

# GC-X5

## Grinding Wheel Dressing Machine

# OPERATING MANUAL



Serial No.

Order No.

Please state serial No. and order No. when ordering spares and with enquiries.

## **Contents:**

1. Description
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4. Operation
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## 1. Description:

This machine is to use the principle of the speed difference between the diamond wheel and the Sic wheel to dressing wheel.

The machine itself can provide simple and efficient dressing for a grinding wheel group consisting of diamond grinding wheels, CBN grinding wheels and multiple grinding wheels, plane, angle, and arc, The machine is simple to operate.

## 2. technical date:

X/Y axis magnetic scale resolution	0.001mm
X/Y axis stroke	120 mm
Diamond grinding wheel max diameter	Ø250mm①
Diamond grinding wheel min diameter	Ø10mm
Diamond grinding wheel max thickness	50mm
Diamond grinding wheel speed of rotation	100 to 1500rpm
Diamond grinding wheel arc	r0.1 ~r10.0mm②
Dressing grinding wheel (SIC)	Ø 180X10X Ø 31.75 mm
Dressing grinding wheel speed of rotation	1000 to 2500rpm
Total power	1.5 KW
Power supply:	three-phase 380VAC

Note 1: Move the diamond spindle assembly, which can be increased to 400 mm.

Note 2: If the radius of the arc needs to be trimmed more than 10mm, it is necessary to Replacement Lens.

### 3. Transport and installation

#### 3.1 transporting the machine

With forklift or hydraulic lift:

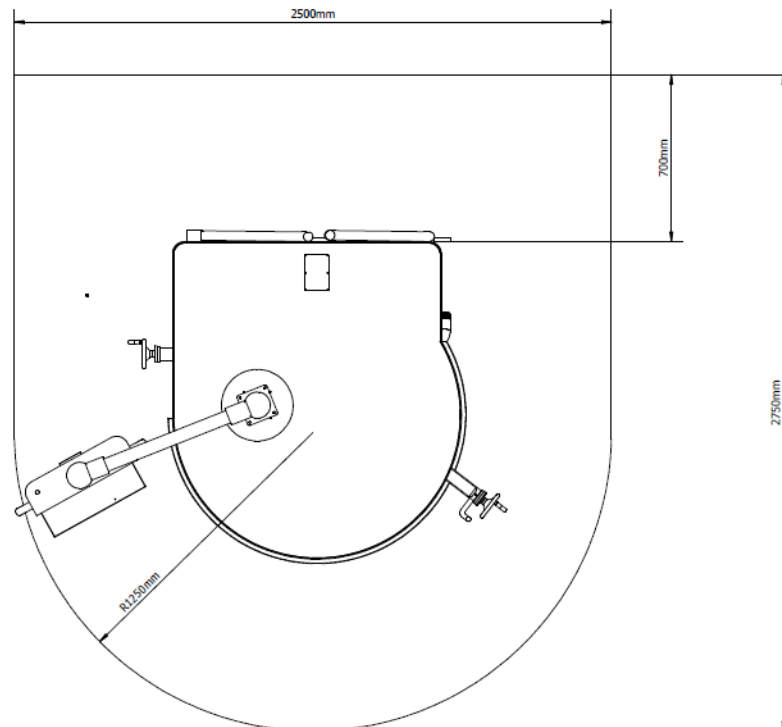
Minimum lift force: 3.0 tons

Minimum fork length: 1200mm

#### 3.2 Erecting the machine

The machine is placed on 4 vibration damping supports, with already installed at the machine.

The machine is accurately level in the longitudinal and traverse directions by means of these supports.



#### 3.3 Electric mains connections

The complete system is connected to the local mains via the input terminals of the electric cabinet. All further electric connections are made via plugs and terminals between the electric cabinet and the machine.

