

JCID·精诚创新

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Smart Grinding Machine-EM03(Standard Edition) User manual

Please read the user manual carefully before use

1 The product has the following features



- ◆ Support USB flash disk data introduction, and external mouse and keyboard
- ◆ Self-designed operating system, 7 inch high-resolution capacitive touch screen, support WIFI networking, automatic software upgrading
- ◆ The chip grinding data inside the APP will be updated through WIFI networking automatically, and other accessory grinding data inside the APP will be updated afterwards automatically
- ◆ Adopt 2.9G four core CPU, integrated image processing chip, support 1080P HD camera, 180 degrees panoramic image display
- ◆ Support to grind quadrangle chip, hexagonal WIFI chip and accessories with rounded corners, support customized addition of chip data, generate accurate chip grinding data quickly by location of the diagonal point of chip
- ◆ An exquisite and compact product, net weight is only 42kg, working stroke is up to 155*220*104mm
- ◆ Built-in with precision sensor, detect the flatness of the chip surface through 5 anchor points automatically, analyze and generate the curved grinding data
- ◆ All the three axes adopt imported ball screw and linear guide rail, processing accuracy is not lower than 0.01mm

2 Package list

Smart Grinding Machine-EM03(Standard Edition)
contains the following parts



1 Grinding machine*1



2 Wrench x 2PCS



3 Bit x 10PCS



4 15-15Pro Max Front & Back Grind Mould



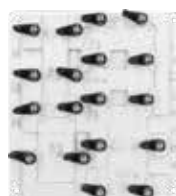
5 14-14Pro Max Front & Back Grind Mould



6 13-13Pro Max Front & Back Grind Mould



7 12-12Pro Max Front & Back Grind Mould



8 11-11Pro Max Front & Back Grind Mould



9 Calibration Mould

3 Product parameter and introduction

Product name:JCID Gen3
Smart Grinding Machine – EM03

Operating system:Self-developed
operating system

