P42 Product Instruction

Overview:

UP3D pursues continuous optimization iteration and product development strategy. This document cannot be used as an absolutely reliable guidance document for current equipment, although we have done our best to produce the latest product documentation. We reserve the right to make changes without prior notice.

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1. Welcome

Thank you for purchasing this P42 dental grinding equipment. We are proud and confident to deliver the equipment to you. It adopts the latest technology and is manufactured under strict quality control.
This instruction is designed to help you understand all the features of P42. It can also help you keep the machine in good condition so that you can do high-quality production work.
You can find updates to this document at the following location:
search for P42 in UP3D's official website

1.1 Users

This document applies to the following groups and individuals:

- End user;
- Dealers at all levels;
- Technical support staff.

2. General Description:

2.1 Instructions before Use

(1) Please read the operating instructions of the equipment attached to the machine carefully before installing, maintaining and operating the machine.
(2) Please do not use the machine and contact technical support to provide assistance if you still do not know how to operate the machine.

2.2Power Supply

(1) Do not remove the shell of the machine, improper action will make the operator have the risk of electric shock, if you come into contact with live parts, it may be electrocuted, water operation will significantly increase the risk, do not use wet or wet hands to touch the inside of the machine, may endanger the safety of personnel.
(2) Ensure that a working leakage protection device / is installed on the machine's circuit and connected to the ground wire. Properly arrange the power cord so that it will not be cut and damaged. Check whether the power cord is damaged before connecting the machine. Please turn off the main power switch of the machine before unplugging the power cord.
(3) Please do not perform any troubleshooting operations when the machine is running. only professional maintenance technicians can disassemble and repair the machine.
(4) Check the environment of the machine and all accessible internal areas every day for leaking liquid, and immediately remove any liquid near or inside the machine.

(5) Do not put any machine or equipment powered by power supply under the machine, and no object can be placed on the machine.

2.3 Water-liquid

(1) Only the cooling lubricant P42 special milling liquid can be added to the water tank.

2.4 Equipment Operation

(1) Personnel are at risk of being overwhelmed and cut when moving the machine.
(2) You may suffer contusions and cuts when the equipment is running or manually operating the motion shaft and rotating spindle.
(3) When it is necessary to run the processing instructions, the machine can be used only when the machine door is completely closed and there is no damage to avoid injury.
(4) Only the original parts in the equipment and machines provided by the original manufacturer can be used.
(5) Keep children and animals away from the machine.

2.5 Noise and Air Pressure

(1) Loud noise may be produced during the operation of the equipment, and it may lead to hearing loss or tinnitus in this environment for a long time. Please wear earmuffs during processing if you can't avoid loud noise.
(2) Please check whether the air pressure line connection is stable while the equipment is running. Loose pneumatic components can cause injury, especially when the pneumatic line is manually removed without closing the pneumatic connection, and loose pneumatic components may move at a very fast speed in an unpredictable trajectory and may cause injury.
(3) Close the compressed air supply valve before arranging the air hose. Set the air pressure to a minimum before checking pneumatic hoses and pneumatic connections. If there is a problem with the machine connection and air pressure hose, disconnect the external compressed air supply and power supply of the machine, and contact technical support to assist in handling it.

3. Attention

- Please use the original milling burs and milling liquid to avoid unnecessary loss;
- This equipment needs to work on a stable worktable, please ensure the stability and reliability of the worktable;
- When transferring the equipment, prevent the equipment from falling, colliding, being damaged by strong oscillation or other external mechanical forces;
- Ensure that the working environment is clean and do not use it in a dusty environment;
- The air supply system shall be composed of oil-free air compressor, filter,

cold-drying machine and gas tank, with air pressure > 0.5MPa;

- The power supply voltage is 100VAC~130VAC or 200VAC~235VAC (the above two options can be selected before they leave the factory, but cannot be switched later), 50~60Hz;
- At no time should compressed air be used to inject the processing bin and other parts of the machine;
- Please put this instruction manual near the equipment so that it can be easily and timely obtained when needed;
- Users must fully understand and strictly follow the instructions;
- Before using, the user must check the equipment to ensure that they can work properly and safely;
- Do not use this equipment in an environment where the temperature and pressure exceed the requirements of this equipment;
- Do not use this equipment in an environment where flammable and explosive materials are placed to prevent fire or explosion;
- No organization or individual without the authorization of our company shall alter or disassemble this equipment;
- In the process of processing, the machine door can not be opened, let alone put your hand near the spindle;
- The power supply must be reliably grounded;
- Hands should be placed on both sides of the safety door when opening and closing the hatch to avoid pinch;
- Properly arrange the lines to avoid tripping people;
- Don't put objects on the machine; Objects on the machine may fall and cause personal injury or injury.

4. Equipment Overview

4.1 Product Introduction

Denture (or tooth, restoration) grinder refers to a kind of numerical control processing equipment (or machine, machine tool) for grinding and cutting denture restoration (including full crown, inner crown, inlay, veneer, perforated crown, etc.) used in human oral cavity by grinding and cutting technology.

The denture grinder is a miniaturized, specialized and lightweight equipment that applies the current NC machining technology to the processing of denture restoration.

