCD tool

PROCESSING MATERIALS	A6061
CODE	VCGW160404
LINEAR VELOCITY	500m/min
FEED	0.1mm/rev
CUTTING DEPTH	0.2mm

Polycrystalline Cubic Boron Nitride Tool

PCBN Tool



Cubic boron nitride is an inorganic superhard material obtained by ultra-high pressure and high temperature technology after synthesizing diamond. Its hardness is slightly lower than that of diamond, and its thermal stability is good. Polycrystalline cubic boron nitride is a superhard material made of cubic boron nitride micropowders sintered at high temperature and high pressure in the presence of a binder. It is suitable for processing various ferrous metals and their alloys, such as hardened steel (carbon tool steel, Bearing steel, mould steel, high-speed steel), pearlitic gray cast iron (vanadium-titanium cast iron), chilled cast iron, superalloy (nickel-based alloy, drill bit alloy), Etc..

Ball end tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Polycrystalline Cubic Boron Nitride
SPECIFICATIO	D1-D8mm / Non-standard Custom
PROCESSING MATERIALS	Hardened Mould Steel, Cast Iron, High Temperature Alloy, Etc.
TYPICAL APPLICATION	Precision Mould Manufacturing

Round nose tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Polycrystalline Cubic Boron Nitride
SPECIFICATIO	D1-D8mm / Non-standard Custom
PROCESSING MATERIALS	Hardened Mould Steel, Cast Iron, High Temperature Alloy, Etc.
TYPICAL APPLICATION	Precision Mould Manufacturing

Turning tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Polycrystalline Cubic Boron Nitride
SPECIFICATIO	D1-D8mm / Non-standard Custom
PROCESSING MATERIALS	Hardened Mould Steel, Cast Iron, High Temperature Alloy, Etc.
TYPICAL APPLICATION	Brake Disc, Brake Pad, Roll Wheel, Calendering Roll, Spindle, Machine Tool Guide Rail, Etc.

CBN tool numbering rules(1)

D C G W 07 02 02

Tool shape

Code	ketch Map	Tool shape	Angle
S		square	90°
T		regular triangle	60°
C		rhombus	80°
D			55°
E			75°
M			86°
V			35°
W		hexagon	80°
H		regular hexagon	120°
O		regular octagon	135°
P		regular pentagon	108°
L		rectangle	90°
A		parallelogram	85°
B			82°
N/K			55°
R		round	-

Tool clearance

Code	Tool clearance
N	0°
A	3°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°
G	30°
O	Other clearance

Chip breaker

Code	hole	chip breaker	schematic diagram
N	no hole	no chip breaker groove	
R		one side with chip breaker groove	
F		both sides with chip breaker grooves	
A	round straight hole	no chip breaker groove	
M		one side with chip breaker groove	
G		both sides with chip breaker grooves	
W	one side with countersunk head hole(40°-60°)	no chip breaker groove	
T		one side with chip breaker groove	
Q	both sides with countersunk head holes(40°-60°)	no chip breaker groove	
U		both sides with chip breaker grooves	
B	one side with countersunk head hole(70°-90°)	no chip breaker groove	
H		one side with chip breaker groove	
C	both sides with countersunk head holes(70°-90°)	no chip breaker groove	
J		both sides with chip breaker grooves	
X	other types		

Tolerance

Code	Tools-tip height(h) Tolerance (mm)	Incircle (gC) Tolerance (mm)	Thickness (t) Tolerance (mm)	Code	Tools-tip height(h) Tolerance (mm)	Incircle (gC) Tolerance (mm)	Thickness (t) Tolerance (mm)
A	±0.005	±0.025	±0.025	J	±0.005	±0.05-±0.13	±0.025
F	±0.005	±0.013	±0.025	K	±0.013	±0.05-±0.13	±0.025
c	±0.013	±0.025	±0.025	L	±0.025	±0.05-±0.13	±0.025
H	±0.013	±0.013	±0.025	M	±0.08-±0.18	±0.05-±0.13	±0.13
E	±0.025	±0.025	±0.025	N	±0.08-±0.18	±0.05-±0.13	±0.025
G	±0.025	±0.025	±0.13	U	±0.13-±0.38	±0.08-±0.25	±0.13

