



TOP TECH

# PRECISO-CL Series

Thin Section Cutting and Grinding Machine System



*Perfect Surface.  
Always*

Patent

## CLG50

- Capable of preparing thin sections as thin as **40  $\mu\text{m}$**  meeting high-precision preparation requirements.
- Cutting and grinding accuracy within  **$\pm 10 \mu\text{m}$**  ensures stable and reliable results.
- **1  $\mu\text{m}$**  transverse resolution enables more precise sample positioning.
- Allows direct grinding after cutting, saving time and improving efficiency.
- Equipped with a vacuum clamping system for secure sample fixation.
- Filtration system with automatic drainage for easier maintenance and operation.



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## Introduction & Feature

Application : R&D, Academic, and Testing Institutions

Suitable for : Rocks, minerals, ceramics, and other hard and brittle materials

Purpose : Rock classification, elemental analysis, texture studies, fossil research, microstructural analysis, bone and tooth texture/age studies, and investigations of rock degradation, porosity, and permeability.

### Ultra-Thin Section Preparation

Capable of producing sections as thin as 40  $\mu\text{m}$ , ideal for microstructure observation and precision analysis. The prepared sections feature uniform and stable quality, enhancing image clarity and analytical accuracy, while also ensuring high operational efficiency.



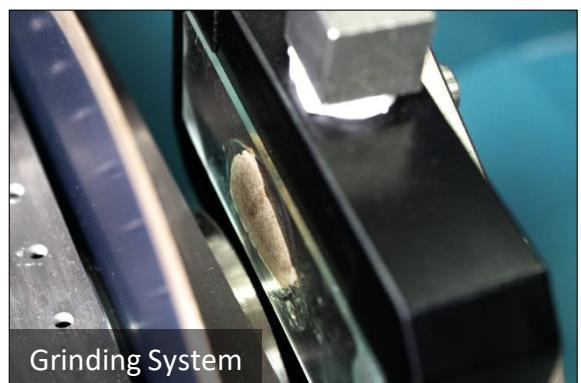
### Integrated Cutting and Grinding System

After cutting, samples can be directly transferred to grinding without re-clamping, eliminating unnecessary steps and minimizing the risk of sample damage. This design reduces preparation time, improves operational efficiency, and ensures greater process stability and consistency.



### High-Precision Cutting and Grinding

Achieves cutting and grinding accuracy within  $\pm 10 \mu\text{m}$ , ensuring excellent stability and reliability in sample preparation. Ideal for research and quality inspection environments that require strict process control and high precision.





## Introduction & Feature

### Transverse Resolution: 1 μm

The equipment offers a 1 μm transverse resolution, enabling precise control of sample positioning. This high-resolution design effectively minimizes errors, ensuring more reliable observation and analysis while enhancing overall preparation accuracy and efficiency.



### Vacuum Fixture-Assisted Clamping

Effectively secures samples to simplify operation and enhance stability, reducing adjustment time while ensuring a smooth and reliable preparation process. Compatible with glass slides (1"x3" or 2"x2"), allowing flexible adaptation to various sample requirements while maintaining both efficiency and precision.



### Thin Section Bonding Holder (Optional)

Provides an easy and efficient way to bond samples to glass slides. Ensures excellent flatness after bonding, enhancing the stability and reliability of observation and analysis.



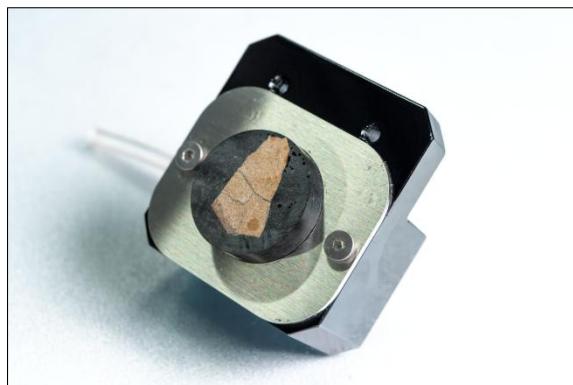


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## Introduction & Feature

### **Versatile Clamping Options (Optional)**

Offers a variety of fixture selections to accommodate samples of different shapes and sizes. The flexible configuration enhances operational convenience and ensures secure and stable sample holding, meeting diverse application needs.