4.2 UP3D Oral Digital System

Shenzhen UP3D Co., Ltd., founded in 2012 to carry out oral digital research, has a group of professional technology development team, has a number of digital core technologies.

Now, the company has built a complete set of oral digital CAD/CAM system, including high-precision denture scanner (a variety of products), denture CAD design

software, denture CAM typesetting software, denture engraving machine, denture grinder, etc. All of these are independently developed by UP3D, and UP3D has the right to invent.

4.3 UP3D Intelligent Denture Grinder

UP3D Intelligent Denture Grinder, which has intelligent denture grinder, is an important product in UP3D oral digital CAD/CAM system.
Its intelligence is mainly reflected in the following aspects:
(1) The grinder has the function of automatic calibration, which can automatically compensate the machining deviation and ensure the machining accuracy.
(2) The grinder has a highly integrated 4-axis motion control system and intelligent and simplified upper computer operation software.
(3) The grinder has a highly integrated intelligent control system, embedded touch screen and automatic tool change function.

4.4 Product Functional Characteristics

(1) High reliability and stability
The spindle adopts vertical machining design, which is more versatile, and the key control components adopt the imported original parts from Germany and other international well-known suppliers, screw and guideway and other components maintenance-free design, reducing equipment maintenance costs.
(2) High precision and high speed machinability
Maximum spindle speed 60000RPM, maximum feed rate 3000mm/min.
(3) High intelligent host computer
Highly intelligent host computer software, flow program operation, one-button machining; through one-button automatic calibration flow, automatic compensation of machining accuracy.
(4) High open compatibility
Can be compatible with a variety of open systems, processing a variety of denture restoration materials, including glass ceramics, titanium rods, etc., effectively improve equipment utilization, save costs, and improve the rate of return.
(5) Equipped with highly intelligent software
The intelligent typesetting software and control system developed by our company are highly integrated with the equipment to easily realize data transmission, sharing and processing.

5. Equipment Display:(all pictures need to be drawn in line)

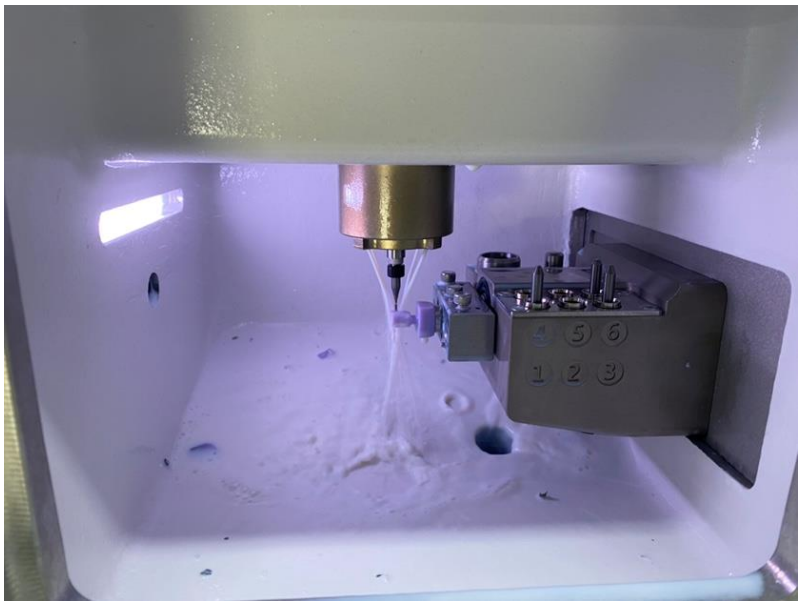
5.1 Main Body

(1) Appearance Display

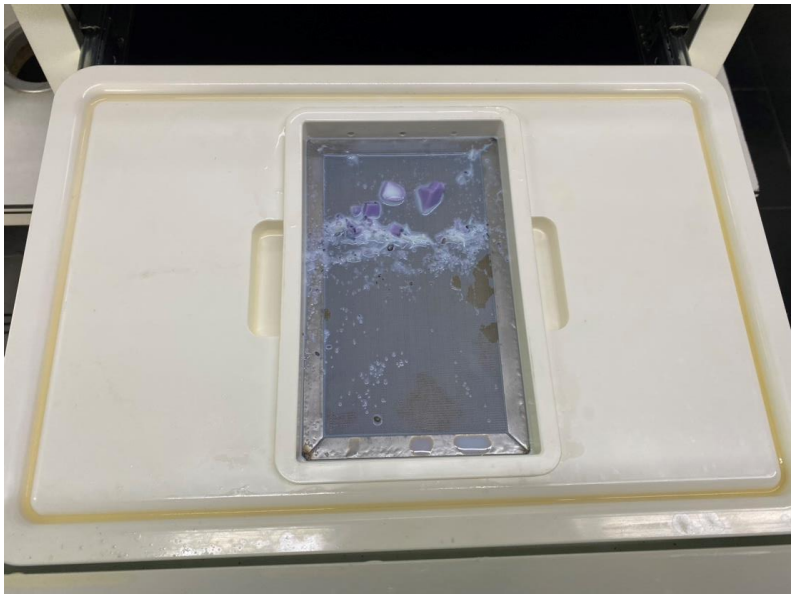
5.2 Details

(1) Screen display

(2) Interior Cabin Display



(3) Water tank display



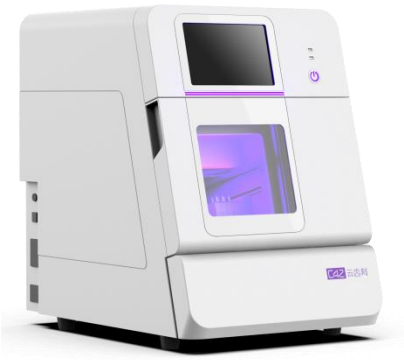
(4) Lamp strip color matching

Color	Meaning
	Standby
	Processing
	Calibration
	Fault
	Finish

(5) Tool magazine display

6. Equipment Installation

6.1 Installation Location Confirmation



The install site must meet the following conditions:

(1) Equipment weight: 80KG

The equipment must be placed on a solid and flat surface and must be able to carry the weight of the machine.

(2) Equipment dimension: length * width * height = 560x400x565 (mm)

The size of the equipment placement area must exceed the existing size of the equipment in order to ensure the stability of the equipment installation.

(3) Equipment power supply: AC 220V ±10%, 50~60Hz

The power connection of the equipment must be connected to the ground wire and ensure that the voltage is stable and the line is intact and undamaged.

(4) After confirming the installation location, remove the purchased products from the packing box, lift them gently during handling, and place the products on the workbench to ensure that the worktable is stable, the products are placed smoothly, and the equipment is placed around cleanly and neatly. Open the sliding door, remove the protective foam in turn and put it away (saved for subsequent maintenance and transportation)

6.2 Electrical Access

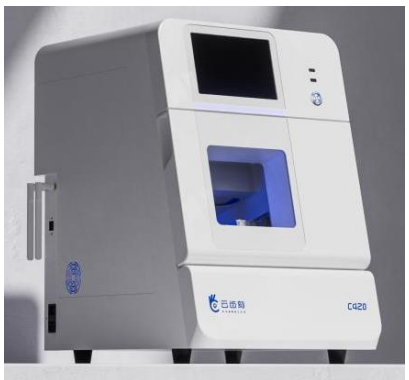
The machine needs continuous power supply to operate properly:

(1) Plug the power cord included in the accessory box into the power connector of the machine connection panel.
(2) Insert the cable plug into a socket protected by leakage protection equipment / ground fault circuit breaker and use the plug row or power input independently.
(3) Please make sure that the voltage is stable. If a power failure occurs during the operation, the burs may be broken and the material may be damaged.

6.3 Air Pressure Access

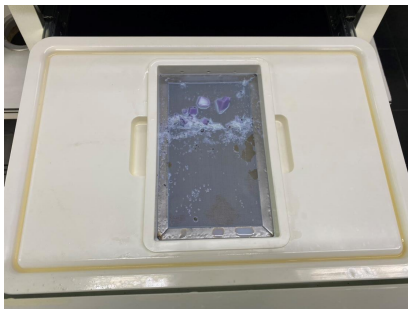
(1) Install the pressure regulating filter on the right side of the equipment.
(2) Convert the pipe from the self-provided air compressor to the 6mm diameter pipe and insert it according to the position of the air inlet marked on the pressure regulating filter.
(3) At the same time, cut off one end of the 6mm trachea (about 40cm) and insert it from the outlet end of the pressure regulating filter to the air pressure input position at the back end of the equipment.

6.4 Equipment Operation



(1) After ensuring that the equipment power access and air pressure access are correct.
(2) Turn on the main power switch and click the boot button on the front panel of the device.
(3) The screen enters the main interface and the device is running.