WORLDIA

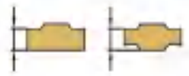
CBN tool numbering rules(2)

2E Number Of Cutting Edges **P00** Rake Angle **P07** Clearance Angle

Cutter parameters

Incircle (mm)	Cutting edge length C	D	S	T	V	W	R
3.97				06			03
4.76				08			04
5.0							05
5.56				09	09		05
6.0							06
6.35	06	07	06	11	11	04	06
7.94	08	09					07
8.0							08
9.525	09	11	09	16	16	06	09
10.0							10
12.0							12
12.7	12	15	12	22	22	08	12
15.875	16		15	27			15
16.0		19					16
19.05	19		19	33			19
20.0							20
25.0	25	25					25
25.4			25				25
31.75							31
32.0							32

Thickness



Code	Thickness (mm)	Code	Thickness (mm)
01	1.59	06	6.35
T1	1.98	07	7.94
02	2.38	08	8.0
T2	2.58	09	9.52
03	3.18	10	10.0
T3	3.97	11	11.11
04	4.76	12	12.0
05	5.56	12	12.7

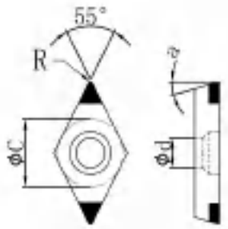
RE

Code	Corner radius(mm)
00	No
02	0.2
04	0.4
08	0.8
10	1.0
12	1.2
16	1.6
20	2.0
24	2.4
32	3.2
X	Other
Round	
04	4.0
05	5.0
08	8.0
10	10.0

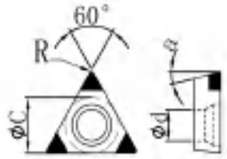
立方氮化硼(PCBN)刀具

DCGW

RHOMBUS(55°)



Code	Cutter parameters							CBN content %			
	φC	φd	R	a	t	Chamfering	Passivation	85-90	65-70	60-65	45
DCGW070202-2EP00P07	6.35	2.8	0.2	7°	2.38	◆	◆	◆	◆	◆	◆
DCGW070204-2EP00P07	6.35	2.8	0.4	7°	2.38	◆	◆	◆	◆	◆	◆
DCGW070208-2EP00P07	6.35	2.8	0.8	7°	2.38	◆	◆	◆	◆	◆	◆
DCGW11T302-2EP00P07	6.35	4.4	0.2	7°	2.38	◆	◆	◆	◆	◆	◆
DCGW11T304-2EP00P07	6.35	4.4	0.4	7°	2.38	◆	◆	◆	◆	◆	◆
DCGW11T308-2EP00P07	6.35	4.4	0.8	7°	2.38	◆	◆	◆	◆	◆	◆



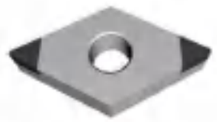
TCGW

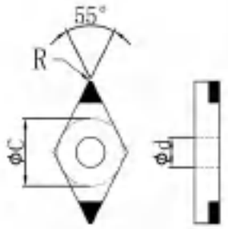
REGULAR TRIANGLE

Code	Cutter parameters							CBN content %			
	φC	φd	R	a	t	Chamfering	Passivation	85-90	65-70	60-65	45
TCGW080202-3EP00P07	4.76	2.4	0.2	7°	2.38	◆	◆	◆	◆	◆	◆
TCGW080204-3EP00P07	4.76	2.4	0.4	7°	2.38	◆	◆	◆	◆	◆	◆
TCGW080208-3EP00P07	4.76	2.4	0.8	7°	2.38	◆	◆	◆	◆	◆	◆
TCGW110302-3EP00P07	6.35	2.8	0.2	7°	3.18	◆	◆	◆	◆	◆	◆
TCGW110304-3EP00P07	6.35	2.8	0.4	7°	3.18	◆	◆	◆	◆	◆	◆
TCGW110308-3EP00P07	6.35	2.8	0.8	7°	3.18	◆	◆	◆	◆	◆	◆

