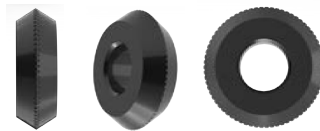




# GLASS CUTTING TOOLS

Scribing Wheels Holders Axles & Grinding Wheel



BEIJING WORLDIA DIAMOND TOOLS CO.,LTD.



## HEART AND HANDS

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Beijing Worldia Diamond Tools Co.,Ltd was found as the name of Beijing Worldia Super Hard Tools Co.,Ltd at Zhongguancun Science and Technology Park as a national high-tech enterprise. Awarded with 80 intellectual property patents by State Intellectual Property Office of The P.R.C and several international advanced technologies, Worldia owned one branch company and two wholly-owned subsidiaries. With the development of stock system reform in Feb, 2015, Beijing World Super Hard Tools Co., Ltd was renamed as Beijing Worldia Diamond Tools Co., Ltd and the registered capital increased to 60 million RMB. Worldia located in Dachang Chaobaihe Industrial Park with the total land occupation of 60 thousand square meters in Langfang City which is 30 kilometers from Beijing CBD. Until 2015, 14 thousand square meters of land have been put into use, and the other 46 thousand square meters is under construction for research and technological development.

In the field of glass cutting, Worldia is one of the three high-penetration diamond scribing manufactures for mass production worldwide and sole producer in China. Worldia broke the monopoly of Japanese diamond scribing wheel in the patents and advanced international technologies. high-end glass cutting area, and get the good cooperation with display panel manufactures from well-know manufactures of China and worldwide.

Our main products and service are as below:

- Mass Production of PCD Scribing Wheel
- PCD/PCBN Cutting Tool — most representative and largest manufacture in China
- PCD & Carbide Saw Blades
- PCD Die Blanks and CVD Diamond
- Laser Cutting Service of Super Hard Material
- Precision Lapping/Polishing of PCD, PCBN and PDC Cutters.
- Largest Thick Film CVD Diamond Wafers Growing in Asia
- The Largest Company of Imported Carbide Super Hard Tools Processing

Consistently increasing its brand awareness and market share in domestic and global market, Worldia aims to “compete for the top and create global brand”.

With abundant passion and dream, Worldia would like to establish business relationships with clients from all over the world and promote the development of super hard tools.

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01

TFT-LCD , AMOLED Panel ,  
OGS , Cover Lens



TY Type  
Diamond Wheel



**Product Features :**

1. The teeth ditch is as the cutting edge together to anticipate cutting, it requires lower cutting stress and result of fewer scribing line crack, lateral crack and fewest particles.
2. It requires lower cutting stress and result of fewer scribing line crack, lateral crack and fewest particles. Result great bending effect.



**Application :**

Applied to mid-size and small sized TFT-LCD、AMOLED glass panel and LCD glasses of thickness above 0.1mm which requires high bending.



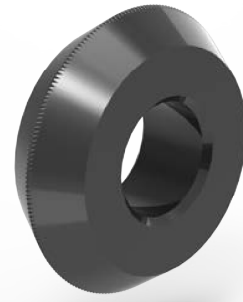
Cutting on bezel-less glasses applied on mobile phone

**Specification :**

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( μm )
1.80	100~140	0.65	0.80	50→800	1→10
2.00	100~140	0.65	0.80	50→800	1→10
2.50	100~140	0.65	0.80	50→800	1→10
3.00	100~140	0.65	0.80	50→800	1→10
Remarks	Interval of 5°			Interval of 10°	

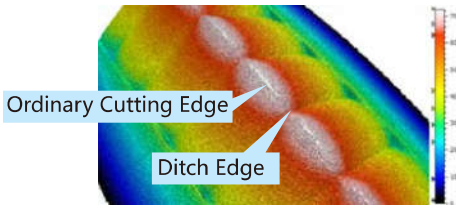


## TW1 Type Diamond Wheel

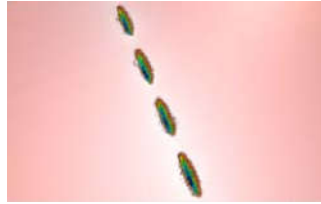


### Product Features :

1. The teeth ditch is as the cutting edge together to anticipate cutting, it requires lower cutting stress and result of fewer scribing line crack, lateral crack and fewest particles.
2. It requires lower cutting stress and result of fewer scribing line crack, lateral crack and fewest particles. Result great bending effect.