6.5 Water Tank Injection

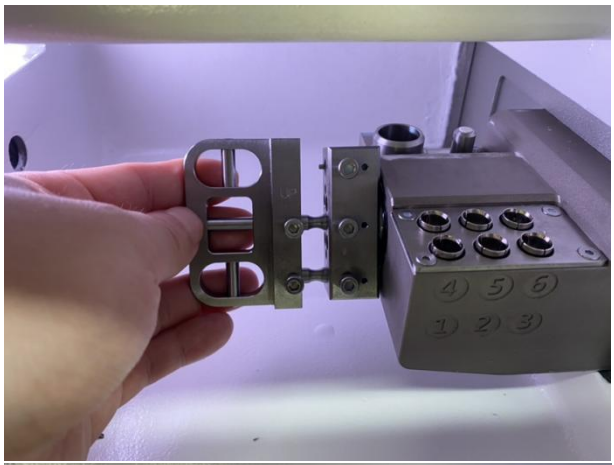


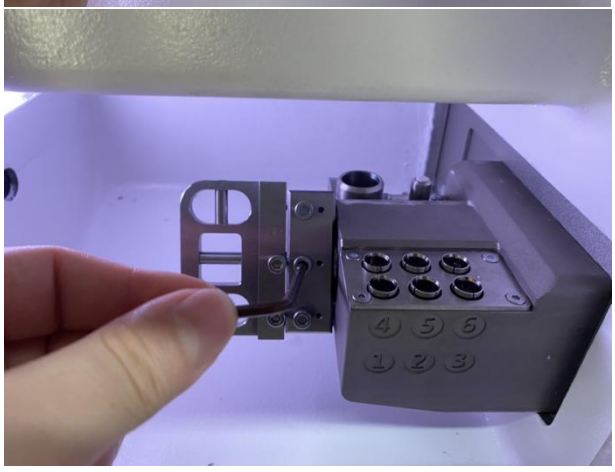
(1) Pull open the lower drawer of the equipment to take out the water tank, open the water tank seal cover, fill the water tank with pure water, the water level should be close to the mark 2.5L scale without passing the partition, then pour the milling liquid into the equipped measuring cup, approximately pour the 250ML milling liquid into the water tank, then close the water tank sealing cover and close the closing drawer.
(2) Make sure that there is no water flowing out under the machine. If there is any water, please clean it up in time.
(3) Open the equipment maintenance interface and click the sprinkler button to confirm that the sprinkler is normal.

7. Equipment Calibration

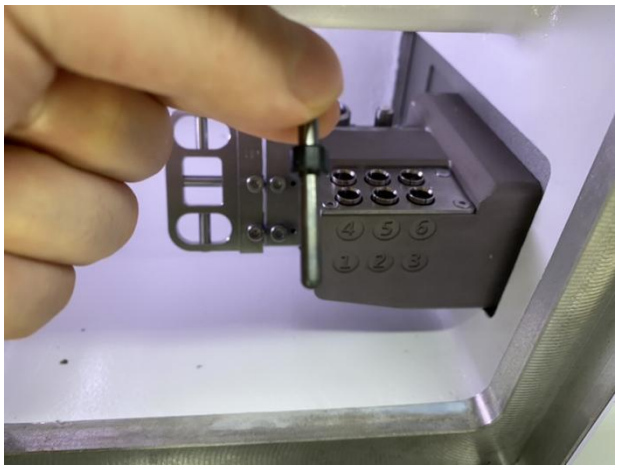
The function of automatic calibration is to automatically restore the accuracy of the equipment and ensure the stable use of the equipment.
7.1 Click the equipment maintenance in the main CNC display interface, switch to the equipment maintenance interface, click the calibration button, and follow the video operation instructions, click next to carry out the one-click calibration function.

7.2 Find the calibration plate in the accessory box, face the side engraved with UP sign, and insert it into the A-axis clamp concrete according to the angle direction, lock the retention screw and ensure that the calibration disc fits closely with the clamp and cannot be loosened.





7.3 Find the calibration rod Φ 4mm from the accessories box and place it in the No. 6 tool library according to the location of the tool library for equipment calibration.



7.4 Before calibrating, the tool holder and calibration ring must be cleaned to ensure that there are no water stains.

7.5 The device enters the automatic calibration, and after waiting for the calibration to be completed, the "automatic calibration complete" is displayed on the screen.

8. Equipment Operation

8.1Pre-processing Inspection (after the equipment is turned on)

8.1.1 Check the filter on the side of the machine for water. If there is water, please stop working (if forced, the spindle may be damaged and not under warranty), check whether the cold dryer is working properly or need to replace the refrigerant.

8.1.2 Check whether the air pressure is between 0.5~0.7MPa

8.1.3 Check whether the voltage is 220V (or 110V, confirm according to factory requirements)

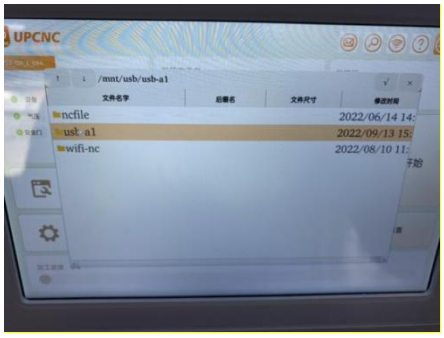
8.1.4 Check whether the tool alignment instrument, turning burs and tool holder have been cleaned.

8.1.5 Check whether the No. 1, No. 2, No. 3, No. 4 and No. 5 milling burs are arranged and pressed as required.

8.2 Equipment Processing Operation

8.2.1 Import NC file: insert the USB drive, click the "Import" button in the "file loading and start-stop operation area" of the software interface, find the path of the prefabricated file in the open dialog box, select the Chinese, click the "Open" button to load the NC file of the model to be processed into the software;

UPCNC
导入
设备保养


UPCNC
/mnt/usb/usb-a1
文件名字
后缀名
文件尺寸
修改时间
ncfile
usb-a1
wifi-nc

UPCNC
file:///mnt/usb/usb-a1/C420-Glass-2022-09-07-090858-2.NC
文件名字
后缀名
文件尺寸
修改时间
System Volume Informa
C42&5.36图件
36图件
NC
791KB
C420-Glass-2022-09-07 NC
1.181 MB
C420-Glass-2022-09-09 NC
1.415 MB
二号位标准块.NC
NC
812KB