### **Safety Acrylic Top Cover**

Equipped with a transparent acrylic cover that ensures both operational safety and clear visibility. When the cover is opened, the spindle automatically stops rotating, effectively preventing accidental contact and allowing the operator to safely monitor the cutting and grinding process.

### **High-Precision Variable-Speed Spindle**

During the cutting process, the spindle will automatically stop when the top cover is opened, ensuring operator safety throughout operation.

### **Filtration System with Automatic Drainage**

Equipped with an automatic drainage system that effectively removes moisture from the vacuum pipeline and returns it to the water tank. This design prevents potential vacuum system damage caused by water accumulation, ensuring stable operation and extended equipment lifespan.

### **Convenient Recirculating Water Tank Design**

Features an easy pull-out tank design that allows removal without taking off the cutting blade. This design enables quick and effortless coolant replacement, greatly improving operational efficiency.

### **Easy Operation**

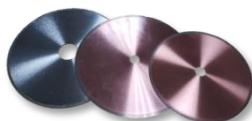
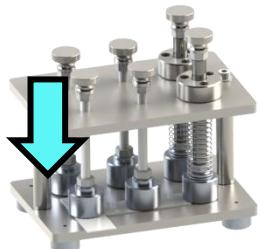
Features an intuitive interface that allows users to get started quickly with minimal training. Clear and straightforward workflow design ensures smooth daily operation while maintaining consistent preparation quality.



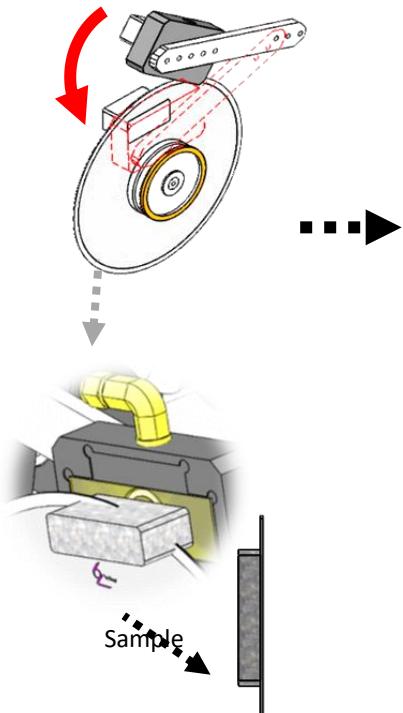
## Operating Procedure

### STEP 0 Bonding

Cut a small piece of the sample and bond it.



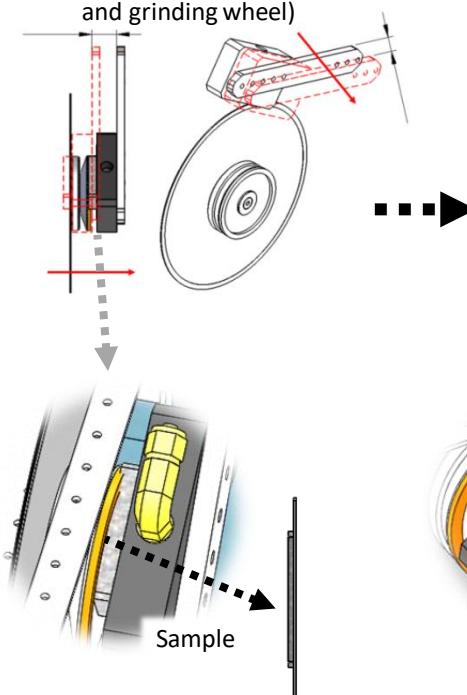
### STEP 1 Cutting



Cut the sample thinner

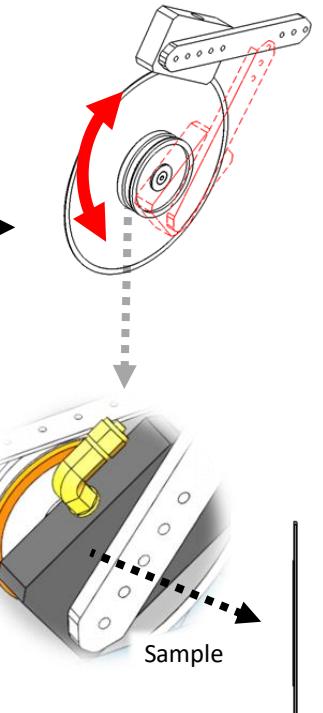
### STEP 2 Traverse

20mm (Distance between blade and grinding wheel)