3D Photo of Cutting Edge



Scribing Line



Cutting Section

### Application :

Cutting mid and small size of bezel less super thin TFT-LCD, AMOLED glasses of thickness above 0.1mm which requires strong bending requirement.



Cutting display glasses applied to mobile , smart watch

### Specification :

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( μm )
1.80	100~140	0.65	0.80	50→800	1→10
2.00	100~140	0.65	0.80	50→800	1→10
2.50	100~140	0.65	0.80	50→800	1→10
3.00	100~140	0.65	0.80	50→800	1→10
Remarks	Interval of 5°			Interval of 10°	





**Product Features :**

1. The teeth ditch is as the cutting edge together to anticipate cutting, it requires lower cutting stress and result of fewer scribing line crack, lateral crack and fewest particles.
2. It requires lower cutting stress and result of fewer scribing line crack, lateral crack and fewest particles. Result great bending effect.



**Application :**

Cutting mid and small TFT-LCD, AMOLED glasses of thickness above 0.2mm and Tempered OGS Glasses with DOL of 45µm which requires strong bending requirement.



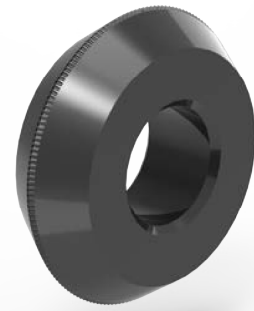
Cutting on glasses applied to notebook, mobile phone cover lens

**Specification :**

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( µm )
1.80	100~140	0.65	0.80	140/160/180 230	1→10
2.00	100~140	0.65	0.80	140/160/180 230	1→10
2.50	100~140	0.65	0.80	220/240/260 280/350	1→10
3.00	100~140	0.65	0.80	180/200/220 230/290	1→10
Remarks	Interval of 5°				

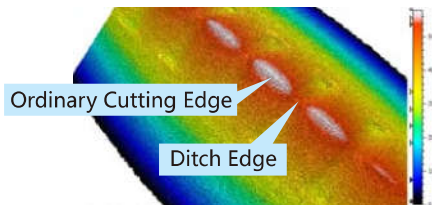
# TU1

TU1 Type  
Diamond Wheel



## Product Features :

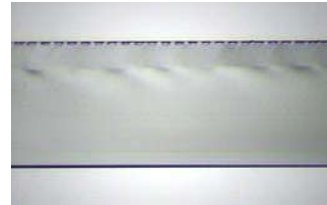
1. The teeth ditch is as the cutting edge together to anticipate cutting, it requires lower cutting stress and result of fewer scribing line crack, lateral crack and fewest particles.
2. It requires lower cutting stress and result of fewer scribing line crack, lateral crack and fewest particles. Result great bending effect.



3D Photo of Cutting Edge



Scribing Line



Cutting Section

## Application :

Cutting TFT-LCD、AMOLED glasses of thickness above 0.3mm , with good penetration , fewer particales , effect smooth lateral cutting section and well distributed Rib Mark.



Glasses Applied on Vehicles

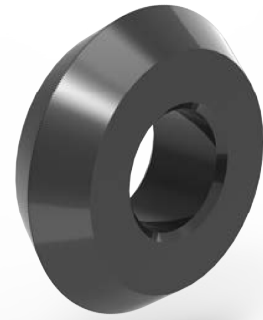
## Specification :

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( μm )
1.80	100~140	0.65	0.80	50→500	1→10
2.00	100~140	0.65	0.80	50→500	1→10
2.50	100~140	0.65	0.80	50→500	1→10
3.00	100~140	0.65	0.80	50→500	1→10
Remarks	Interval of 5°			Interval of 10°	