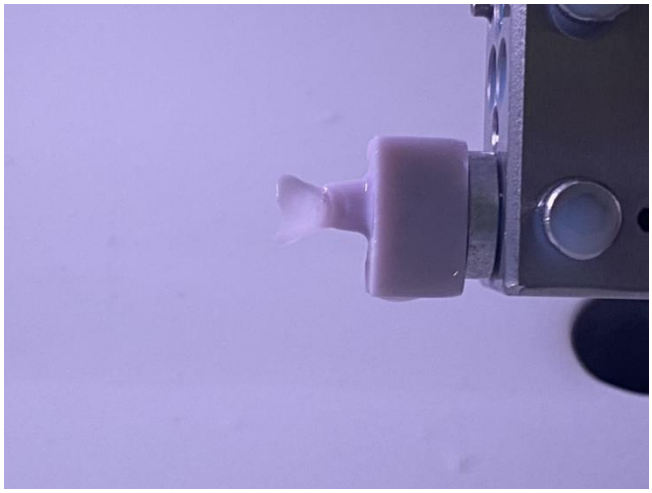
8.2.2 Burs setup: the correct burs needs to be installed in the tool library before formal processing, and the position of each burs on the tool library is as follows:

No. 1 tool position: Φ 2.5mm diameter roughing burs.
No. 2 tool position: Φ 1mm diameter finishing turning burs.
No. 3 tool position: Φ 0.6mm diameter tooth cutting burs.
No. 4 tool position: Φ 2.5mm diameter roughing turning burs titanium bar.
No. 5 tool position: Φ 1mm diameter finishing turning burs titanium bar.
No. 6 tool position: Φ 4mm diameter calibration rod

8.2.3 Material clamping: click on the material disassembly and assembly position, install the material to be processed on the clamp, and lock it with M5*6 jackscrew.

8.2.4 Processing operation: After the above operations are completed, click the "Start" button in the start and stop area of the software interface to carry out formal processing;

8.2.5Processing complete: After processing, loosen the screws in the fixture with an Allen wrench and take out the processed teeth;



8.2.6Titanium rod material processing: (TBD)

8.3 Precautions after Processing

8.3.1. Tap the power button to shut down.

8.3.2 Turn off the main power switch.

8.3.3 Check that the milling burs fits the tool magazine.

9. UPCNC Interface Description (with pictures)

9.1. Main Interface

Describe:

9.1.1 Information display box: displays the processing information and error messages of the equipment;

9.1.2 Equipment maintenance: including various operations for equipment maintenance, such as: reset, return to zero, calibration, water spray, return tool, loose tool / clamp tool;

9.1.3 Equipment configuration: the setting of various parameters of the equipment, such as: manual operation, parameter setting, tool offset, machine setting, general configuration, firmware;

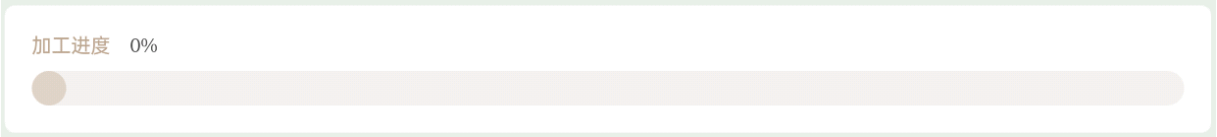
9.1.4 Import: import the NC file that needs to be processed, which needs to be used with USB drive.

9.1.5 Start: start processing button, which will be changed to pause button when clicked

9.1.6 Material handling position: the A axis is tilted at a certain angle to facilitate customers to install and disassemble materials.

9.1.7Toolbar: contains historical error message viewing, processing records, WiFi connections, help, keypad, complete keyboard;

9.1.8 Progress bar: used to show the progress of equipment processing or calibration progress;

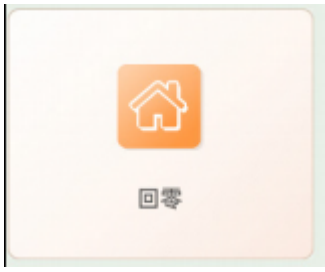


9.2 Equipment Maintenance-Reset

Describe: after clicking reset, the device status will become idle. Applicable scenarios: after the equipment reports an error, interrupts processing and calibration, interrupts other operations.

9.3 Equipment Maintenance-Back to Zero

Describe: after clicking “back to zero”, all four axes will return to the zero position;



9.4 Equipment Maintenance - Return Tool:
Describe: return the tools on the current spindle to the corresponding tool library

9.5 Equipment Maintenance-Loose Tool / Clip Tool:

Describe: opening and closing chuck;

9.6 Equipment Maintenance-Water Spraying:
Click to turn on the sprinkler switch, and click to turn off the sprinkler switch again;

9.7 Equipment Maintenance-Calibration:

Describe:

9.7.1Clean the spindle, click the spindle to change the tool on the current spindle to no tool, and move to the specified position to open the chuck;

9.7.2 Clean the bottom, click the rear spindle to make the tool on the current spindle tool-free, and move to the top of the calibration ring, move along the calibration ring and open the chuck to blow;