Processing accuracy:0.01mm

Effective stroke:155*220*104mm

Collet size:1-7mm

Spindle power:800W

Working voltage:220V

Mould plate size:150*140*28mm

Product size:555*440*550mm

Package Size:600*450*840mm

Auxiliary components:1080P HD camera

Total weight:42kg

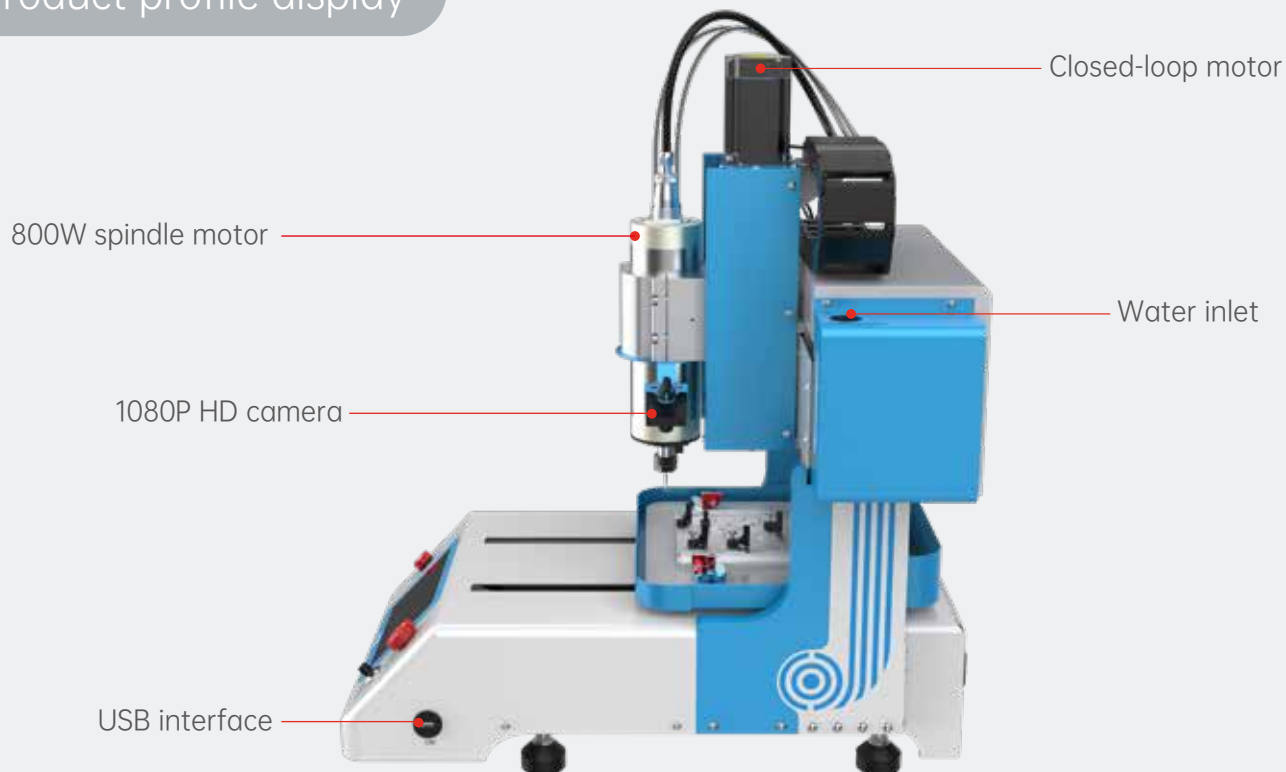
*The above data are from JCID Lab

The front side of the product

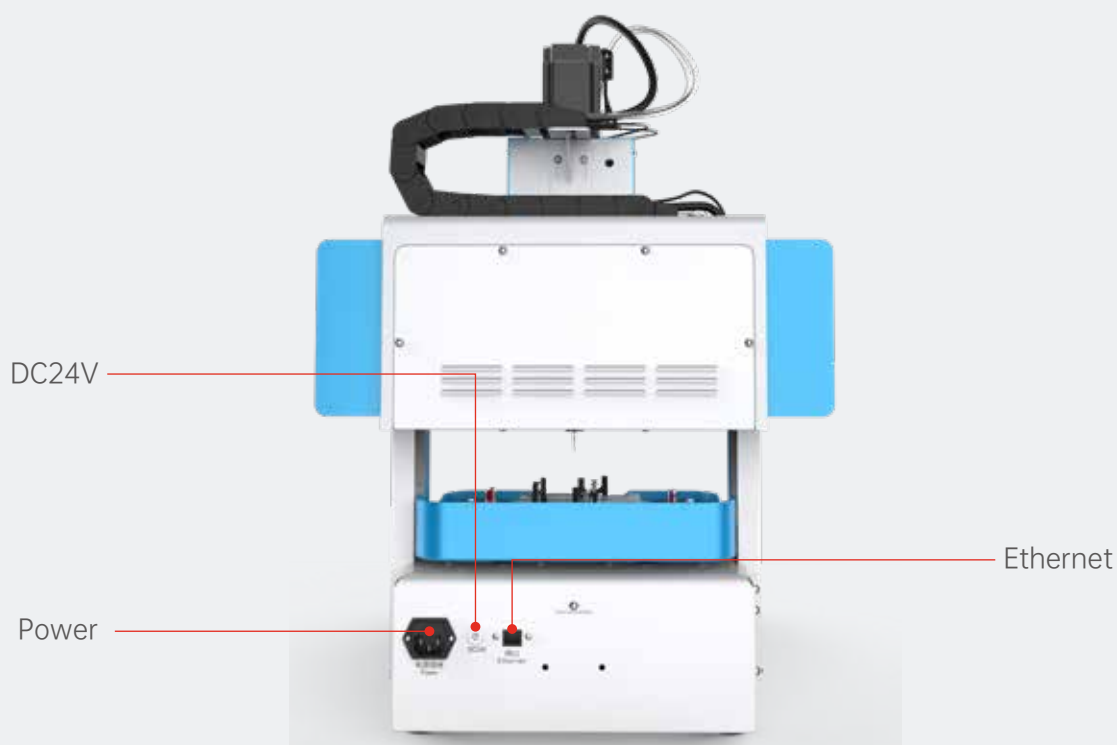


Product display

Product profile display



The backside of the product



4 Function interface display

Main interface display



【 Language setting interface 】



【 Connect WiFi for update interface 】



【 Software update interface 】



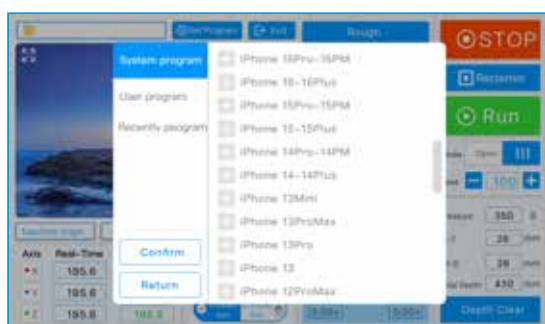
【 Automatic calibration interface 】



【 Grinding interface 】



【 New program interface 】



【 Program selection interface 】



【 Program selection interface2 】



【 Camera display interface 】



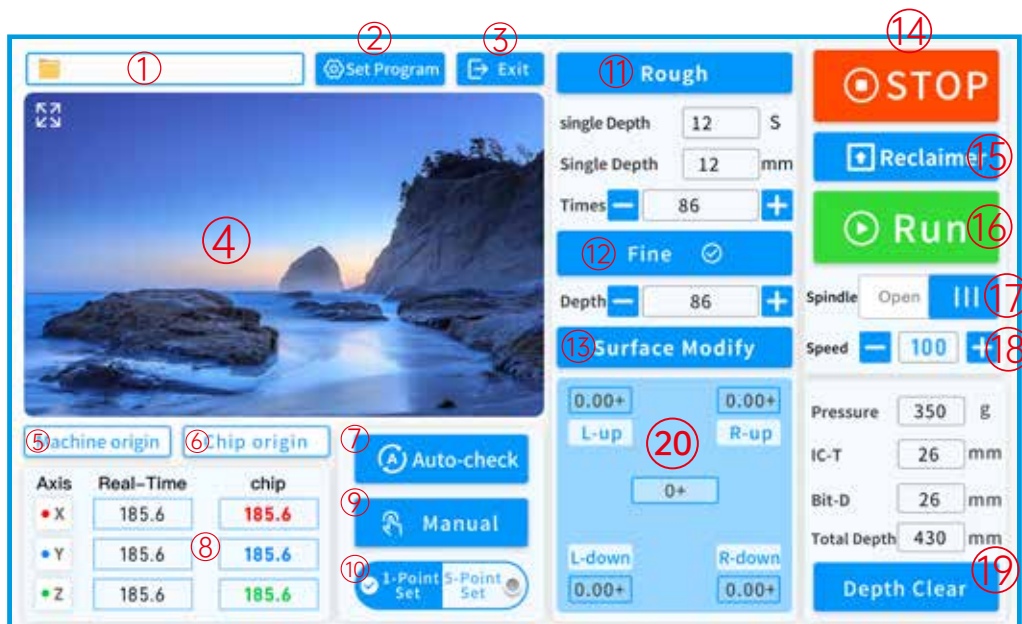
【 Select shape in new program interface 】