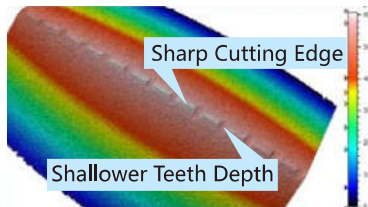


## V Type Super-micro Teeth Diamond Wheel

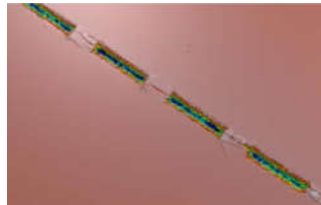


### Features :

1. Sharpe bevel cutting edge with shallower teeth depth requires certain cutting pressure effect on less penetration and lighter Rib Mark.
2. Effect average stress to glass with higher bending effect, smooth cutting section and stable cutting effect to glasses, requires breaking process.
3. Fewer particles by this shape of wheel.



3D Photo of Cutting Edge



Scribing Line



Cutting Section

### Application :

Cutting small and mid-sized TFT-LCD, AMOLED Panel of thickness of 0.1-0.25mm which requires higher bending requirement such as mobile phone display panel and notebook panel which requires less particles.



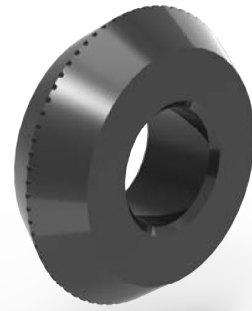
Cutting on mobile phone and pad display panel

### Specification :

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( μm )
2.00/3.00	110~130	0.65	0.80	5→800	1.0→1.8
Remarks	Interval of 5°			Interval of 10°	

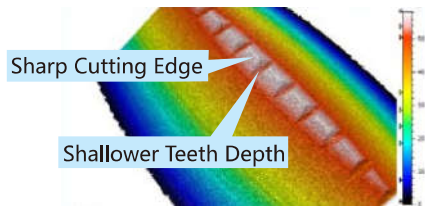


## V Type Micro Teeth Diamond Wheel

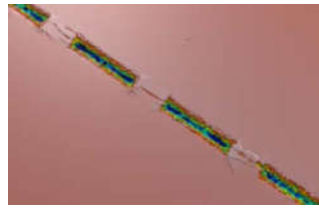


### Features :

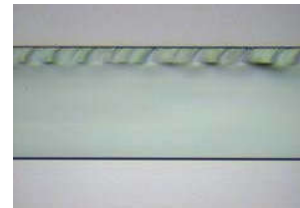
1. Sharpe bevel cutting edge with shallower teeth depth requires certain cutting pressure effect on less penetration and lighter Rib Mark.
2. Effect average stress to glass with higher bending effect, smooth cutting section and stable cutting effect to glasses, requires breaking process.
3. Fewer particles by this shape of wheel.



3D Photo of Cutting Edge



Scribing Line



Cutting Section

### Application :

Cutting small and mid-sized TFT-LCD, AMOLED Panel of thickness of 0.1-0.25mm which requires higher bending requirement such as mobile phone display panel and notebook panel which requires less particles.



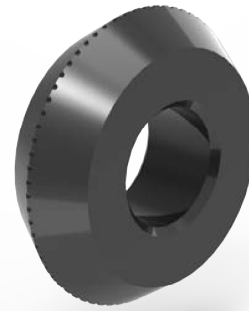
Cutting on mobile phone and pad display panel

### Specification :

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( μm )
2.00	105~125	0.65	0.80	200→300	2→5
2.50	110~130	0.65	0.80	200→360	2→5
3.00	110~130	0.65	0.80	200→400	2→5
Remarks	Interval of 5°			Interval of 10°	

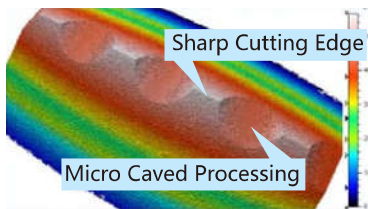


## U Type High Penetration Diamond Wheel

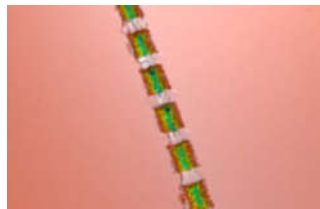


### Features :

1. Sharpe cutting edge processing by micro caved with strong penetration which doesn' t require breaking process.
2. Effect fluctuated to the stress of the glasses, and easily to form strongest point and weakest point.
3. Effect more particles.