9.7.3 Keep clicking on the next step, and the equipment will be calibrated.

9.8 Equipment Maintenance-Tool Settings
Describe:

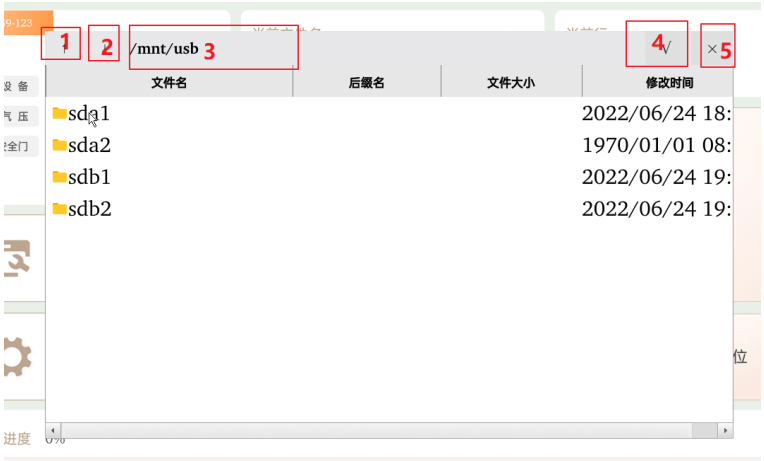
1. Reset, select a tool and click reset, which will set the useful life of the current tool to 0;

2. Configuration, select any tool and click the configuration to modify the used time and service life of the current tool. The service life of the tool is 300 minutes by default;

3. The tool life record will record the tool life of the tool used in the machining process in real time. When the tool life exceeds 89%, the system will prompt the current tool life to reach the threshold;

9.9 File Import

9.9.1 Return to the upper level directory: return the upper level directory of the file;
9.9.2 Enter the next level directory: enter the folder;
9.9.3 Show file path: show the current file path;
9.9.4 Confirm button: select the desired NC file and click OK to import the NC file. This button cannot be used to enter a folder, and you must click the confirm button to select a NC file;
9.9.5 Close the import interface



10. Troubleshooting

If some devices are not working properly, review the following troubleshooting guidelines.
Please note that if you do not troubleshoot properly, poor operation may damage the equipment. When you troubleshoot the equipment yourself, please contact technical support to assist in solving the problem if the problem has not been resolved or cannot be identified.

10.1 Air Pressure-related Fault

When the fault occurs, the software interface pops up the above picture prompt box, which indicates that the system detects a warning message when the air pressure does not reach the minimum pressure set by the digital display pressure switch, which will interrupt the current operation when the fault occurs.
Cause describe:

(1) Check whether the air pressure is in short supply and whether the air compressor is turned on.

(2) Check whether there is any air leakage in the conveying pressure pipe.
(3) Check if the pressure regulating filter is damaged.

Solution: click "OK", and check why the air pressure is insufficient, and continue the relevant operation after the air pressure is restored.

10.2 Tool Change-related Fault

When the fault occurs, the software interface pops up the above picture prompt box, indicating that the tool exchange failed in the process of tool change.

Analyze :

(1) Machining status: if this prompt box pops up in the machining state, it may be that the tool is damaged during the machining process, or the tool clamping fails when the tool is changed. This prompt will interrupt the processing and need to be reprocessed after the error is eliminated.
(2) Non-machining state: in this state, it is mainly the tool clamping and tool return process, the tool inspection failure, including tool breakage, no tool placed in the tool library, tool change failure when the chuck is not opened due to insufficient air pressure.

Solution: click the "loose tool / clamp tool" button, whether the spindle chuck will open, if not, check the air pressure problem; if opened, there is a tool on the spindle, the tool will fall, you need to manually catch the tool to prevent the tool from breaking because of falling. Put the tool back into the tool library position and run it again.

10.3 Limit-related Fault

When the fault occurs, the software interface pops up the above picture prompt box, indicating that the equipment touches the limit or moves beyond the stroke during operation.

Analyze : there are two kinds of limit problems, motion limit and mechanical limit.

(1) Mechanical limit

If the hard limit in the X axis, Y axis or Z axis direction belongs to the machine limit, the reason for this limit is that the motion axis hits the limit switch in an abnormal state, resulting in an error in the machine.

Solution: click "OK" to close the prompt box, then click the "reset" button in the software interface, wait ten seconds, or restart the lower computer.

(2) Motion limit

When this prompt appears, it may indicate that the next movement stroke of the processing program exceeds the limited stroke, resulting in the machine limit, which is the motion limit and the prompt is the warning prompt.

Solution: click "OK" to close this prompt box, and then click the "stop" button to revise the NC file or regenerate the NC to proceed to the next step.

10.4 Unsatisfactory Processing Effect / Broken Burs

(1) Check the service life of the burs: whether the coating state of the burs is good or not, when the burs reaches the service life, it has a great influence on the processing effect.

Check and resolution:

1. Visually check all stitches.
2. Check the life value of the burs through the touch screen.
3. Replace the worn burs with a new burs.

(2) Check whether the material is installed correctly: if the material is not installed to the standard position, it will affect the processing result.

Check and resolution:

1. Remove the embryo and reinstall it.
2. The groove of the billet block must be correctly placed on the corresponding locating pin.
3. The embryo material and the clamp should be closely fitted and locked with retention screws.

(3) Check the corresponding information of equipment processing in the typesetting software: whether the relevant information matches to ensure that it is suitable for the processing type.

Check and resolution:

1. Material type: corresponding material type.
2. Embryo size: ensure that the selection of embryo size in the software is consistent with the actual use.
3. Restoration type: selection of restoration types corresponding to actual machining.

(4) The quality of processing documents needs to be checked: check whether the restoration data and typesetting data meet the processing requirements.