【 New program saving interface 】



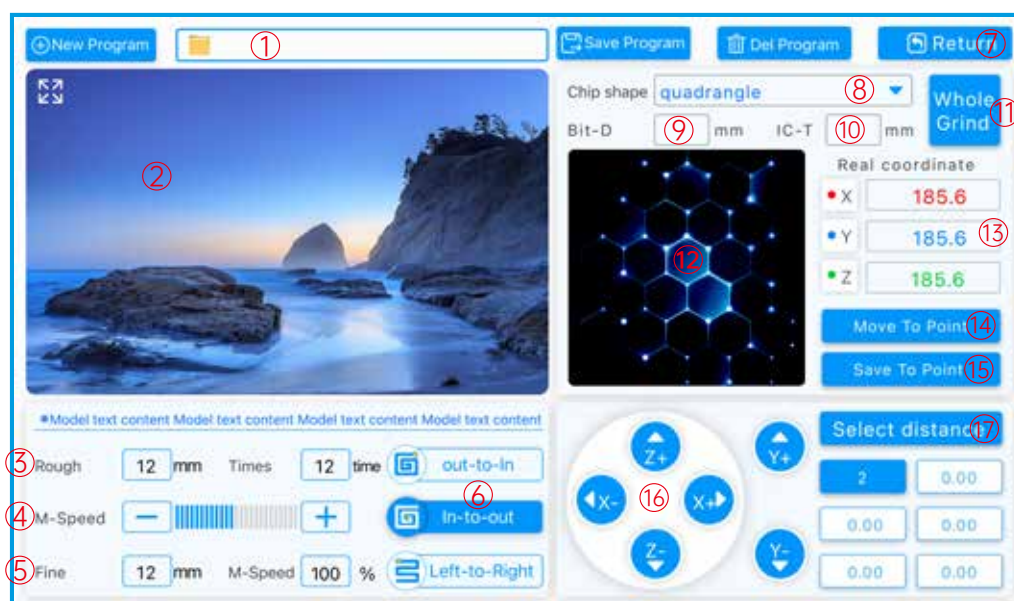
【 Roughing interface 】



【 Grinding interface 】

序号/No	名称/Name	按键说明/The key explanatory
1	程序选择框 Program selection box	点击右边的文件夹可选择相应的打磨程序，选择完成后相应的设定参数会呈现 Click the folder on the right to select the corresponding polishing program, and the corresponding setting parameters will appear after the selection is completed
2	设置 Setting	点击可跳转至设置界面 Click to jump to the setting interface
3	退出 Exit	点击可返回主界面 Click to return to the main screen
4	摄像头显示区 Camera display area	可实时监控打磨 IC 的状态和刀具的磨损状况 Real-time monitoring of grinding IC and tool wear status
5	回机床原点 Machine Origin	点击可返回到机床原点位置 Click to return to the origin of the chip
6	回芯片原点 Chip Origin	点击可返回到芯片原点位置 Click to return to the origin of the chip
7	自动对刀 Auto Tool Setting	可设置成自动对刀 Tick automatic tool setting, in the polishing process
8	芯片原点坐标 automated emendation	可显示X、Y、Z轴的机械坐标或芯片原点坐标 Display the mechanical coordinates of X, Y and Z axes or chip origin coordinates
9	单点对刀/五点对刀 1-Point/5-Point	可设置成单点对刀或者五点对刀 Can be set to a single point and five points on the knife
10	手动对刀 Manual Tool Setting	通过手动操作进行对刀 Tool alignment by manual operation
11	粗加工 Rough	点击可选择粗加工操作，下面显示为单次进刀深度，最下面为粗加工次数，点击可修改 Click to select rough machining operation, the following shows the depth of single cutting, and the bottom is the number of rough machining, click to modify

序号/No	名称/Name	按键说明/The key explanatory
12	精加工 Fine	点击可选择精加工操作，下面显示为进刀深度 Click to select the finishing operation, the following shows the depth of feed
13	平面度修正 Surface Modify	点击可选择是否进行IC的平面度修正操作 Click to select whether or not to conduct flatness correction operation of IC
14	急停 Stop	遇到错误或紧急情况时点击此按钮机器会立即停止工作 Click this button in case of error or emergency and the machine will stop working immediately
15	取料 Reclaim	加工完成后可点击取料按键，模板自动向前可进行取料操作 After processing, click the material taking button, and the template can automatically carry out material taking operation
16	运行 RUN	点击“运行”可进行相应的已选择操作 Click run to perform the selected operation
17	主轴开/关 Spindle ON	点击可手动开启或关闭主轴 Click to manually turn on or off the spindle
18	主轴转速 Spindle speed	点击可调整主轴的转速 By about key adjustment can control the spindle speed
19	IC参数框 IC parameter box	可显示并调整IC的相关打磨参数 Display and adjust IC grinding parameters
20	补偿加工区 Automated emendation	点击选择相应的位置，添加所需要补偿的尺寸即可 Click to select the corresponding position and increase the size to be compensated