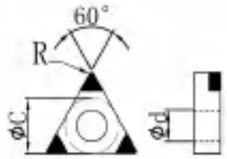
DNGA

RHOMBUS55°)





Code	Cutter parameters							CBN content %			
	φC	φd	R	a	t	Chamfering	Passivation	85-90	65-70	60-65	45
DNGA150602-2EP00P00	12.7	5.16	0.2	0°	6.35	◆	◆	◆	◆	◆	◆
DNGA150604-2EP00P00	12.7	5.16	0.4	0°	6.35	◆	◆	◆	◆	◆	◆
DNGA150608-2EP00P00	12.7	5.16	0.8	0°	6.35	◆	◆	◆	◆	◆	◆
DNGA150602-4EP00P00	12.7	5.16	0.2	0°	6.35	◆	◆	◆	◆	◆	◆
DNGA150604-4EP00P00	12.7	5.16	0.4	0°	6.35	◆	◆	◆	◆	◆	◆
DNGA150608-4EP00P00	12.7	5.16	0.8	0°	6.35	◆	◆	◆	◆	◆	◆



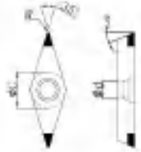
TNGA

REGULAR TRIANGLE

Code	Cutter parameters							CBN content %			
	φC	φd	R	a	t	Chamfering	Passivation	85-90	65-70	60-65	45
TNGA160402-3EP00P00	9.525	3.81	0.2	0°	4.76	◆	◆	◆	◆	◆	◆
TNGA160404-3EP00P00	9.525	3.81	0.4	0°	4.76	◆	◆	◆	◆	◆	◆
TNGA160408-3EP00P00	9.525	3.81	0.8	0°	4.76	◆	◆	◆	◆	◆	◆
TNGA160402-6EP00P00	9.525	3.81	0.2	0°	4.76	◆	◆	◆	◆	◆	◆
TNGA160404-6EP00P00	9.525	3.81	0.4	0°	4.76	◆	◆	◆	◆	◆	◆
TNGA160408-6EP00P00	9.525	3.81	0.8	0°	4.76	◆	◆	◆	◆	◆	◆

VCGW

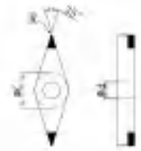
RHOMBUS(35°)



Code	Cutter parameters							CBN content %			
	φC	φd	R	a	t	Chamfering	Passivation	85-90	65-70	60-65	45
VCGW110302-2EP00P07	6.35	2.8	0.2	7°	3.18	◆	◆	◆	◆	◆	◆
VCGW110304-2EP00P07	6.35	2.8	0.4	7°	3.18	◆	◆	◆	◆	◆	◆
VCGW110308-2EP00P07	6.35	2.8	0.8	7°	3.18	◆	◆	◆	◆	◆	◆
VCGW160402-2EP00P07	9.525	4.4	0.2	7°	4.76	◆	◆	◆	◆	◆	◆
VCGW160404-2EP00P07	9.525	4.4	0.4	7°	4.76	◆	◆	◆	◆	◆	◆
VCGW160408-2EP00P07	9.525	4.4	0.8	7°	4.76	◆	◆	◆	◆	◆	◆

VNGA

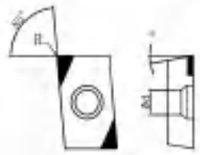
RHOMBUS35°)



Code	Cutter parameters							CBN content %			
	φC	φd	R	a	t	Chamfering	Passivation	85-90	65-70	60-65	45
VNGA160402-2EP00P00	9.525	3.81	0.2	0°	4.76	◆	◆	◆	◆	◆	◆
VNGA160404-2EP00P00	9.525	3.81	0.4	0°	4.76	◆	◆	◆	◆	◆	◆
VNGA160408-2EP00P00	9.525	3.81	0.8	0°	4.76	◆	◆	◆	◆	◆	◆
VNGA160402-4EP00P00	9.525	3.81	0.2	0°	4.76	◆	◆	◆	◆	◆	◆
VNGA160404-4EP00P00	9.525	3.81	0.4	0°	4.76	◆	◆	◆	◆	◆	◆
VNGA160408-4EP00P00	9.525	3.81	0.8	0°	4.76	◆	◆	◆	◆	◆	◆