Connection values:

Electrical connection:

Mains 3\*380V/50Hz or 3\*400V/50Hz

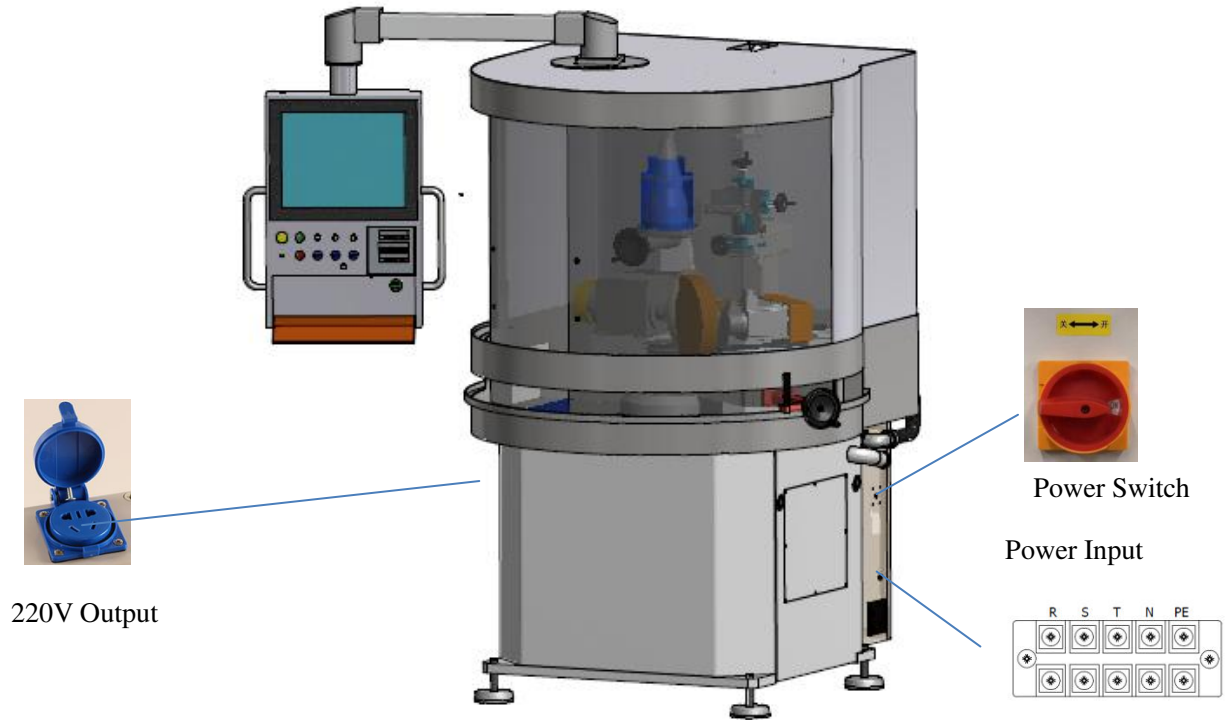
Connected power 5.0kVA (Includes a vacuum cleaner power supply. )