3D Photo of Cutting Edge



Scribing Line



Cutting Section

### Application :

1. Applied to mid and big sized TFT-LCD、 AMOLED glass panel of thickness 0.4-0.7mm which requires strong penetration to avoid breaking processing.
2. Applied to substrate glass with better penetration while less requirement on particles of glass depth 0.15-2mm.



大中尺寸面板



基板玻璃 (素玻璃)

### Specification :

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( μm )
2.00	105~125	0.65	0.80	110→200	5→15
2.50	110~130	0.65	0.80	110→250	5→15
3.00	110~130	0.65	0.80	110→300	5→15
Remarks	Interval of 5°			Interval of 10°	

# Dual

## Dual Cutting Edge Diamond Scribing Wheel

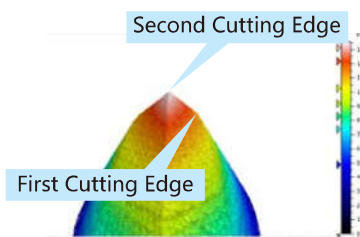


### Features:

1. With two angles, it is easier to cutting into the glasses with film on.
2. one edge of the wheel cut off the film or glass printing ink, the next edge cutting off the glass surface directly



3D Teeth Photo



Teeth Photo



Scribing Line

### Application:

Cutting filmed glasses with glass depth above 0.2mm, and film or ink depth less than 50 $\mu$ m.



Cutting on filmed glasses on vehicle



E-ink glasses

### Specification :

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( $\mu$ m )
2.00/3.00	65*110~130	0.65	0.80	0→280	1.0→5.0
Remarks	Interval of 5°			Interval of 10°	

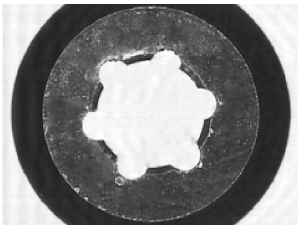
# Serrated

## Serrated Wheels with Slot Built in

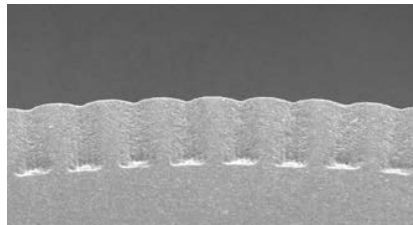


### Features :

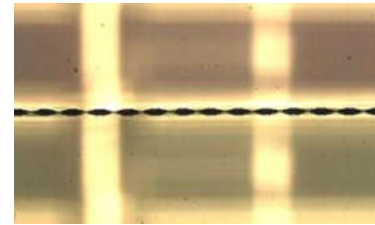
1. With slot built in ID , requires less cutting stress and effect little crack on scribing line and reduce lateral crack on cutting section.
2. Effect fewest particles , speed the breaking process and avoid sliding.



3D Teeth Photo



Teeth Photo



Scribing Line

### Application:

Applied to small sized TFT-LCD, OGS ,Cover Lens and tempered glasses with thickness of 0.15-0.25mm and DOL less than 5 $\mu$ m.



cutting on mobile phone, pad and cover lens

### Specification :

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( $\mu$ m )
2.00/3.00	110~130	0.65	0.80	5→800	1.0→1.8
Remarks	Interval of 5°			Interval of 10°	

# Hybrid

## Hybrid Diamond Wheel



### Features :

Cutting ITO filmed glasses; which is substitute of carbide wheels serves 5 times longer; perform cost effective.

