

AUTO PATTERNLESS EDGER

Operation Manual(V1.1)



Preface

Dear respected user:

Thank you for choosing our product and trusting our company.

The patternless lens edger is developed specially for optical shops to edge the lens.

Please read the manual carefully and put it near the edger for easy reference.

Information of the manual doesn't have nature of the contract, thus can be modified without prior notice. The content has been checked strictly to make sure no errors. But it's impossible to avoid error or omissions so we are responsible for further update.

If user have not operate properly according to this manual and leads to edger problem, then we will not include the problem in the scope of our factory's warranty.

DESCRIPTION OF SYMBOLS

Different symbols in manual can draw attention of users and can distinguish different matters.(e.g. matters related to safety)

Following diagram have lists all symbols and descriptions:

Symbol	Description
	Important warning, marking the meaning is: if the violation, inappropriate operation of the machine, and the risk of serious damage to the existence of life. Please read carefully.
	Import suggestion: may damage the machine or cause problem. Please read carefully.
	Necessary preparation Before any operation, make sure power is off.
	Electrical problem.
	Heavy product reminder The machine is heavy and requires more than two people to carry it.
	Rotate reminder: Don' t put hands near the rotating wheels.
	Pinching hands reminder: Please pay special attention when clamping lens.
	Must wear protective gloves Especially when cleaning and changing the water tank.
	Must ware work clothes, Especially when cleaning and changing the water tank.

CONTENT

Preface.....	- 1 -
1. ASSEMBLING.....	- 5 -
1.1 Open the packaging of machine	- 6 -
1.1.1 Warning	- 6 -
1.1.2 Procedure	- 6 -
open the package in the following steps:	- 6 -
1.2 Take away the fixing rail which is used during transportation	- 7 -
1.2.1 Condition	- 7 -
1.2.2 Procedure	- 7 -
1.3 Prepare the working table	- 8 -
1.3.1 Machine specification.....	- 8 -
1.3.2 Working table size and drilling hole requirement	- 9 -
1.4 Water supplying system	- 10 -
1.4.1 Description	- 10 -
1.4.2 Connection of water piper.....	- 10 -
1.5 Electrical connection	- 13 -
1.5.1 Electrical wire of edger	- 13 -
1.6 Start the edger.....	- 14 -
1.6.1 Procedure	- 14 -
2. SAFETY PRECAUTIONS.....	- 15 -
2.1 NOTICE.....	- 15 -
2.1.1 Operator	- 15 -
2.1.2 Machine.....	- 15 -
2.2 Suggestions.....	- 16 -
3. USE OF EDGER	- 17 -
3.1 APPEARANCE	- 17 -
3.1.1 Appearance of the edger	- 17 -
3.2 INTRODUCTION OF THE OPERATE INTERFACE.....	- 18 -
3.2.1 Display interface	- 18 -
3.2.2 Screen 1:1display:	- 19 -
3.2.3 Modify of pattern data	- 20 -
3.2.4 Pick up stored data	- 22 -
3.2.5 Edging lens interface	- 23 -
3.3 LENS PROCESSING	- 24 -
3.3.1 Clamp/remove the lenses.....	- 24 -
3.3.2 Start/stop the grinding procedure.....	- 24 -
3.3.4 Lens processing steps	- 25 -
3.3.5 Processing range.....	- 28 -
4.CONFIGURATION MENU	- 29 -
4.1 CONFIGURATION MENU INTRODUCTION.....	- 29 -
4.1.1 System menu interface	- 29 -
4.1.2 The test menu.....	- 30 -
4.1.3 Setting menu	- 31 -
4.1.4 Initial parameter setting	- 32 -
4.1.5 Processing statistics table	- 32 -
5.DAILY MAINTENANCE OF MACHINERY	- 33 -
5.1 MAINTENANCE INSTRUCTIONS	- 33 -
5.2 MAINTENANCE OF TOUCH SCREEN PARTS	- 33 -
5.3 REPLACE REMOVABLE CLAMPS.....	- 34 -
5.3.1 Replace the right clamp rubber pad	- 34 -
5.4 REPLACE LENS FEELER	- 35 -