Input fusing Min 16A

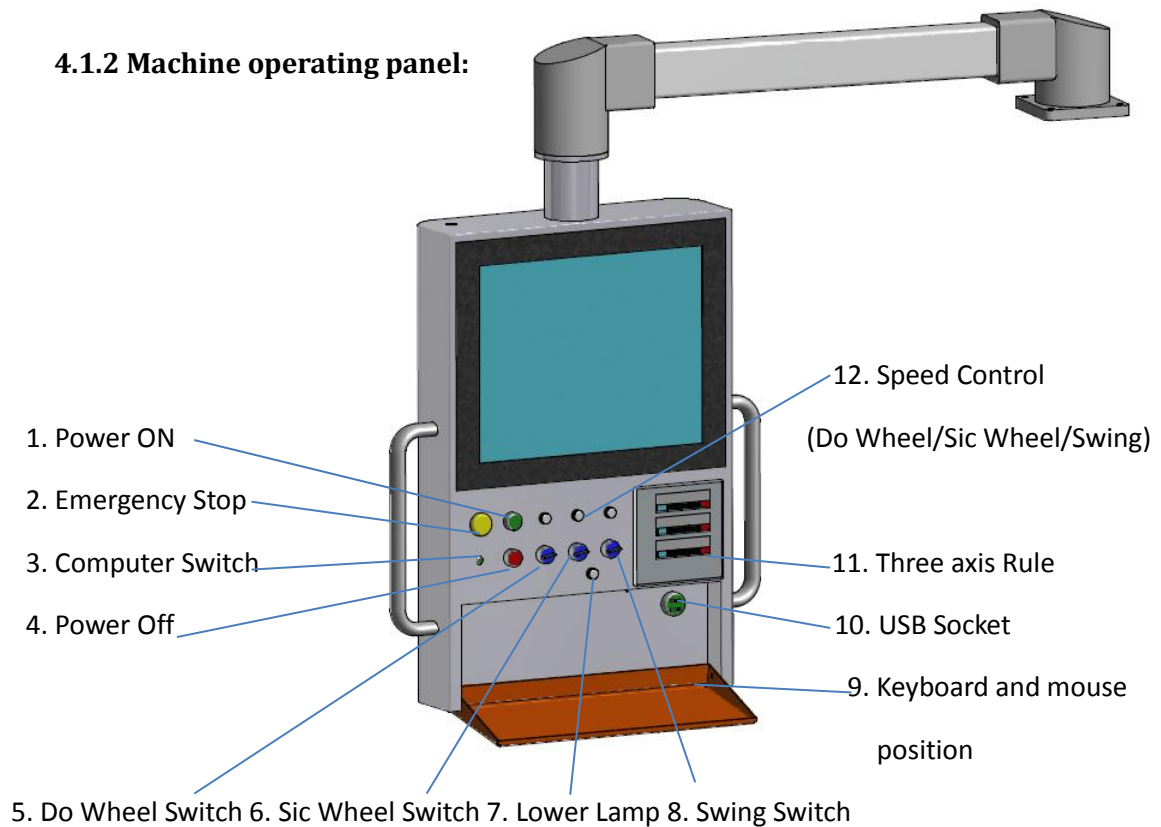
## 4. Operation

### 4.1 General view and description of the machine

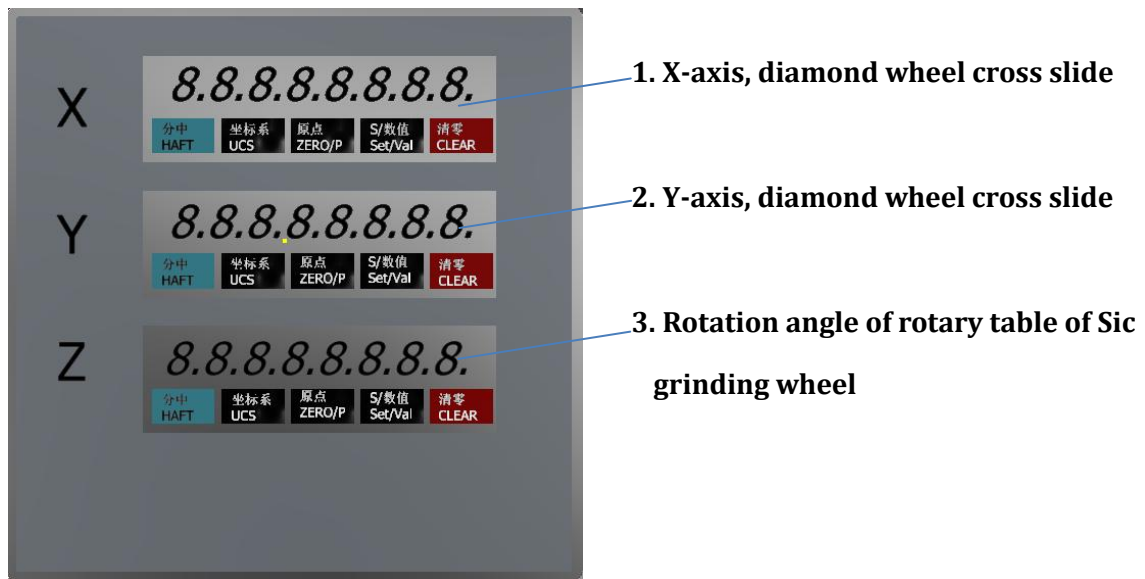
#### 4.1.1 General view of the Machine:



#### 4.1.2 Machine operating panel:



#### 4.1.3 Three axis Rule:



##### 4.1.3.1 Button function description

- 1.分中/HAFT (Left Page)
- 2.坐标系/UCS (Key -)
- 3.原点/ZERO/P (Enter Key)
- 4.数值/Set/Val (Key+)
- 5.清零/Clear (Right Page)

##### 4.1.3.2 Instruction for use

In the current coordinate value, press the clear key to display the data reset. It is often used to set the zero angle of rotation axis after each startup.