Switching from cutting to grinding

### STEP 3 Grinding

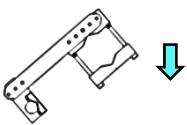
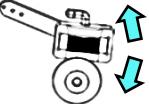


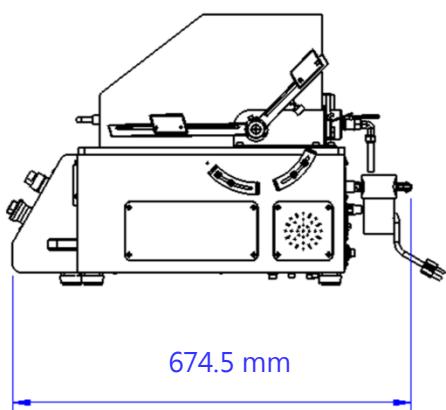
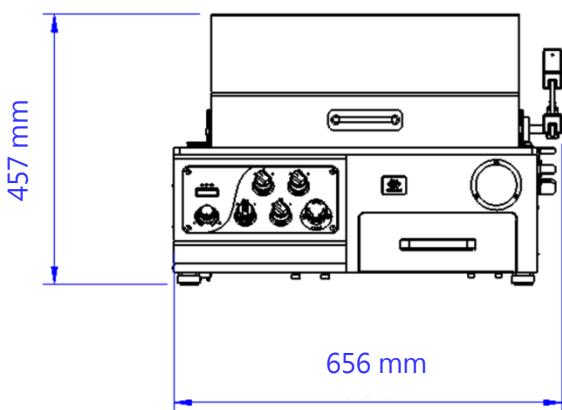
Grind the sample into a transparent thin section



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## Specification

Model	CLG50
Motor Power (W)	370
Cutting Ability (mm)	Max. Ø50
Grinding Ability (mm)	Max. Ø50
Cut-off Wheel (mm)	Ø200(8") ~ Ø125(5") x Ø25.4 or Ø12.7 (Arbor)
Grinding Wheel (mm)	Ø76.2(3") x Ø12.7 (Arbor)
Flange (mm)	Ø75
Operating Method	 Gravity Cutting Standard : Max Ø50mm (Block Sectioning) Vacuum : Max Ø50mm (Thin Sectioning) Glass Slide Size : 1"x3" or 2"x2" Traverse distance : 0 ~ 45 mm ( Min: 0.001mm )
	 Rocker Arm Grinding Vacuum Clamping : Max Ø50mm (Thin Section Grinding) Glass Slide Size : 1"x3" or 2"x2" Traverse distance : 0 ~ 45 mm ( Min: 0.001mm )
Rotational Speed (rpm)	130 ~ 3000 rpm
Coolant Tank Capacity (L)	3.5 L with built-in water spray motor
Dimension WxDxH (mm)	656 (W) x 674.5 (D) x 457 (H)
Weight (kg)	65 kg
Power Supply	AC220V/110V 1Ø
Accessories	Hex Wrenches 1Set
Option	Thin Section Bonding Holder , Glass Slide, Bonging Adhesive





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## Vise Application



### Gravity Cutting

Suitable for cutting small and thin samples  
Such as screws, plastics, aluminum, copper, and other similar materials.

#### (Standard)

Gravity Cutting

#### ● Specification

Cut-off Wheel Size : 5"~8" ( $\varnothing 125\sim\varnothing 200$ mm)  
Traverse distance : 0~20(mm), Min:0.001mm

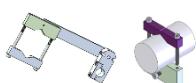
#### Double clamping vise kit (Standard)

Max. sample :  $\varnothing 50$  (mm)  
Max. sample length : 260(mm)



#### Single clamping vise kit (Option)

Max. sample :  $\varnothing 50$  (mm)  
Max. sample length : 260(mm)