Check and resolution:

1. Check the CAD design software data or the restoration file in the STL viewer to ensure the restoration quality, especially considering the manufacturer's information about the wall thickness and edge thickness, such as the edge is too thin or bladed and needs to modify the design file to restore processing.
2. Check whether the typesetting of CAM software is wrong, confirm that the orientation and type of restoration are correct, simulate the data and resume processing after confirming that it is normal.
3. If necessary, check the accuracy of scanning equipment and scanning software.

(5) Whether the tool alignment instrument is contaminated.

Check and resolution:

Clean the tool alignment instrument with a brush.

(6) Spindle chuck cleaning inspection: whether it is contaminated or loose.

Check and resolution:

1. Use the included spindle maintenance kit to clean the chuck.
2. When inserting the chuck into the spindle, make sure it is in the correct position.

10.5 Bad Water Spraying Effect of Equipment

(1) Is there a lack of coolant in the water tank?
Check and resolution:
Clean the water tank and add clean coolant.
(2) Is the filter in the cooling tank clogged?
Check and resolution:
Clean filters and water tanks. Add clean coolant.
(3) Is the liquid nozzle in the working chamber blocked?
Check and resolution:
Please use a cleaning brush to clean the nozzle.

10.6 For other failures, please contact technical support.

Note: there are differences in the composition of different brands of milling liquid and can not be mixed at the same time. Please clean up the drawer and do not change the milling liquid frequently for processing. The proportion of milling liquid can be added to the starting standard.

11. Daily Maintenance

Please pay attention to the daily maintenance, which can make your equipment run processing instructions well and obtain satisfactory processing results, so you are very important to the daily maintenance of the equipment.
Please carry out related maintenance according to the equipment maintenance requirements, the following maintenance only needs you to carry out simple manual operation. If you are not clear about the maintenance operation, please contact technical support for guidance.

Location	**Tools**	**Main points**	Cleaning cycle
Work area	1. Clean dust-free cloth. 2. Double-end cleaning brush	1. Clean the inner cabin of the processing machine: clean it with a cleaning brush, and finally wipe it with a clean cloth. A. Tool alignment instrument. B. Material holder. C. Observation window. D. Webcam. E. Tool library. F. Calibration ring. G. Tool holder	**Clean once a week**
Spindle	1. Double-end cleaning	1. Click the equipment	**Clean once a**

and chuck	brush. 2. Cleaning brush. 3. Knurled nut. 4. Cleaning cone. 5. Chuck grease	maintenance interface-Calibration-Spindle cleaning. 2. Move the spindle to the center position in the processing warehouse and clean the spindle with a double brush. 3. Click the loose clamp tool, take out the knurled nut and insert it into the calibration rod and insert it into the spindle port. 4. After stabilizing the spindle chuck, rotate counterclockwise to remove the spindle chuck. 5. Insert rotary cleaning with cleaning cone at the mouth of the spindle. 6. The spindle chuck is inserted with a cleaning brush for fast rotation and drawing cleaning. 7. After cleaning, apply the chuck grease on the side wall of the spindle chuck, and the gap can not be smeared (original grease is required). 8. The rest of the position needs to be cleaned with a clean cloth. 9. Install the spindle chuck back according to the disassembly method and rotate clockwise to ensure the lock. 10. After clicking the clamp tool, the device clicks back to zero and can be used normally.	**week**
Nozzle / nozzle	1. Cleaning brush	1. Click the equipment maintenance interface-Calibration-Spindle cleaning. 2. The spindle is moved to the center position in the processing warehouse. 3. The cleaning brush is probed into 4 sprinklers respectively. 4. Rotating to clean the hole.	Clean once a week or when the water spray is abnormal

		5. Click the equipment maintenance interface to return to zero and you can use it normally.	
Material clamping hole	1. Cleaning brush	1. Click the material handling position button. 2. After the clip is rotated and tilted, use a brush to insert it into 3 positions respectively. 3. Rotary cleaning hole. 4. Click on the equipment maintenance interface to return to zero and you can use it normally.	Clean once a week or when the water spray is abnormal
Water tank	1. Clean scraping blade 2. Clear water	1. Open the water tank drawer and take out the water tank. 2. Place the water tank in the cleaning pool and open the water tank cover. 3. Pour the cutting liquid into the sewer. 4. The glass-ceramic powder residue accumulated in the water tank should be cleaned with a scraper. 5. Wash the cleaned water tank in the pool and rinse until there is no powder. 6. Add appropriate amount of milling liquid after filling the water tank to 2.5L. 7. Put it back in the equipment drawer and keep the drawer door closed. 8. Click on the equipment maintenance interface to confirm that the water spray is normal and then resume its use.	Clean the machined 30Pcs denture for maintenance or abnormal water spraying
Water circulation system	1. Clear water	1. Place clear water in the water tank. 2. Click the equipment maintenance interface sprinkler command. 3. Run the sprinkler instruction for 30 minutes. 4. Turn off the sprinkler command	Clean once every four weeks or when the water spray is abnormal