APGW

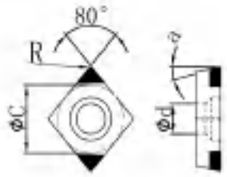
PARALLELOGRAM



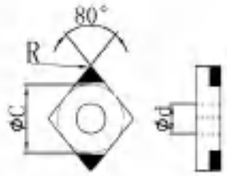
Code	Cutter parameters							CBN content %			
	φC	φd	R	a	t	Chamfering	Passivation	85-90	65-70	60-65	45
APGW160402-2EP00P11	/	4.4	0.2	11°	4.76	◆	◆	◆	◆	◆	◆
APGW160404-2EP00P11	/	4.4	0.4	11°	4.76	◆	◆	◆	◆	◆	◆
APGW160408-2EP00P11	/	4.4	0.8	11°	4.76	◆	◆	◆	◆	◆	◆

CCGW

RHOMBUS(80°)



Code	Cutter parameters							CBN content %			
	φC	φd	R	a	t	Chamfering	Passivation	85-90	65-70	60-65	45
CCGW060202-2EP00P07	6.35	2.8	0.2	7°	2.38	◆	◆	◆	◆	◆	◆
CCGW060204-2EP00P07	6.35	2.8	0.4	7°	2.38	◆	◆	◆	◆	◆	◆
CCGW060208-2EP00P07	6.35	2.8	0.8	7°	2.38	◆	◆	◆	◆	◆	◆
CCGW09T302-2EP00P07	9.525	4.4	0.2	7°	3.97	◆	◆	◆	◆	◆	◆
CCGW09T304-2EP00P07	9.525	4.4	0.4	7°	3.97	◆	◆	◆	◆	◆	◆
CCGW09T308-2EP00P07	9.525	4.4	0.8	7°	3.97	◆	◆	◆	◆	◆	◆
CCGW120402-2EP00P07	12.7	5.5	0.2	7°	4.46	◆	◆	◆	◆	◆	◆
CCGW120404-2EP00P07	12.7	5.5	0.4	7°	4.46	◆	◆	◆	◆	◆	◆
CCGW120408-2EP00P07	12.7	5.5	0.8	7°	4.46	◆	◆	◆	◆	◆	◆



CNGA

RHOMBUS(80°)

Code	Cutter parameters							CBN content %			
	φC	φd	R	a	t	Chamfering	Passivation	85-90	65-70	60-65	45
CNGA120402-2EP00P00	12.7	5.16	0.2	0°	4.76	◆	◆	◆	◆	◆	◆
CNGA120404-2EP00P00	12.7	5.16	0.4	0°	4.76	◆	◆	◆	◆	◆	◆
CNGA120408-2EP00P00	12.7	5.16	0.8	0°	4.76	◆	◆	◆	◆	◆	◆
CNGA120402-4EP00P00	12.7	5.16	0.2	0°	4.76	◆	◆	◆	◆	◆	◆
CNGA120404-4EP00P00	12.7	5.16	0.4	0°	4.76	◆	◆	◆	◆	◆	◆
CNGA120408-4EP00P00	12.7	5.16	0.8	0°	4.76	◆	◆	◆	◆	◆	◆

Carbide Tools

Cemented carbide is a kind of alloy material made of hard compound and binder of refractory metal by powder metallurgy process.