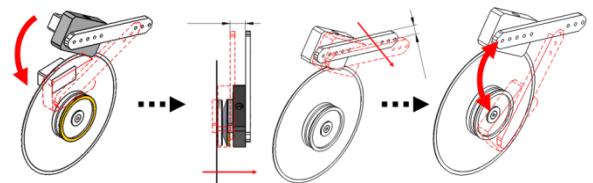
#### All clamping vise for CL40 & CL50 series (Option)

CL40044A Single clamping vise kit  
CL400051A Irregular shape vise kit  
CL40052-L Single clamping vise kit  
CL400053 Round and elliptic vise kit  
CL400054A Fragile vise kit  
CL40070-D Double clamping vise kit  
CL500505A Irregular shape vise kit  
CL500506 Round and elliptic vise kit  
CL500507 Fragile vise kit  
CL500509 Double clamping vise kit  
CL50051001A Round vise kit  
CL50051002A Round vise kit  
CL50051101 Tear drop vise kit  
CL50051102A Tear drop vise kit  
CL500512 Biological medicine vise kit  
CL500513 Screws vise kit  
CL500514 Double clamping vise kit (Slice in half)  
CL500303A Long type single clamping vise kit

Please refer to attachment 1 for details

### Cutting & Grinding

Suitable for cutting without removing the samples, allowing direct transition to grinding.



#### (Standard)

Cut-off Wheel & Grinding Wheel

#### ● Specification

Cut-off Wheel Size : 5"~8" ( $\varnothing 125\sim\varnothing 200$ mm)  
Grinding Wheel Size : 3" ( $\varnothing 76.2$ mm)  
Traverse distance : 0~20(mm), Min:0.001mm

#### Single clamping vise kit (Standard)

ACP0311B Vacuum clamping vise kit  
Max. cut-off wheel : 8" ( $\varnothing 203$ mm)  
Max. sample :  $\varnothing 50$  (mm)  
Max. sample Length : 260L (mm)



#### Mounting clamping vise kit (Optional)

ACP0311D Mounting clamping vise kit  
Max. cut-off wheel : 8" ( $\varnothing 203$ mm)  
Max. sample :  $\varnothing 25.4 \sim 38.1$  (mm)  
Recommended Length : 20~25L (mm)



#### (Optional vise kit)

※ Available customized clamping vise kit



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## Other Accessories



### Consumables

#### Consumables

Such as cut-off wheels and grinding wheels.

Cut-off wheel size : 5"~8"

Grinding wheel size : 3"

#### **Diamond blade (Option)**

- Electroplating  
(Please see consumables for details)
- Metal bond  
(Please see consumables for details)
- Resin bond  
(Please see consumables for details)

#### **CBN blade (Option)**

- Electroplating  
(Please see consumables for details)
- Metal bond  
(Please see consumables for details)
- Resin bond  
(Please see consumables for details)

#### **Diamond grinding wheel (Option)**

- HW32002

#### **CBN grinding wheel (Option)**

- HW32003

### Other Accessories

#### **000271 Glass slide (Option)**

Size : 1"x3", 50pcs/box

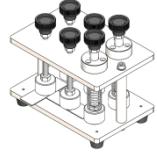


#### **S12007 Bonding adhesive (Option)**

Weight : 90g, Melting temperature : 160°C

#### **ACP0311C Thin Section Bonding Holder (Option)**

Application: For bonding samples to glass slides.





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## Attachment 1- Vise Kit (Option)

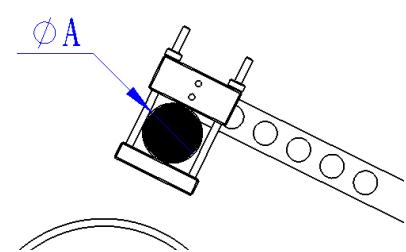
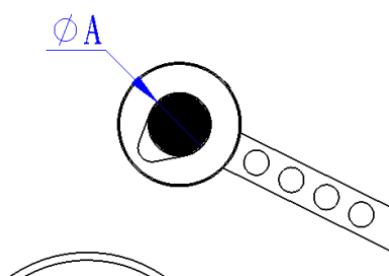
CL500505A Irregular shape vise kit		CL500506 Round and elliptic vise kit		CL500507 Fragile vise kit	
● ↘	■ ↘	● ↘	■ ↘	● ↘	■ ↘
A (mm)	E x D (mm)	A (mm)	E x D (mm)	A (mm)	E x D (mm)
-	60x50	Max.40	50x35	-	50x28
CL500509 Double clamping vise kit		CL50051001A Round vise kit ( $\varnothing$ 32)		CL50051002A Round vise kit ( $\varnothing$ 40)	
● ↘	■ ↘	● ↘	■ ↘	● ↘	■ ↘
A (mm)	E x D (mm)	A (mm)	E x D (mm)	A (mm)	E x D (mm)
Max.50	50x35	Max.32	-	Max.40	-