#### 4.1.4 Start using the machine:

- \*Main Power Switch ON
- \*Release the emergency stop button
- \*Press Power ON Button
- \*Set the Speed 30%, about 500 rpm., Turn on the DO Wheel Witch ON
- \*Set the Speed 50%, about 1000 rpm., Turn on the Sic Wheel Witch ON
- \*Set the Speed 50%, about 25 Hz., Turn on the Swing Switch ON,

Then, adjust the appropriate speed according to the parameters recommended by the diamond wheel supplier

## 4.1.5 Installing and Dressing Sic grinding wheel

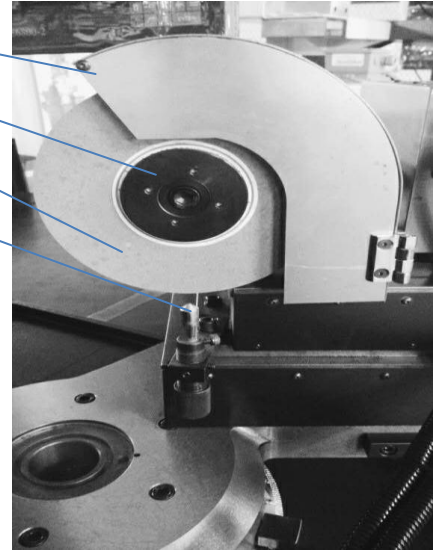
### 4.1.5.1 Install a green silicon carbide (Sic) grinding wheel

1. Open the wheel safety cover

2. Sic Wheel Flange

3. Sic Wheel

4. Diamond Dressing Pen



### 4.1.5.2 Dressing the Sic Wheel for the first time.

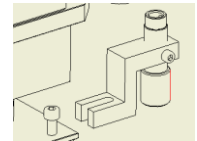


1. Install the diamond pen holder and lock the screw.

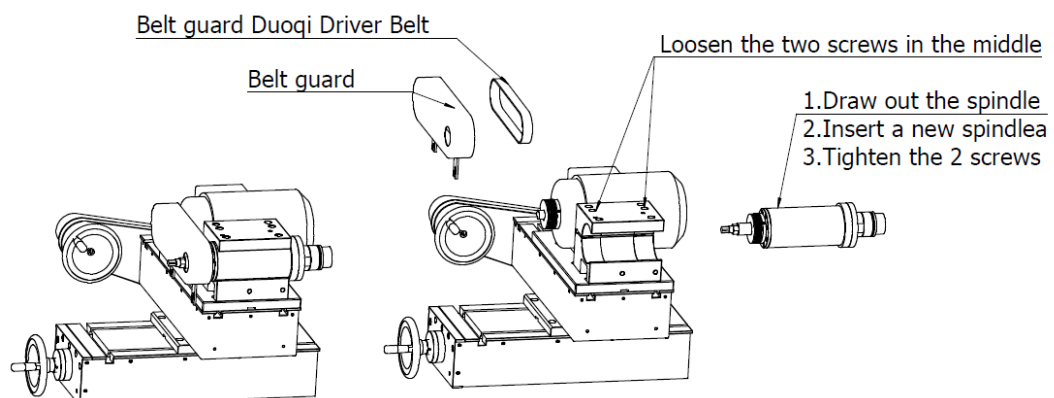
2. Loose side screw

3. Rotate the holder and adjust the diamond dressing pen height to contact the Sic grinding wheel

4. Turn on the Sic grinding wheel motor, turn on the swing motor, adjust the appropriate speed, and start dressing the Sic Wheel.