【 New program interface 】

序号/No	名称/Name	按键说明/The key explanatory
1	程序操作框 Program operation box	可进行新建程序，删除程序和修改程序的操作 Can be a new program, delete program and modify the program operation
2	摄像头显示区 Camera display area	可实时监控打磨 IC 的状态和刀具的磨损状况 Real-time monitoring of grinding IC and tool wear status
3	粗加工 Rough	点击可修改单次粗加工深度和次数 Click to modify the single roughing depth and modify The Times
4	粗加工速度 Speed	左右加减可调节粗加工打磨速度 The roughing speed can be adjusted by adding or subtracting
5	精加工 Fine	点击可修改单次精加工深度 Click to modify single finishing depth
6	加工方式选择 Processing mode selection	环形加工由外向内、由内向外和平行加工由上至下两种方式 Ring processing from the inside out and parallel processing from the top down two ways
7	返回 Return	点击可返回打磨界面 Click to return to the polishing interface
8	芯片形状 The chip shape	打磨时可选择相应的芯片形状 The corresponding chip shape can be selected when polishing
9	刀具直径 Bit-D	可设置刀具直径 Tool diameter can be set
10	IC厚度 IC-T	通过粗加工，粗加工次数和精加工自动生成IC厚度 IC thickness is automatically generated by roughing, roughing and finishing
11	整体打磨 Whole Grinding	点击可切换“局部打磨”，“局部打磨”仅限四边形芯片 Click to switch local polishing, which is limited to quadrilateral chip
12	IC芯片尺寸设置区 IC chip size setting area	红色圆形表示选中，通过对原点和对角点的调整得出IC长和宽 The red circle indicates that the IC length and width are obtained by adjusting the origin and diagonal points
13	实时坐标显示区 Real-time coordinate display area	可实时显示刀具的位置 Tool position can be displayed in real time
14	移动到选中点 Move To Point	选中那个点，点击即可移动至此点 Select that point and click to move it to that point
15	保存到选中点 Save Point	选中那个点，点击即可保存选中的点 Select the point and click to save the selected point
16	移动选择框 Move selection box	点击可分别进行X、Y、Z轴的移动，可对刀具位置进行调整 Click to move the X, Y and Z axes respectively, and adjust the position of the cutter
17	运动模式选择框 Motion mode selection box	点击可进行运动模式选择，最小移动单位为 0.01mm Click to select the motion mode, and the minimum movement unit is 0.01mm

5 Workflow

1. Place a grinding machine

- ◆ Put the grinding machine on the work platform and connect to the power source.

Placement environment of the grinding machine:

1. The machine must be equipped with a good ground terminal (connect the correct ground wire)
2. This machine is extremely sensitive to humidity and dust, and needs to be placed in a proper working space
3. The spindle motor of this machine will generate heat, so it should not be placed next to the machine that generates high heat, nor can it be installed in a place directly irradiated by solar energy. The above reasons will affect the heat dissipation function of the spindle motor.

2. WIFI networking

- ◆ Turn on the grinding machine, click the "Settings" App, enter the setting interface, and then click the "WIFI" button to enter the WIFI setting interface, select WIFI, enter the WIFI password, and click the "Connect" button to complete the WIFI networking of the grinding machine.

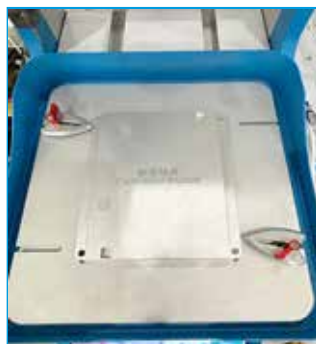


3. Installation and Replacement of Mould

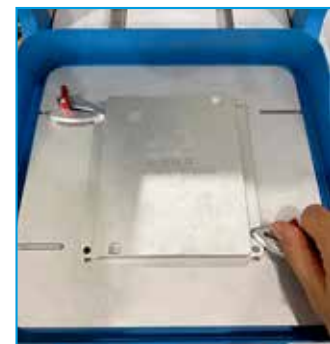
- ◆ Step 1 : Release the quick clamp on the side of the mould (as shown below)
- ◆ Step 2 : Put the new mould on the polishing platform, and make the mould positioning hole correspond to the polishing platform positioning hole.
- ◆ Step 3 : Then press the fast clamp on the left and right sides.