Cemented carbide has a series of excellent properties such as high hardness, wear resistance, good strength and toughness, heat resistance and corrosion resistance, especially its high hardness and wear resistance, which remain basically unchanged even at a temperature of 500 °C , still has high hardness at 1000°C. Carbide is widely used as tool material, such as turning tools, milling cutters, planers, drills, boring tools, Etc.., for cutting cast iron, non-ferrous metals, plastics, chemical fibers, graphite, glass, stone and ordinary steel, and can also be used for cutting Difficult-to-machine materials such as heat-resistant steel, stainless steel, high-manganese steel, and tool steel.

Milling tool with CVD coating

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Cemented Carbide + Chemical Vapor Deposition Coating
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Aluminum Alloy, Carbon Fiber, Graphite, Etc.
TYPICAL APPLICATION	3c Parts, Auto Parts, Aircraft Parts, Graphite Molds, Etc.

Milling tool with PVD coating

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Cemented Carbide + Physical Vapor Deposition Coating
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Stainless Steel, Titanium Alloy, Nickel Alloy, Chromium-molybdenum Alloy, Cast Iron, Etc.
TYPICAL APPLICATION	3c Parts, Auto Parts, Aircraft Parts, Etc.

Mould steel milling tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Cemented Carbide + Physical Vapor Deposition Coating
SPECIFICATIO	D1-D8mm / Non-standard Custom
PROCESSING MATERIALS	Mould Steel
TYPICAL APPLICATION	Precision Mould Processing

Forming Milling Tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Cemented Carbide + Physical Vapor Deposition Coating
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	3c Parts, Auto Parts, Aircraft Parts, Etc.

Drill

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Cemented Carbide + Physical Vapor Deposition Coating
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	3c Parts, Auto Parts, Aircraft Parts, Etc.

Chamfer Milling Tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Cemented Carbide + Physical Vapor Deposition Coating
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbona
TYPICAL APPLICATION	3c Parts, Auto Parts, Aircraft Parts, Etc.

Reamer

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Cemented Carbide + Physical Vapor Deposition Coating
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	3c Parts, Auto Parts, Aircraft Parts, Etc.

General Milling Tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Cemented Carbide
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	3c Parts, Auto Parts, Aircraft Parts, Etc.

Boring tool

BASIS MATERIAL	Cemented Carbide
CUTTING EDGE MATERIAL	Cemented Carbide + Physical Vapor Deposition Coating
SPECIFICATIO	Non-standard Custom
PROCESSING MATERIALS	Metal Material Like Aluminium, Zinc, Titanium, Copper Alloy And Non-metal Material Like Graphite And Polycarbonat
TYPICAL APPLICATION	3C parts, auto parts, aircraft parts, Etc.