### Compared with carbide wheel :

- ⊙ Applied to different kinds of glasses;
- ⊙ Effect controllable cutting depth and make cutting yield higher;
- ⊙ Serve 5 times longer than carbide wheels.

### Application:



### Specification :

OD ( mm )	Angle ( ° )	Thickness ( mm )	ID ( mm )	Teeth Qty	Teeth Depth ( μm )
2.00	95~130	0.65	0.80	0/(7→200)	0/(3→15)
2.50	100~130	0.65	0.80	0/(7→200)	0/(3→15)
3.00	105~130	0.65	0.80	0/(7→200)	0/(3→15)
Remarks	Interval of 5°				



# Integrated

## Integrated Scribing Wheel

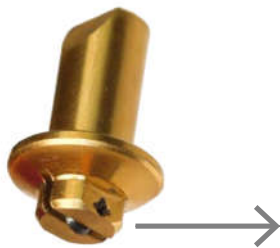


### Features:

1. Wheel, axle and holders are assembled together which save manual assembling and Improve efficiency.
2. The design of narrower holder than the proof and anti-particles bearing which guarantee reducing the particles
3. The holder is designated to be customized with locking location device+magnet, increase the precision and avoid S shape when cutting.
4. Wheels of V type of teeth depth  $15\mu\text{m}$ , good penetration to break.
5. Fewer particles and 0 Chipping ( $\leq 200\mu\text{m}$ )



### Applied Wheel :



High Penetration V Type  
Diamond Wheel



T Type Diamond Wheel

### Application:

Applied to cutting on small sized TFT-LCD glasses, OGS, cover lens and tempered glasses with DOL less than  $35\mu\text{m}$ .



OGS Glass



02

Products Applied to Wheels: Axles / Holders

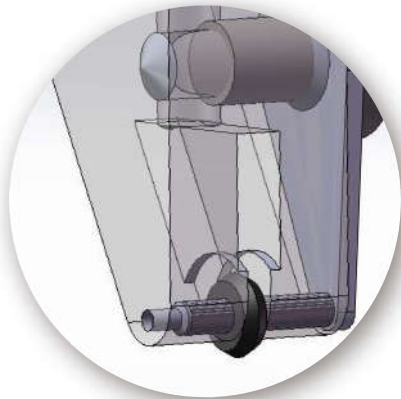
# Diamond Axle



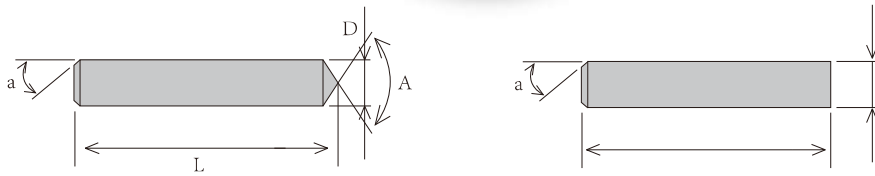
The suitability of the scribing wheel and axle, the abrasive resistance of the axle, the precision of the cylindricity, axle diameter and length are the factors that affect the cutting quality of the glass.

Normally unstable cutting quality and short service life of the scribing wheel are related to the incorrect operation of the axle and the inadequate hardness of the axle. The axle abrasion is the key factor that effect on the scribing wheel and cutting result.

Worldia diamond axles are qualified to guarantee the wheel performance and service time meanwhile with the passed yield rate for the glass. It also applied to the carbide scribing wheel.




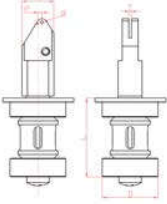

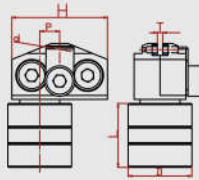

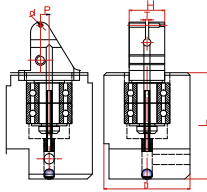

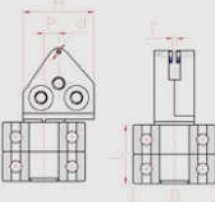

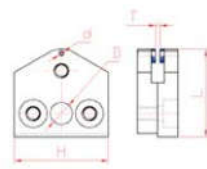

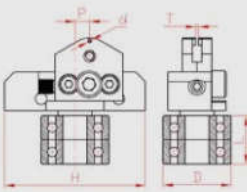
Specification :