① Release the quick clamps



② Replace new mould



③ Press fast clamps

4. Tool Installation

- ◆ Step 1 : Use wrenches no. 17 and no. 13 to jam the spindle and spindle nut respectively, press the No.13 wrench inward and loosen the main shaft nut
- ◆ Step 2 : Put the grinding tool with clamping ring directly into the spindle chuck, and then put it on the lower part of the spindle to ensure that the clamping ring just supports the chuck, protect the grinding tool with one hand and tighten the spindle nut with the other. Before tightening, turn the grinding tool in the chuck for several turns and then tighten it
- ◆ Step 3 : Use no. 17 and no. 13 wrench to jam the spindle and spindle nut respectively, and press the No.13 wrench outward to tighten the grinding tool.



5. IC Motherboard Fixing

- ◆ Step 1: Select the corresponding mould according to the IC motherboard that needs to be ground.
- ◆ Step 2: Place the IC motherboard into the mould slot and fix it tightly with the fixing clamp. Ensure that the clamp does not interfere with other operations or the grinding process.
- ◆ Step 3: Gently shake the fixed IC motherboard back and forth to check stability. Note: If the IC Nand has been removed, the motherboard may be thinner and vibrate during CPU grinding. In this case, place a small amount of rubber clay in the removed Nand area to reduce vibration.

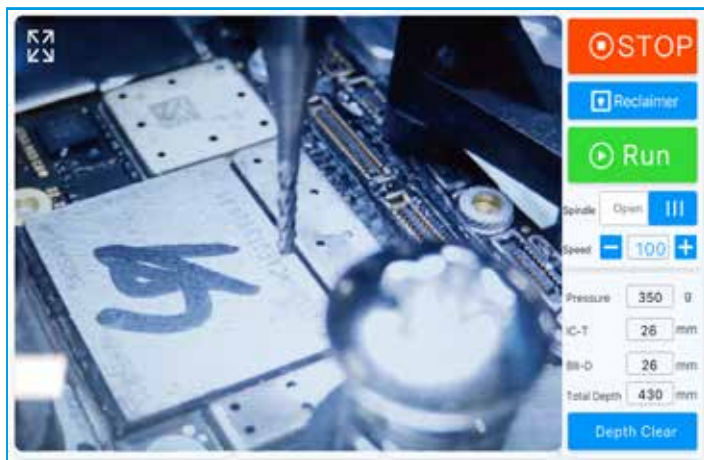
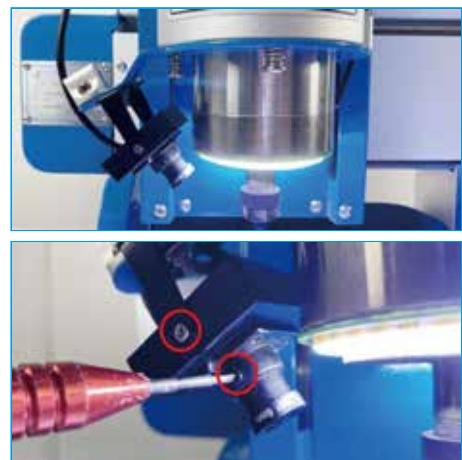


Caution: Make sure the fixing clamp does not collide with the cutting tool during processing!

6. Use of Camera

◆ The 720P HD camera and capacitive touch screen together form our real-time monitoring system. By tapping the ["⌂"] icon at the top-left corner of the display, you can easily switch between large and small screen modes to observe the grinding effect conveniently. Through this system, users can monitor the IC grinding status and tool wear in real time. After grinding is completed, the system allows direct observation of the IC surface results. The system is pre-installed on the machine and requires no additional installation by the user. For convenience or user preference, the camera may need slight adjustment at times. The adjustment method is as follows:

1. The camera can rotate and monitor according to the grinding requirements, with a 180 ° full-view display.
2. Users can adjust the vertical angle of the camera by rotating the fixing screws.
3. Users can adjust the focus of the camera by adjusting the focus screws.