carbide tool

WORLDIA

CASE ANALYSIS

3C PARTS
AUTO PARTS
MEDICAL APPARATUS

WORLDIA

CASE ANALYSIS

MOBILE PHONE

Frame

Light guide plate of backlight module

Speaker hole

Card buckle

Lens module

Internal structur

SIM card tray/Key

CASE ANALYSIS

NOTEBOOK COMPUTER

CASE ANALYSIS

AUTO PARTS

Cylinder cap

Shell of gearbo

Steering gear

Transmission valve

CASE ANALYSIS

MEDICAL APPARATUS

BONE SCREW

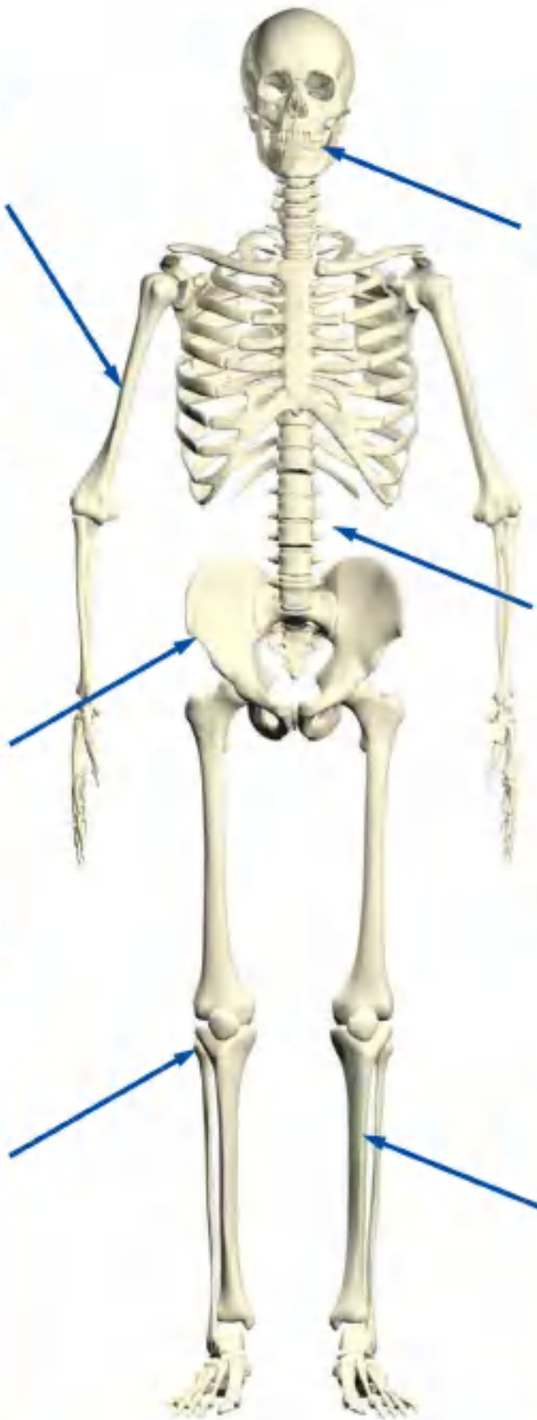
PROSTHETIC MATERIAL : Cobalt alloy
Stainless steel
APPLICABLE TOOL : Deep hole drill

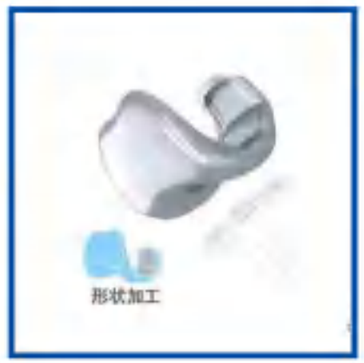
HIP JOINT

PROSTHETIC MATERIAL : Cobalt alloy
Titanium alloy
APPLICABLE TOOL : Turning tool
End milling tool
Ball end milling tool
Boring tool

KNEE JOINT

PROSTHETIC MATERIAL : Cobalt alloy
APPLICABLE TOOL : Turning tool
End milling tool
Ball end milling tool
Boring tool





TOOTH BONE SCREW

PROSTHETIC MATERIAL : Cobalt alloy
APPLICABLE TOOL : Turning tool
Micro diameter milling tool
End milling tool
Boring tool