D [mm]	L [mm]							A [°]	a [°]	Coaxiality [μm]	Cylindricity [μm]	Roughness Ra[μm]
	2.0	2.5	3.6	4.0	4.5	6.0	8.0					
0.8	★	★	★	★	★	★	★	120	45	5	2	0.2
1.0			★	★	★	★	★					
1.1			★	★	★	★	★					
1.2			★	★	★	★	★					
1.3			★	★	★	★	★					
1.4			★	★	★	★	★					

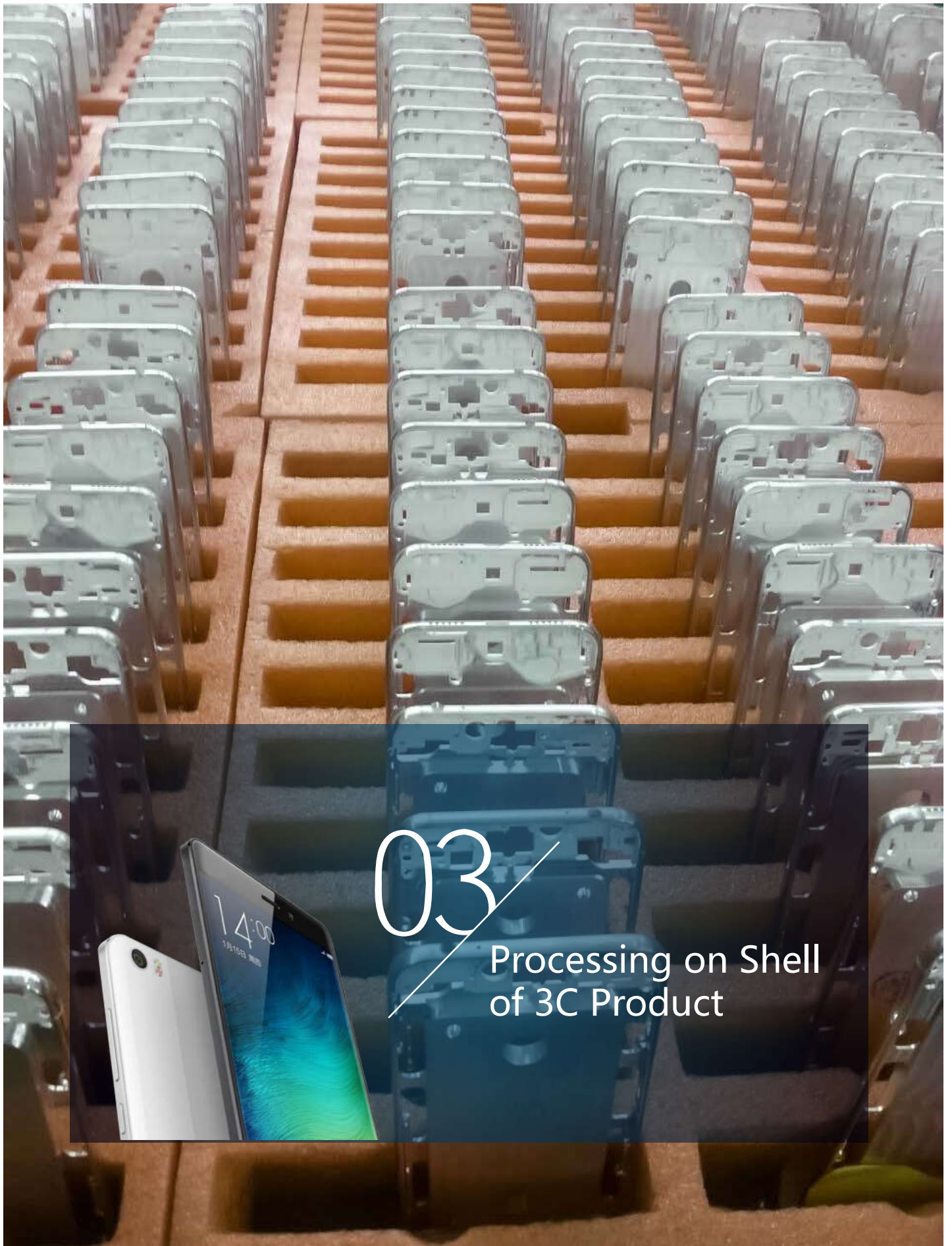
# Precised Holders

Applied to various types of cutting facility , every holders require at least 15 procedures to guarantee the cutting result which was effectd by detention , consistency and precision.

Product No.	Photo	Specification
XBR-19		
XBR-63		
XBR-67		
XBR-12/14		
XBR-W-14		
XBR-W-14-T		



Product No.	Photo	Specification
XBR-18		
XBR-71		
XBR-13		
XBR-14-T		
XBR-15		
XBR-03		
XBR-05		
XBR-07		





# Customized Diamond Grinding Wheel



## Application :

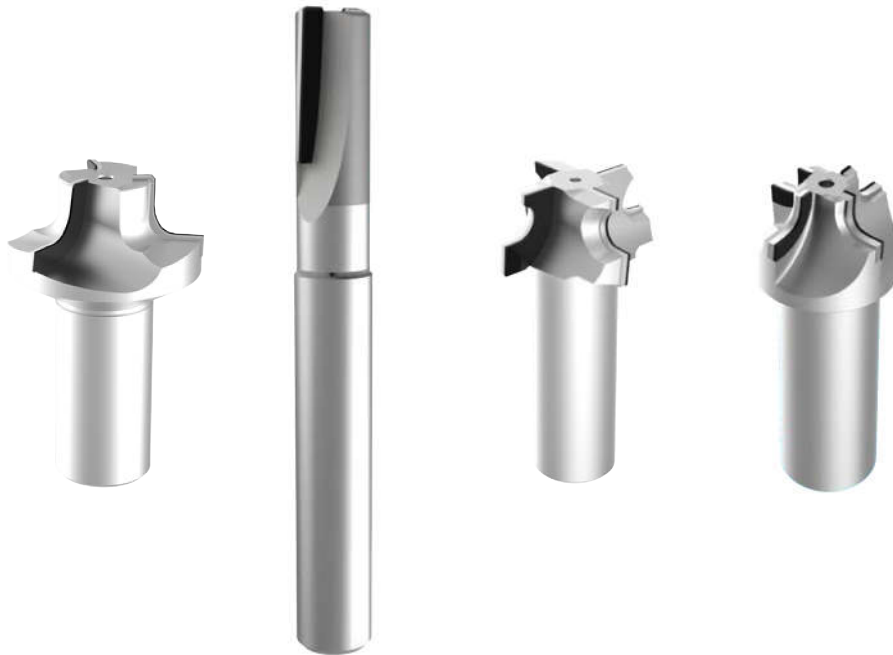