5.5 CLEAN/REPLACE WATER-PROOF COVER.....	- 36 -
5.6 CLEAN THE FILTER AND WATER TANK.....	- 37 -
6.TECHNICAL SPECIFICATIONS	- 38 -
6.1 FEATURES.....	- 38 -
6.2 TECHNICAL PARAMETERS	- 39 -
7.ATTACHMENT LIST (PACKING PARTS)	- 40 -

1. ASSEMBLING

#1



2. #5



 Please keep the packaging materials

#3



#4



#5



1.1 Open the packaging of machine

1.1.1 WARNING



- > The machine must be placed in the direction of the package logo, can not be inverted.
- > Put the machine on a flat, stable surface.

1.1.2 PROCEDURE

OPEN THE PACKAGE IN THE FOLLOWING STEPS::

#1 Need at least two people to put the machine on the ground;

#2 Cut off four packing straps on the box;

#3 Remove the box;

#4 Check the supplied accessories (toolbox, water pipe, etc.);

#5 Remove the plastic protective material from the machine;

#6 Take away the 4 fixing rail which is used during transportation;

#7 Need at least two people to lift the fixing rail and place it on the workbench;

#8 Take down the screw which is fixed the carriage;

#9 keep the package, recommend to disassemble it and lay flat.



Take down the screw which is fixing the carriage

1.2 TAKE AWAY THE FIXING RAIL WHICH IS USED DURING TRANSPORTATION

1.2.1 CONDITION

- > Put the machine on the workbench
- > need enough space around the machine.

1.2.2 PROCEDURE

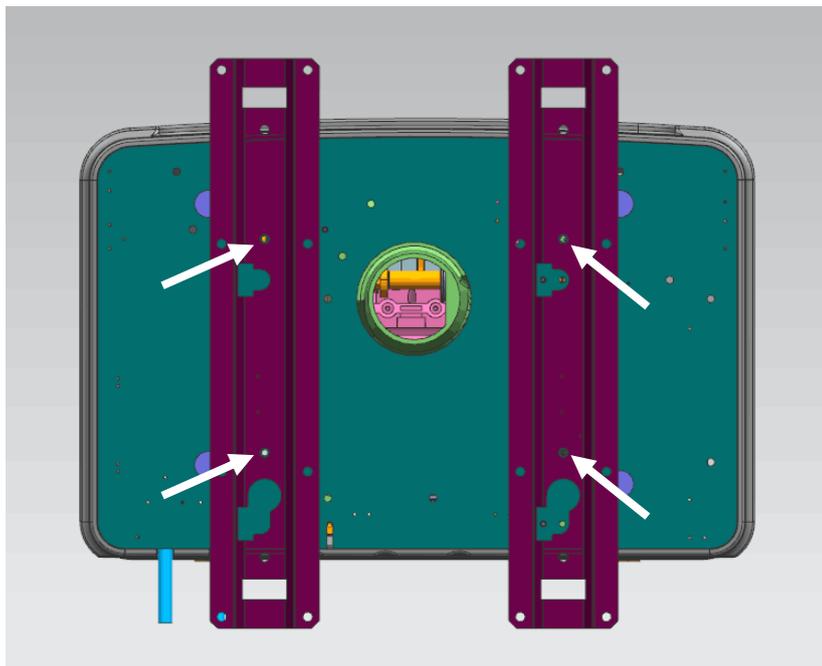
Open the package in the following steps

#1 With the help of another person, gently flip the machine in order to gain access to the 4 fixing screws of the carriage;

#2 Using a 13mm Allen wrench, remove the four fixing screws and remove the carriage;

#3 Put the carriage together with the packing material.