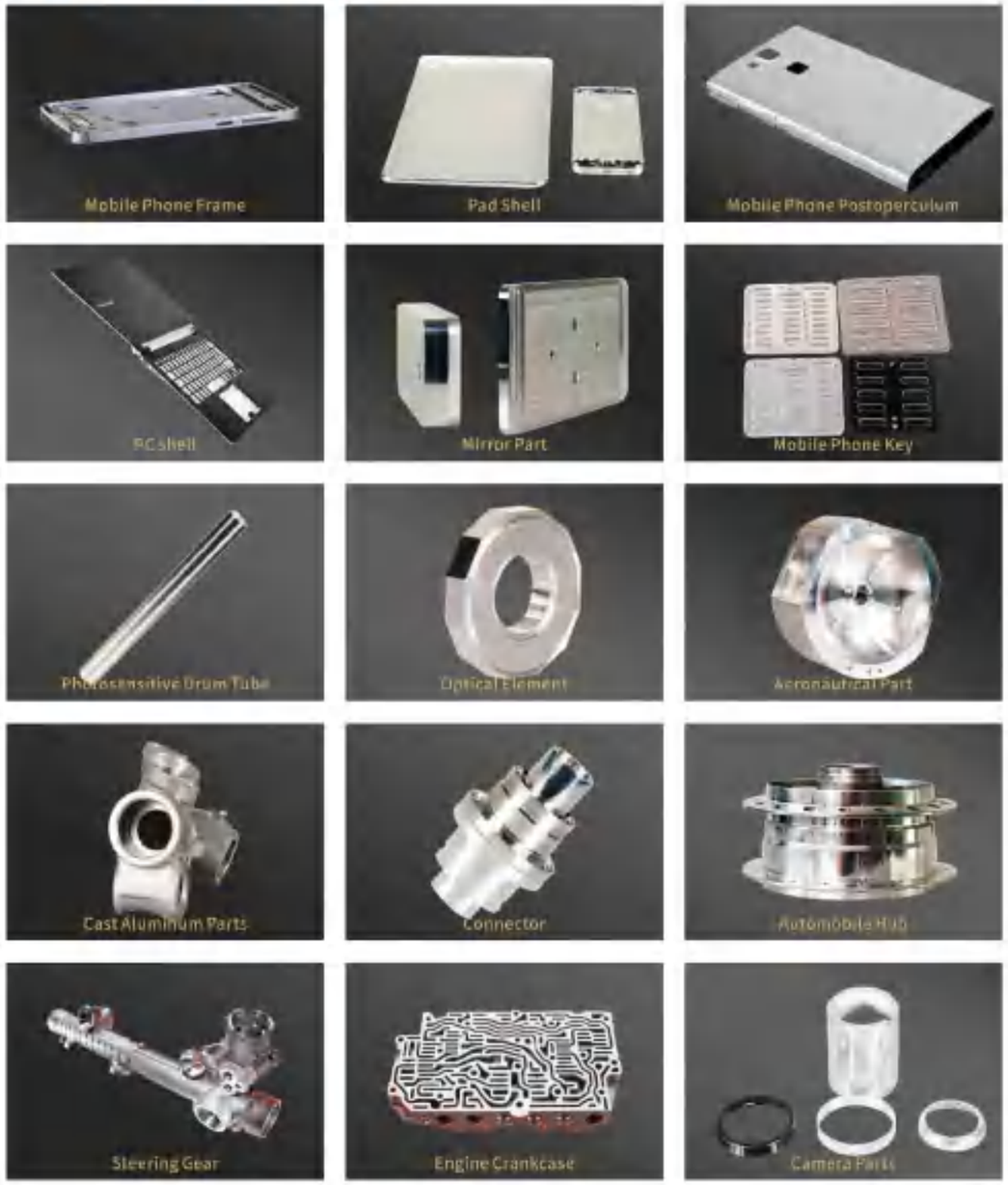
SPINAL IMPLANT

PROSTHETIC MATERIAL : Cobalt alloy
APPLICABLE TOOL : End milling tool

BLADE PLATE

PROSTHETIC MATERIAL : Titanium alloy
Stainless steel
APPLICABLE TOOL : Ball end milling tool

CASE PRESENTATION



TOOL USE ATTENTION

1. The cutting edge of the tool is sharp. Do not touch it with your hands to avoid hand scratches or damage.

2. The detection tool should use optical instrument to avoid damage to the cutting edge caused by contact detection.

3. Before installing the tool, ensure that the handle and collet are cleaned, and the clamping is stable to avoid violent disassembly and assembly.

4. According to different working conditions and processing requirements, ensure a certain clamping accuracy

5. The tool should not static contact with the workpiece, so as not to cause damage to the cutting edge

6. Make sure that the machine equipment and fixture are in good condition to avoid vibration caused by insufficient rigidity in the cutting process and damage to the tool

7. Choose appropriate processing parameters to prolong the service life of the tool

8. The tool material is hard and brittle, should avoid knocking on the edge damage, when the tool does not work with a plastic cap to protect the blade, or placed in a separate packaging box

9. The tool should be stored in dry, away from corrosive environment, tool matrix (cutter bar/cutter disc) of the welding type and machine clip type (indexable/ disposable) tool should do a good job of cleaning and maintenance, avoid oxidation, corrosion, to ensure accuracy and service life