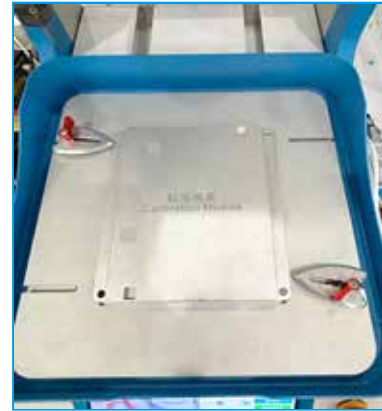
7. Calibration of the Grinding Machine

After receiving the grinding machine, calibrate it at first. Although every unit is pre-calibrated before shipment, transportation may cause slight displacement of the motherboard reference points, resulting in positional deviations. Therefore, calibration is required before use.

- ◆ **Step 1:** Power on the grinding machine and open the “Chip Grind” app to enter the grinding program. The system will automatically initialize the X, Y, and Z axis parameters (takes about 30 seconds). Once initialization is complete, click the “Reclaimier” button, then click “Exit” to return to the main interface.

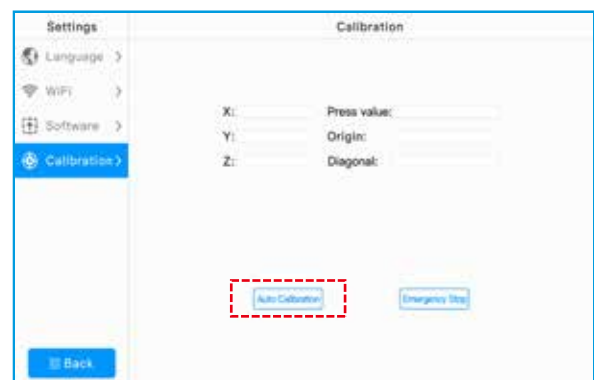


- ◆ Step 2: Install the calibration mould onto the grinding platform and fix it.



- ◆ Step 3: Open the "Settings" app, then click "Auto Calibration" to enter the calibration interface. Once calibration is complete, click "Exit" to finish.

⚠ Note: Do not touch the grinding machine or the table during calibration. The process takes about 6 minutes.



8. Demonstration of IC Grinding Process

Before officially grinding the IC, practice with a discarded motherboard. It is recommended to reduce the default grinding depth for better control during training.

Case 1: Use the built-in grinding program in the machine.

- ◆ Step 1: Power on the grinding machine, install the corresponding mould and fix it with the quick clamp, place and fix the IC on the mould.
- ◆ Step 2: Select the "Chip" APP, enter the chip grinding interface, select the built-in grinding program, click the "Run" button, and the machine will start automatic flatness detection and grinding.
- ◆ Step 3: During grinding, we can observe the grinding status and effect with the HD camera in real time on our LED display. The grinding takes 2-3 minutes, and after it is completed, we can directly click the "Reclaimer" button, then clean and remove the motherboard.



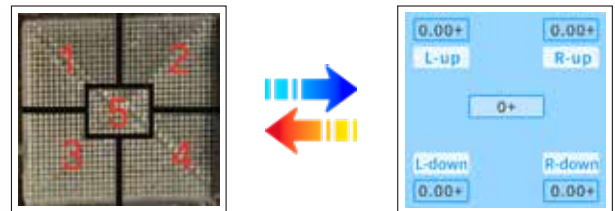
Case 2: Create a new custom grinding program.

- ◆ Step 1: Firstly, select the "Chip" APP, enter the chip grinding interface, click the "Settings" button, and enter the new program interface.
- ◆ Step 2: Select the chip shape (quadrangle/hexagonal, etc.), confirm the origin and diagonal points for saving the IC, set the grinding depth, times, and speed for rough and fine grinding, and choose the grinding route (circular/parallel).
- ◆ Step 3: Finally, click the "Save" button and name it. Users can find the program in the settings.