Rapid grinding speed ; basic damages to TFT/CF processing-cross section; shaped for one time that save time;very few chippings, high hardness of surface section;applied with electronic tag, easy and accurate to operate.

## Specification :

Total Length ( mm )	Diameter ( mm )	Length ( mm )	Diameter ( mm )	Pitches ( pcs )	Particle Size ( # )
40-50.5	φ 6.0- φ 10.0	11.5-23	φ 5- φ 15	10-23	300-1000

# Customized PCD Milling Tool

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## Application :

Machining on shell of aluminum-magnesium alloy cellphone, pad, ultra book and keyboard. High precision, profile of any line =  $5\mu\text{m}$  ; chipping  $< 2\mu\text{m}$





# Company Honor



Certificate of Conformity of Management System Certification



Certificate of National Significant New Product



Natinal High-tech Enterprise



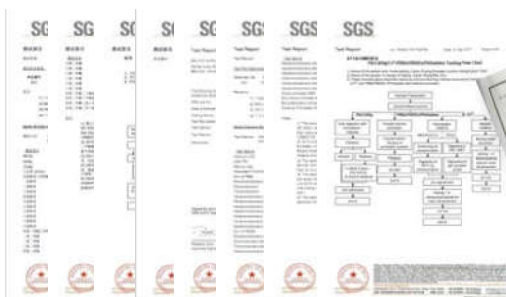
Awarded the Second on The First China Innovation & Entrepreneurship Competition in 2012.