## 4.1.6 Replacement of diamond grinding wheel spindle

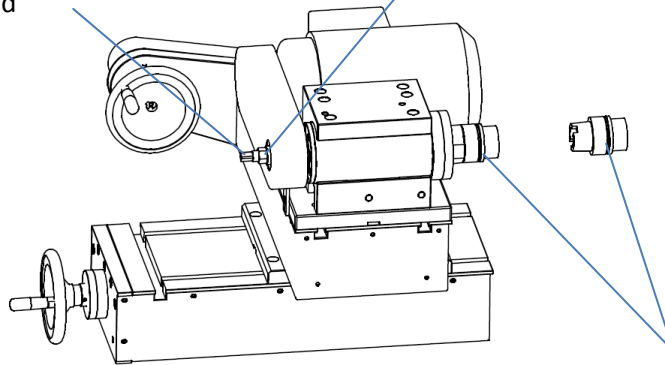


#### 4.1.7 Installation and removal the Diamond grinding wheel set:



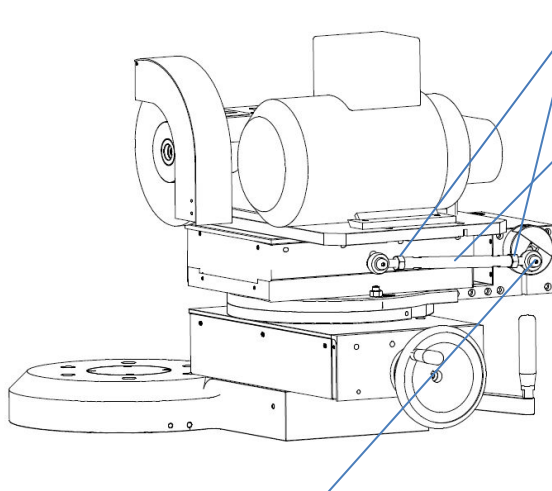
1. Use an Allen key or spanner to fix the pull rod

2. Use a socket wrench to loosen the nut



3.0 Carefully remove the HSK grinding wheel rod

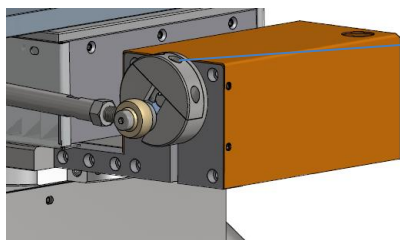
#### 4.1.8 Swing Distance and Swing Center Adjustment of Sic Grinding Wheel



1. Loosen the outer hexagon nuts at the left and right ends

2. Rotating the middle sleeve to adjust the swing center of Sic grinding wheel

3. Loosen the screw with an Allen key



4. Adjust the screw here with an Allen key to adjust the swing stroke

5. Lock all screws and screws to complete the adjustment

#### 4.1.9 Start dressing diamond grinding wheel:

After the above two tasks are completed, rotate the rotating seat to 0 degree (Figure 7), Make sure the Swing parts are in the 90 degree position (Figure 8).

- ① Silicon carbide grinding wheel motor on, adjust the speed,
- ② reciprocating motor on, adjust to the appropriate swing frequency,
- ③ diamond grinding wheel motor on, adjust to the appropriate speed,
- ④ feed hand wheel control Sic grinding wheel close to diamond grinding wheel, start dressing.



Figure 7

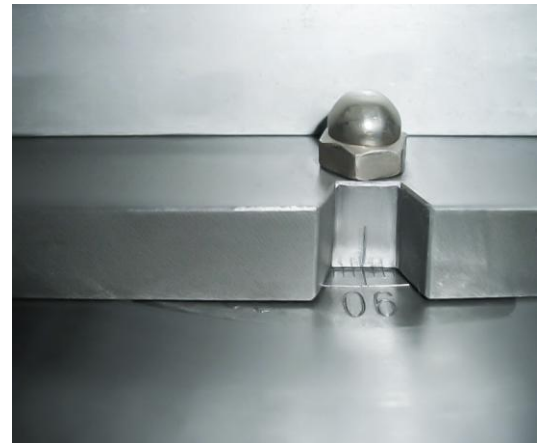
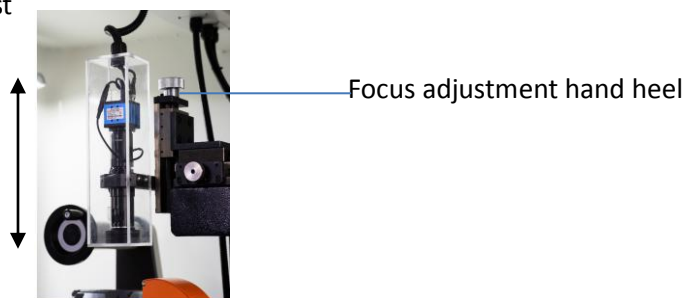