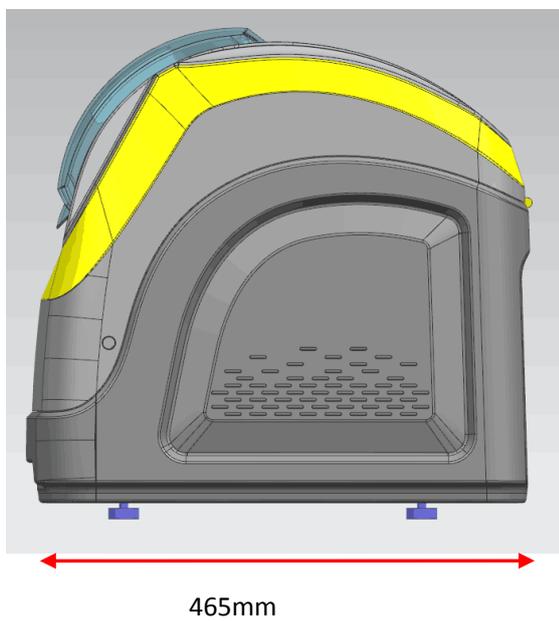
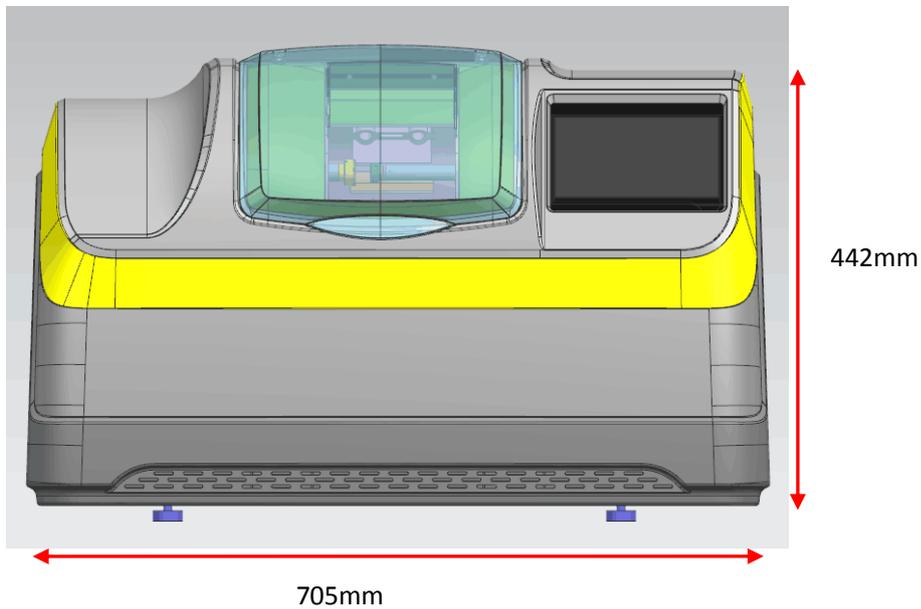
As is showed in the picture:



1.3 PREPARE THE WORKING TABLE

1.3.1 MACHINE SPECIFICATION

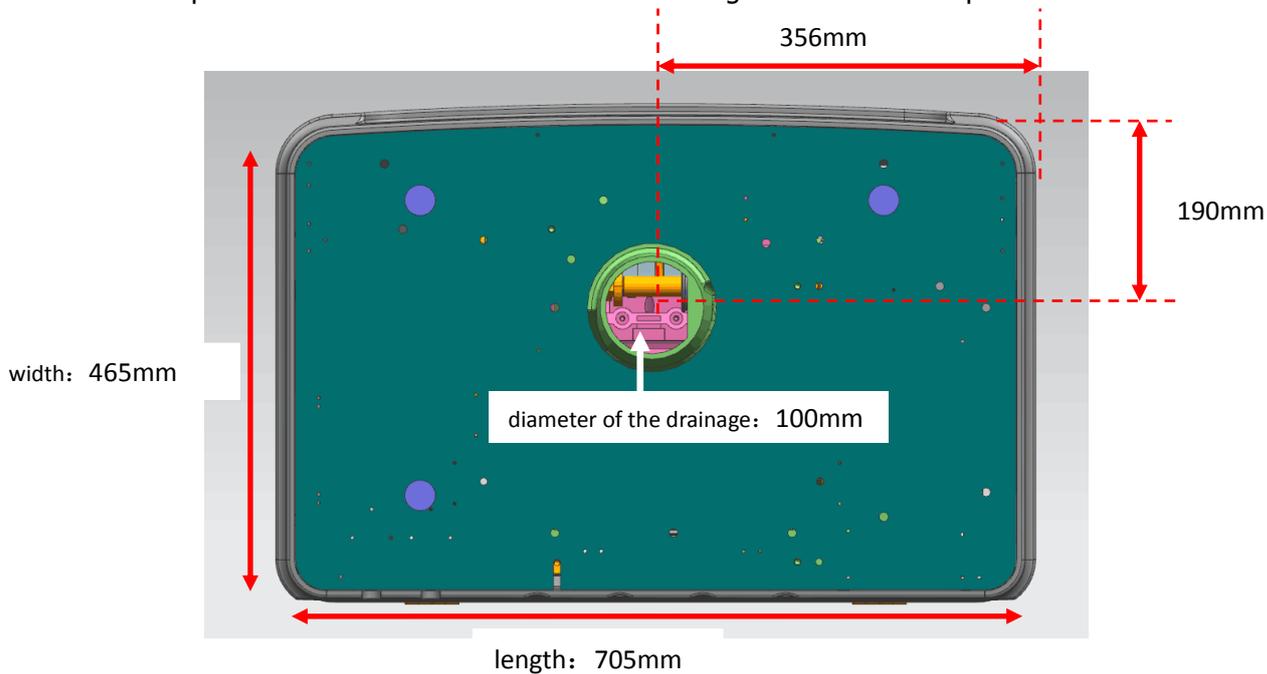
The machine specifications is as shown below: :



- > length = 705mm
- > height = 442mm
- > width = 465mm
- > Total Weight = 65kg

1.3.2 WORKING TABLE SIZE AND DRILLING HOLE REQUIREMENT

The figure below shows the location of the edger on the workbench and where drilling is required. Place the machine well before drilling to determine the position!



Attention:

- > Refer to the given dimensions;
 - >>length: 705mm;
 - >>width: 465mm;
 - >>diameter of the drainage: 100mm;
 - >>distance of the drainage hole center to the right side of the machine: 356mm;
 - >>distance of the drainage hole center to the front side of the machine: 190mm;
- > Make enough space around the edger.
- > Make sure the workbench is stable and smooth.
- > Installation should be far away from the heat source.

1.4 WATER SUPPLYING SYSTEM

1.4.1 DESCRIPTION

1.4.1.1 OVERVIEW

>The machine must be installed with a water shut-off valve, its position can not be 80cm higher than the machine. Stop valve position must be easy to operate, so that the machine can be closed in any time when we don't use it.

> The diameter of the drain pipe is 100 mm. In order to ensure the smooth discharge of debris, there must be a slope of at least 5%