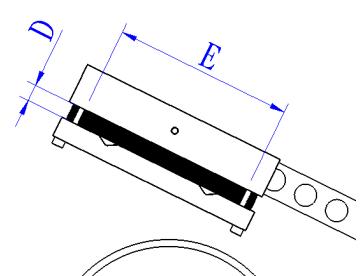
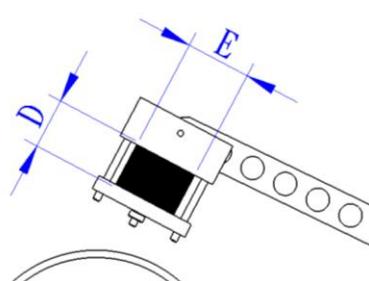
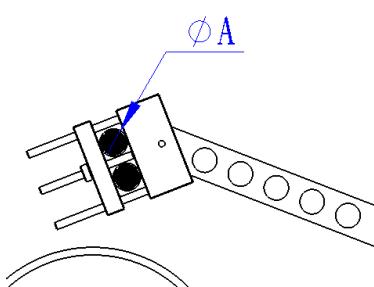
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## Attachment 1- Vise Kit (Option)

CL50051101A Tear drop vise kit		CL50051102A Tear drop vise kit		CL500512 Biological medicine vise kit	
● ↗	■ ↗	● ↗	■ ↗	● ↗	■ ↗
A (mm)	E x D (mm)	A (mm)	E x D (mm)	A (mm)	E x D (mm)
5~20	-	18~40	-	Max.40	40x30



CL500513 Screws vise kit		CL500514 Double clamping vise kit (Slice in half)		CL500303A Long type single clamping vise kit	
● ↗	■ ↗	● ↗	■ ↗	● ↗	■ ↗
A (mm)	E x D (mm)	A (mm)	E x D (mm)	A (mm)	E x D (mm)
Max.18	-	-	45x35x3T	-	130x12





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## Attachment 1- Vise Kit (Option)

CL400051A Irregular shape vise kit		CL400052-L Single clamping vise kit (Ø 20)		CL400053 Round and elliptic vise kit	
● ↘	■ ↘	● ↘	■ ↘	● ↘	■ ↘
A (mm)	E x D (mm)	A (mm)	E x D (mm)	A (mm)	E x D (mm)
-	38x25	Max. 20	20x30	Max. 14	38x10
CL400054A Fragile vise kit		CL400070-D Double clamping vise kit		CL50051001A Round vise kit	
● ↘	■ ↘	● ↘	■ ↘	● ↘	■ ↘
A (mm)	E x D (mm)	A (mm)	E x D (mm)	A (mm)	E x D (mm)
-	50x28	Max. 20	20x30	Max. 32	-

## Metallographic Workbench (Option)



### Model

TF01

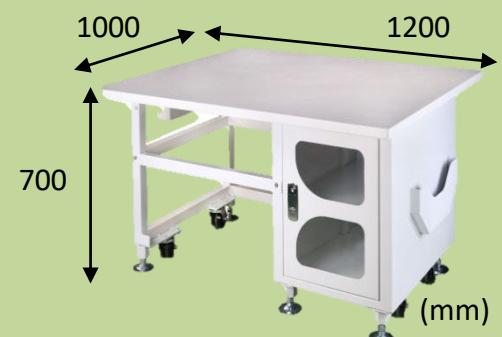
TF02

Dimension (W\*D\*H)

1000\*800\*700 mm

1200\*1000\*700 mm

### Dimension





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## Consumables

### Electroplating Diamond Blade

Single layer grain and strong cutting ability, but more abrasion.  
For glass, ceramics, gem, asbestos, alloy, and rubber



Order No	Size	Dia. x Arbor x T(mm)	Packing
HW21110607	Ø5"	Ø127xØ12.7x1.0	1
HW21110808	Ø6"	Ø152xØ25.4x1.2	1
HW21111008	Ø7"	Ø178xØ25.4x1.2	1
HW21111208H	Ø8"	Ø203xØ25.4x1.2	1

(Customized cut-off wheel is also available)

### Metal Bond Diamond Blade

Best grain with good wear resistance, smooth cutting surface and long life span.  
For cement, non-metal materials, alloys, electronic materials, glass, and tungsten carbide.