Figure 8

#### 4.1.10 Adjust the center of the rotating arc

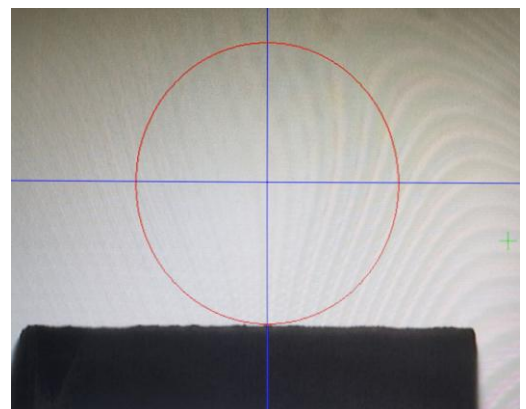
##### 4.1.10.1 Adjust the projection

Place the calibration glass and bracket in the center of the lower light source, adjust the appropriate lens magnification, observe the small square on the calibration glass, and adjust the hand wheel at the top of the lens bracket until the small square displayed on the screen is the clearest



##### 4.1.10.2 Rotation center adjustment

1. Draw a circle with radius of 3 mm through Edit - input circle manually
2. Rotate the rotary table to 0 degree and move the feed hand wheel to make the Sic grinding wheel projection fit under the circle, When the rotary table is rotated to 90 degrees, observe whether the projection of the silicon carbide grinding



wheel fits the circle. If there is any discrepancy, when adjusting the knob and feed hand wheel of the micro lens bracket, the adjustment distance of the knob and hand wheel is half of the total distance, so that the projection is tangent to the circle.

3. Turn the rotary table to 90 degrees on the left side and 90 degrees on the right side. Adjust the knob of the lens bracket and the feeding hand wheel of Sic grinding wheel repeatedly to make the projection tangent to the circle.
4. Adjust the rotary table to 0 degree again, and turn the y-axis knob of the lens bracket to make the projection tangent to the circle

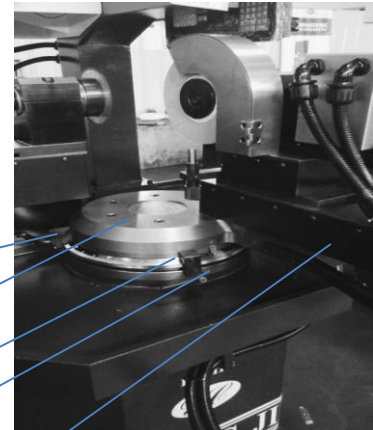
#### 4.20 Dressing diamond grinding wheel

##### 4.21.1 Grinding flat grinding wheels

5. Install the diamond grinding wheel, adjust the X / y hand wheel to make the diamond grinding wheel in the middle position on the computer screen, lock the X / y hand wheel, rotate the rotary table to 0 degree, lock the turntable, adjust the hand wheel to make the circumference of Sic grinding wheel close to the diamond grinding wheel, adjust the reciprocating travel of the green silicon carbide grinding wheel to ensure that the green silicon carbide grinding wheel can walk out of the two sides of the diamond grinding wheel on the left and right, and start the green silicon carbide grinding wheel Silicon sand wheel, diamond wheel, Sic wheel reciprocating motion, hand wheel feed start grinding.

##### 4.21.2 Grinding angle grinding wheel

Adjust the rotating panel to the required angle, lock the turntable, adjust the reciprocating stroke, start the Sic grinding wheel, diamond grinding wheel, Sic grinding wheel Swing motion, hand wheel feed to start grinding.