1.4.1.2 FILTER BOX WITH PUMP

> length:500mm width:400mm height:280 mm

> capacity: 50L

1.4.1.3 WATER PUMP

> power = 40 W

> flow = 12L/min

> total head = 3.0m

> voltage = 220V-230V/50Hz 110V-115V/60Hz



1.4.1.4 THE ELECTROMAGNETIC VALVE

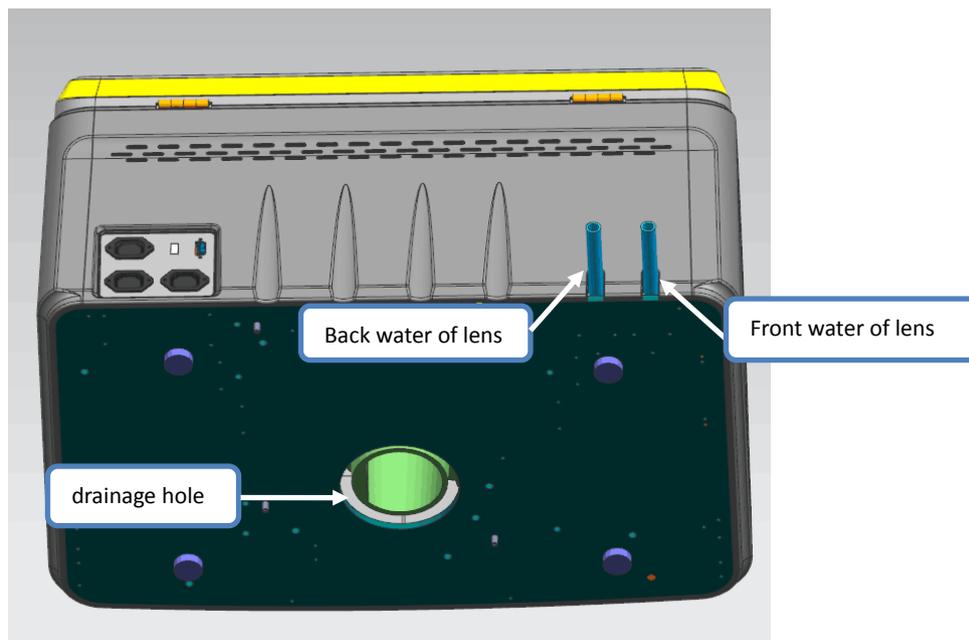
> voltage = 220V-230V /50Hz 110V-115V /60Hz