Wordia Awarded the Golden Prize on CITE 2015/2016/2017



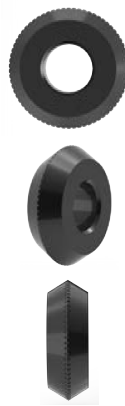
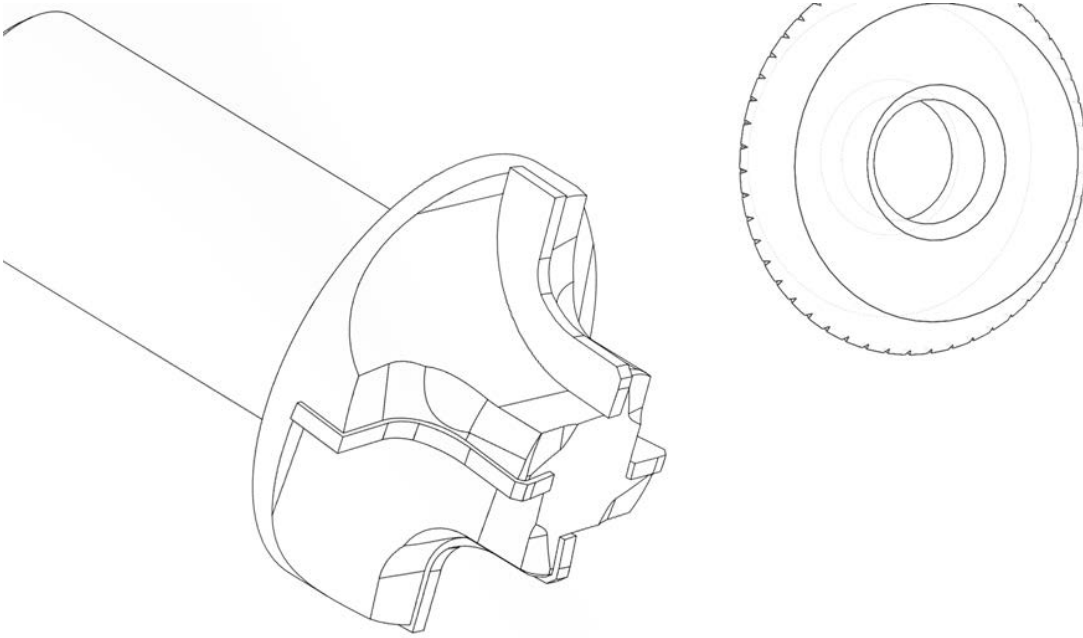
China Torch Program



Certificate of ROHS



Concentrating on product quality and overcome the technical difficulties Wordia awarded 80 Intellectual Property Patent Certificates by SIPO



**WORLDIA**

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**BEIJING WORLDIA DIAMOND TOOLS CO.,LTD.**

Tel : +86-10-58411388-8012 +86-573-82765885

Fax : +86-10-58411388-8103

E-mail : [marketing@worldiatools.com](mailto:marketing@worldiatools.com)

Web : [www.worldiatools.com](http://www.worldiatools.com) [www.cuttingtoolchina.com](http://www.cuttingtoolchina.com)

Add : Room H-02,5F,M7 Building, No.1 Jiuxianqiao East Road, Chaoyang District,Beijing  
Province 100015,China

Add : No.2 Industry Road ,Dachang Chaobaihe Industrial Park, Langfang City,Hebei  
Province 065300,China

Add : NO. 500 Kanghe Road, Xiuzhou District, Jiaxing,Province 314032,China