		and replace the pure water with the right proportion of milling liquid. 5. Click on the equipment maintenance interface to confirm that the water spray is normal and then resume its use.	
Shell	1. Clean dust-free cloth. 2. Alcohol	1. The power supply should be turned off before cleaning the equipment. 2. Use a clean clean cloth to wet with alcohol. 3. Gently wipe the outer shell of the equipment box. 4. Wipe to finish the drying of the waiting box. 5. Resume normal use	Clean according to your actual needs
Equipment calibration	1. Calibration disc. 2. Calibration rod. 3. Clean dust-free cloth	1. Refer to the previous calibration steps for details.	Calibrated every six months Please contact technical support to assist in calibration before calibrating the equipment
Update software and firmware	Contact technical support for remote updates	1. Regular iterative optimization will provide you with the best experience.	You will be contacted in time before updating
Water liquid	Visual	1. Check whether the liquid height meets the processing requirements. If the water level is insufficient, please add liquid (milling liquid or pure water) in time. 2. Check whether there is any water spill or residue in the equipment, please clean it in time and keep it dry	Check once a day
The equipment has not	Contact technical support for remote updates	1. If the equipment is not in use for 4 weeks, contact technical support for remote maintenance before use.	**If not in use for 4 weeks, contact**

been in use for a long time			**technical support for remote maintenance.**

12. Disposal

12.1 Disposal of Coolant / Processing Residue

When dealing with coolant / processing residue, please comply with the relevant regulations of each region.
1. Avoid dangerous processing residues entering the soil, water or sewers.
Please abide by the national and local laws of the place of disposal at any time.
3. If necessary, the coolant and processing residue shall be disposed of by the approved treatment company.

If the coolant / process residue is disposed of by itself, follow the instructions below:
1. Completely filter the processing residue from the used coolant.
2. The liquid is discharged into the sewer that meets the disposal requirements.
3. Dispose of solid processing residues in accordance with the instructions of the material manufacturer.

Please keep the reference samples of discarded products for at least 6 months.

12.2 Disposal of Machine

Please contact technical support before the equipment is discarded.
If the machine is disposed of by itself, please abide by the national and local laws of the dump site.
If necessary, please dispose of the machine by an approved processing company.

13. Technical Parameters

The basic parameters of the glass-ceramic products of UP3D Intelligent Denture Grinder are as follows:

Technical Parameters	
Equipment Routine	
Application :	Wet processing
Number of equipment axes:	4 axes
Machinable materials:	Glass ceramic, titanium bar
Indications:	coping, anatomical crown, screw retain crown, inlay, onlay,

	veneer, sleeve crown, abutment
Basic structure	
Construction:	A machine base made of solid aluminum casting.
Shell:	Steel plate, main view surface for mold injection molding, equipped with working cabin door and water tank drawer.
Linear axis X/Y/Z axis:	Precision ball screw drive (X/Y/Z shaft stroke: 110-75-50)
Axis of rotation A:	±360 °
Lighting fixture:	LED lighting can be displayed in a state
Equipment power:	0.7KW
Camera system:	The camera assembly integrated in the working cabin is easy to support remotely and record internal processing.
Spindle correlation	
General:	German imported spindle, pneumatic tool change (pressure ≥ 0.5MPa) seal air to prevent foreign bodies from entering
Speed:	Up to 60000 rpm
Suitable burs clamping diameter:	4Φ
Power:	0.39KW(max)
Automatic function	
Tool switching	The tool library contains 6 cutting tools, which can be used to measure the tool length and check the tool fracture through the precision tool alignment instrument.
Processing mode	
Wet type	1. Spindle multiple liquid nozzles.
	2. Built-in cooling water reserve container (2.5L) and filtration system.
	3. Sensors for monitoring fluid supply.
	4. 10PCS can be well machined by using pure water, and 35PCS can be well machined by adding appropriate proportion of milling liquid (original factory burs only).
	5. Milling liquid should be used when machining titanium column.
Connection operation	
compressed air	0.5~0.8MPa 45 L/min
Voltage / frequency	100VAC~130VAC,200VAC~235VAC(the above two gears are optional) 50~60Hz
data	Wi-fi, USB, Ethernet
Environmental condition	
Operating temperature range	10 °C ~ 50 °C
Working air humidity	Below 93%(relative), non-condensing
Qualification license	

All models	CE, Fcc, Rohs
Dimensions and weight	
Dimension	L*W*H=560×400×565(mm)
Weight	80KG
Equipment adaptation	
CAM software	UPCAM, Millbox
Clip concrete	The abutment support device is used in many systems (optional)

14. Storage and Transportation

14.1 Storage

14.1.1 avoid direct sun exposure.
14.1.2 do not get caught in the rain.
14.1.3 equipment should be used in the following environment.
(1) Temperature: 10 °C ~ 50 °C.
(2) Humidity: below 93% (relative), non-condensing.

14.2 Transportation

14.2.1 The machine is laid flat and it is best to transport it in the original package.
14.2.2 Avoid violent vibration.
14.2.3 If the equipment is transported in a cold or humid environment and arrives at the client, it must be placed indoors and fully balanced with the room temperature before use, otherwise it is prone to overcooling or excessive humidity, resulting in a short circuit.

Network Settings
1). Upon agreeing to the user agreement, you need to connect to the internet prior to accessing the content. Select network option on the top right of the main home page.
2). Follow instructions and connect to internet via wifi before proceeding to contents inside the device.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.