Order No	Size	Dia. x Arbor x T(mm)	Packing
HW21120602L	Ø5"	Ø127xØ12.7x0.5	1
HW21120702L	Ø6"	Ø152xØ12.7x0.5	1
HW21121003L	Ø7"	Ø178xØ25.4x0.6	1
HW21121207L	Ø8"	Ø203xØ25.4x1.0	1

(Customized cut-off wheel is also available)

### Resin Bond Diamond Blade

Flexible blades reduce the force of damage during preparation  
For quartz, glass, non iron metal, ceramics, and silicon wafer



Order No	Size	Dia. x Arbor x T(mm)	Packing
HW21130602L	Ø5"	Ø127xØ12.7x0.5	1
HW21130702L	Ø6"	Ø152xØ12.7x0.5	1
HW21131003L	Ø7"	Ø178xØ25.4x0.6	1
HW21131207	Ø8"	Ø203xØ25.4x1.0	1
HW21131408	Ø9"	Ø230xØ25.4x1.2	1

(Customized cut-off wheel is also available)



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## Consumables

### Electroplating CBN Blade

Single layer grain and strong cutting ability, but more abrasion.  
For high speed steel, alloy steel, tool steel, stainless steel, and magnetic material



Order No	Size	Dia. x Arbor x T(mm)	Packing
HW21210607L	Ø5"	Ø127xØ12.7x1.0	1
HW21210808L	Ø6"	Ø152xØ25.4x1.2	1
HW21211008L	Ø7"	Ø178xØ25.4x1.2	1
HW21211207	Ø8"	Ø203xØ25.4x1.0	1

(Customized cut-off wheel is also available)

### Metal Bond CBN Blade

Best grain with good wear resistance, smooth cutting surface and long life span  
For high speed steel, alloy steel, tool steel, stainless steel, and magnetic material



Order No	Size	Dia. x Arbor x T(mm)	Packing
HW21220602L	Ø5"	Ø127xØ12.7x0.5	1
HW21220702L	Ø6"	Ø152xØ12.7x0.5	1
HW21221003L	Ø7"	Ø178xØ25.4x0.6	1
HW21231207	Ø8"	Ø203xØ25.4x1.0	1

(Customized cut-off wheel is also available)

### Resin Bond CBN Blade

Flexible blades reduce the force of damage during preparation  
For hard steel, ferrous sintered metal, bearing, hard alloy, and forged iron



Order No	Size	Dia. x Arbor x T(mm)	Packing
HW21230602L	Ø5"	Ø127xØ12.7x0.5	1
HW21230702L	Ø6"	Ø152xØ12.7x0.5	1
HW21231005L	Ø7"	Ø178xØ25.4x0.6	1
HW21231207	Ø8"	Ø203xØ25.4x1.0	1

(Customized cut-off wheel is also available)



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## Consumables

### Diamond Grinding Wheel

Single layer grain and strong cutting ability, but more abrasion.  
For grinding rocks, minerals, ceramics, and other hard and brittle materials.

Order No	Size	Dia. x Arbor x T(mm)	Packing
HW32002	Ø3"	Ø76.2xØ12.7	1
(Customized cut-off wheel is also available)			

### CBN Grinding Wheel

Single layer grain and strong cutting ability, but more abrasion.  
for grinding high-speed steel, alloy steel, tool steel, stainless steel, and magnetic materials.

Order No	Size	Dia. x Arbor x T(mm)	Packing
HW32003	Ø3"	Ø76.2xØ12.7	1
(Customized cut-off wheel is also available)			

### Cutting Coolant



Order No.	Cutting Coolant	Packing(1L/BTL)
S01003	Water-based – transparent (Red cap)	20
S01004	Water-based – transparent (Red cap)	1

# Top Tech distributors



**TOP TECH**

CE



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