9. Demonstration of Fine Grinding Process

- ① Add fine depth data in L-up if area 1 needs Fine grinding
- ② Add fine depth data in R-up if area 2 needs Fine grinding
- ③ Add fine depth data in L-down if area 3 needs Fine grinding
- ④ Add fine depth data in R-down if area 4 needs Fine grinding
- ⑤ Add fine depth data in Middle if area 5 needs Fine grinding



The fine grinding steps are as follows:

- ◆ Step 1: Select the program that requires fine grinding, enter the program interface, set the fine grinding depth, select fine grinding, and add grinding depth (about 0.02-0.03) in the compensation machining area.
- ◆ Step 2: Click the "Run" button to start grinding. After that, click the "Reclaimer" button, clean up and take out the motherboard, the fine grinding process is complete.



Scan the QR code to check the operation video



Scan the QR code to check the
customized grinding operation video



Scan the QR code to check
the card slot grinding operation video

6 Maintenance

The components of the grinding machine are precision components, and they must be kept away from corrosive liquids and gases to avoid corrosion of the components. Please keep them in a dry environment.

01

- **The grinding data needs to be calibrated when moving the grinding machine or using it for the first time.**
- The grinding machine has been debugged before shipment and the calibration position may change during transportation.
- The data of the grinding machine needs to be calibrated when using it for the first time or moving it.



02

- **Keep the whole machine clean, regularly check the height of coolant and whether the parts of the grinding machine are damaged or not.**
- There will be chip debris falling off in the process of grinding.
- If the grinding machine is not kept clean, it will cause damage to the components and regular inspection is required.



03

- **The cutter head needs to be replaced regularly**
- The cutter head is consumable part and needs to be replaced regularly (It is recommended to replace with a new cutter head after grinding 10 motherboards)



04

- **The ball screw and linear guide rail need to be lubricated regularly**
- This will prolong the service life of the grinding machine



7 The installation of the cutter head

01

Firstly, use the 17mm and 13mm wrenches to clamp the spindle and spindle nut respectively, and press the 13mm wrench inward until the spindle nut is loosened, and then pull out the cutter head



02

Place the new cutter head into the spindle collet (Put the end with the ring upwards and the pointed end downwards). Make sure to press the ring against the collet. Fix the grinding tool with one hand and tighten the spindle nut with the other hand



03

Reuse the 17mm and 13mm wrenches to clamp the spindle and spindle nut respectively, and press the 13mm wrench outward until the spindle nut is tightened



8 After sales

Warranty regulations

- ▶ This product is guaranteed for one year from the date of purchase (subject to the purchase certificate).
- ▶ The warranty service is only valid under normal use. Any man-made damage, such as the use of inappropriate accessories, failure to use in accordance with the instructions, damage caused by non-official maintenance, wrong use or negligence, the warranty service will be invalid immediately.
- ▶ JCID company has the final right to interpret the above regulations for users who do not comply with the above regulations.

— After-Sales Service Support —

Scan the QR code through WeChat to contact official technicians for one-to-one guidance, allowing you to enjoy VIP service

technical support will provide fast response and solve your problem as soon as possible



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9 Precautions

01

After receiving the product, calibrate it first. After the calibration is done, try with a scrap motherboard to familiarize with the operation of the grinding machine.

02

Check the height of coolant regularly.

03

The working site should be kept clean and tidy in the process of working, and appropriate protective glasses and dust masks should be worn, and these protective measures must be taken properly before operation. If you do not understand how to use them, please contact after-sales for technical support.

04

Before using the grinding machine, a comprehensive inspection is required to check the power circuit and switch of the grinding machine to ensure normal operation of the machine. At the same time, the grinding wheel and tool clamping device need to be checked to avoid malfunction and safety risks in the process of operation.

JCID·精诚创新

要稳定 | 要智能 | 就要选精诚

More stable and intelligent, choose JCID

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