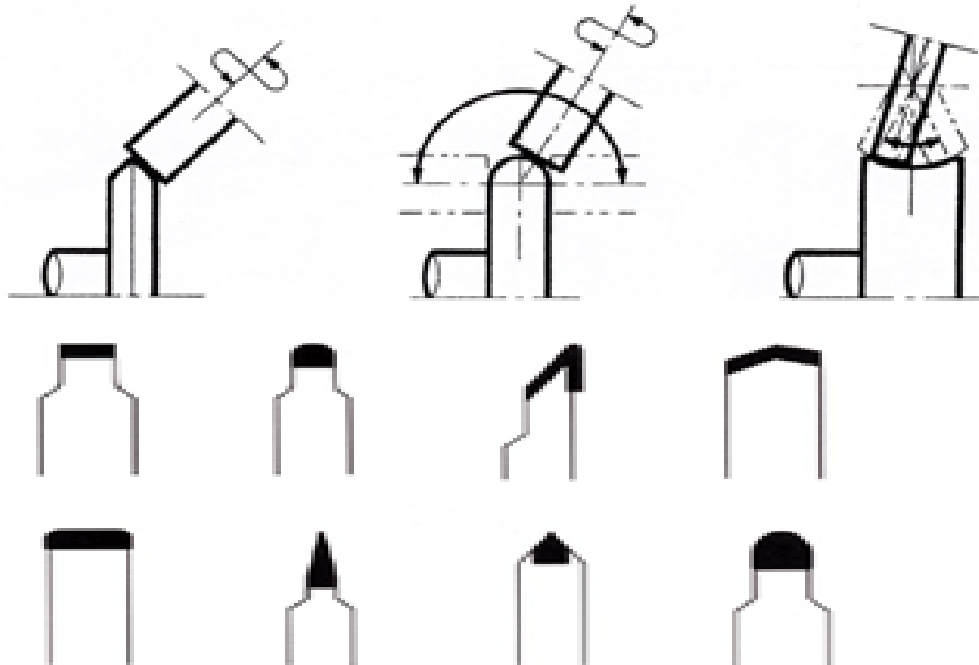


1. Rotation angle stop
2. Rotating table
3. Locking handle
4. Angle indicator
5. Feed slide

##### 4.21.3 Dressing arc grinding wheel

- ① Adjust the center of rotation according to the instructions
- ② In the software, the circle to be trimmed is drawn by the method of edit manual input circle, and the position of the diamond wheel is moved so that the circle corresponds to the position to be trimmed.
- ③ The limit block of the rotary table shall be set, and both sides shall not exceed the angle of the trimmed position.
- ④ Adjust the reciprocating stroke.

- ⑤ Start the diamond grinding wheel motor / Sic grinding wheel motor / Swing motor, feed the hand wheel to make the Sic grinding wheel contact with the diamond grinding wheel, and manually control the rotary table handle to rotate back and forth to start dressing.



## 5. Instructions for major accessories

5.1 Video microscope: optical magnification 0.7x 4.5 continuous variable, with 0.5 x eyepiece.

5.2 Display: Dell 17" LCD.

5.3 Bearings are made of precision-grade bearings and rails are guided by precision Cross roller guide.

5.4 The resolution of feed hand wheel is 0.02 mm

5.5 The swing motion is driven by DC gearbox motor, in addition, the turbine gearbox can be selected.

## 6. Equipment troubleshooting guide

### 6.1 VMM2.2 software startup problem

Please start this software to view the help file.

6.1.1 Check whether the power indicator of the camera is on (red light at the top of the camera).

6.1.2 Check the AV plug on the top of the camera for damage

6.1.3 Starting the VMM software, Click CCD set (D) --

Video gather Card – DirectShow (USB 2870 or UCAP2820) -- Click OK.

6.1.4 Click CCD set (D) – Display attribute – Video

Decoder – Video Standard (PLA\_G) -- Click OK.

6.1.5 Restarting the VMM2.2 Software



## 6.2 Display error of 3-axis digital ruler

This fault usually occurs after the power supply flash.

6.2.1 Press and hold key **UCS** and key **CLEAR** to enter the data setting interface

6.2.2 Press key **HALF** (Left Page) or key **CLEAR** (Right Page) to Select the data location of A1 / A2 / A3 / to be set, and A7 to Save and exit.

6.2.3 Press key **UCS** ( Key - ) or key **Set/Val** ( Key+ ) to change the value

6.2.4 Select A7, press key **ZERO/P** ( **Enter Key** ) to save and exit, turn off the power ,after 10 seconds, restart to complete the setting.

## 6.3 Factory original setup data

6.3.1 X: A1=4, A2=1000, A3=0,

6.3.2 Y: A1=4, A2=1000, A3=0,

6.3.3 Z: A1=4, A2=22, A3=0.2222,

## 7. Instructions concerning work safety

1. After adjusting the position of the dressed diamond wheel, lock the x-axis and y-axis hand wheel.
2. Before the grinding wheel angle needs to be trimmed, the turntable must be turned to zero, and the computer angle display must be set to zero, then the computer angle will display the correct angle.
3. Before starting the Swing motion, the turntable must be locked.

## 8. Machine Description