> power = 20 W



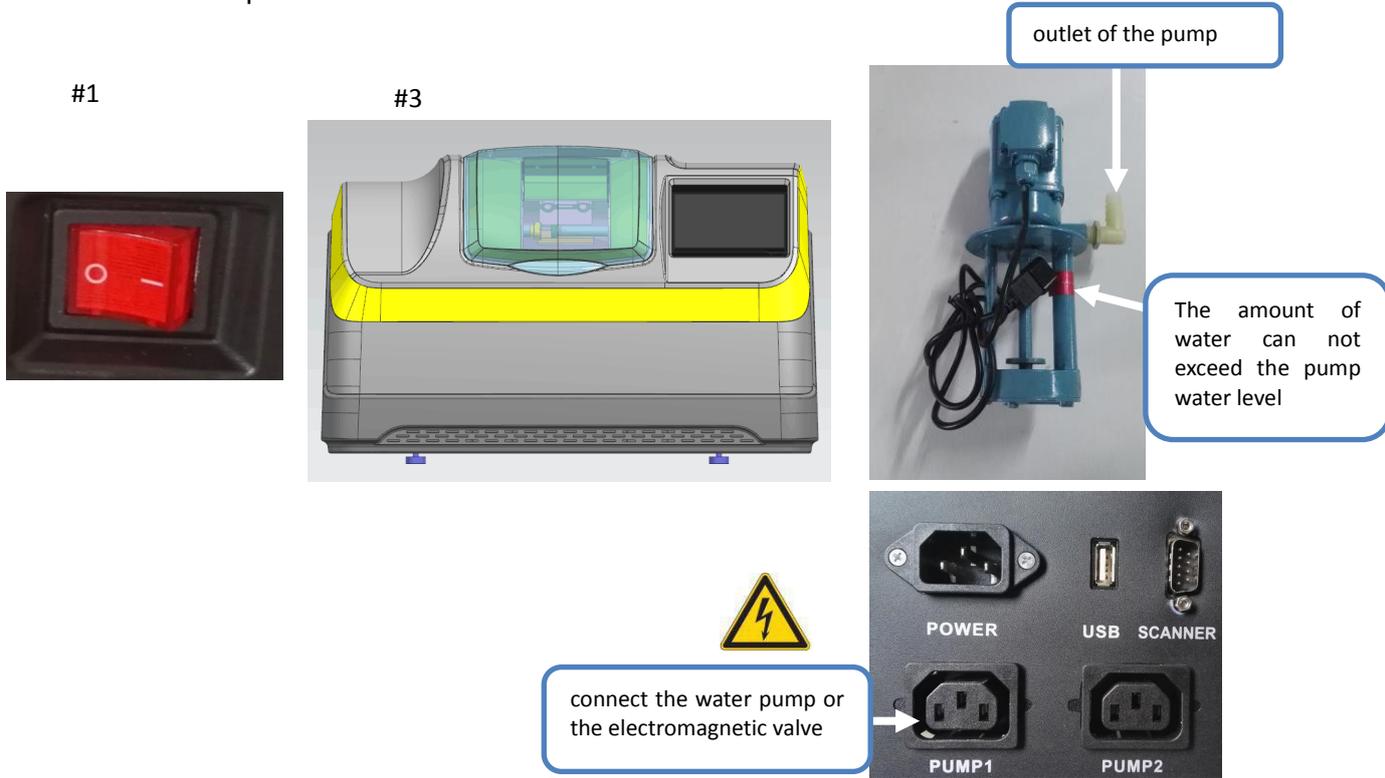
1.4.2 CONNECTION OF WATER PIPER

> the connection is as shown below:

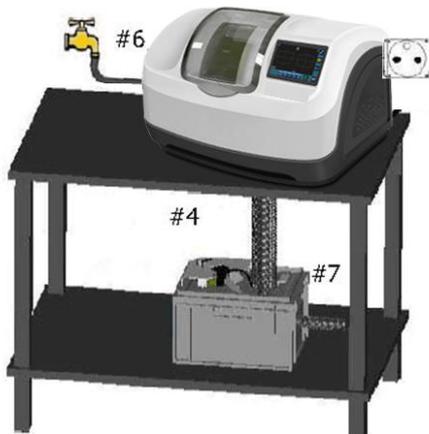


1.4.2.2 PROCEDURE

As is showed in the picture:



Connect the solenoid valve to supply water directly



Connect the water pump to use recycled water



Follow the steps below to connect the water supply pipe to the edger and fix it.

#1 Check if the machine switch is disconnected, ON / OFF switch in the OFF position, the main power plug is disconnected.

#2 Check the water supply system is closed.

#3 Make sure the machine level => can be adjusted with 4 foot screws.

#4 Connect the drain pipe to the base.

#5 Connect the water supply pipe to running water pipe or water pump.

#6 If running water, you need to connect the drain pipe.

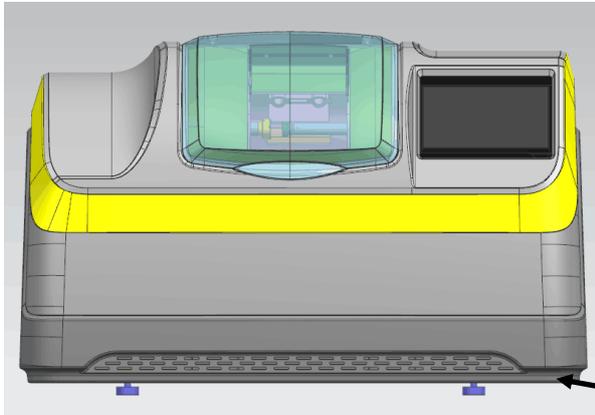
#7 If the water supply is clogged, check the permeability of the pipe, especially around the solenoid valve.

#8 Connect the water pump or solenoid valve to the power supply of the water pump.

1.5 ELECTRICAL CONNECTION

1.5.1 ELECTRICAL WIRE OF EDGER

>Power outlet must be connected with earth wire,When installing, please make sure the whole shell is connected with earth wire.



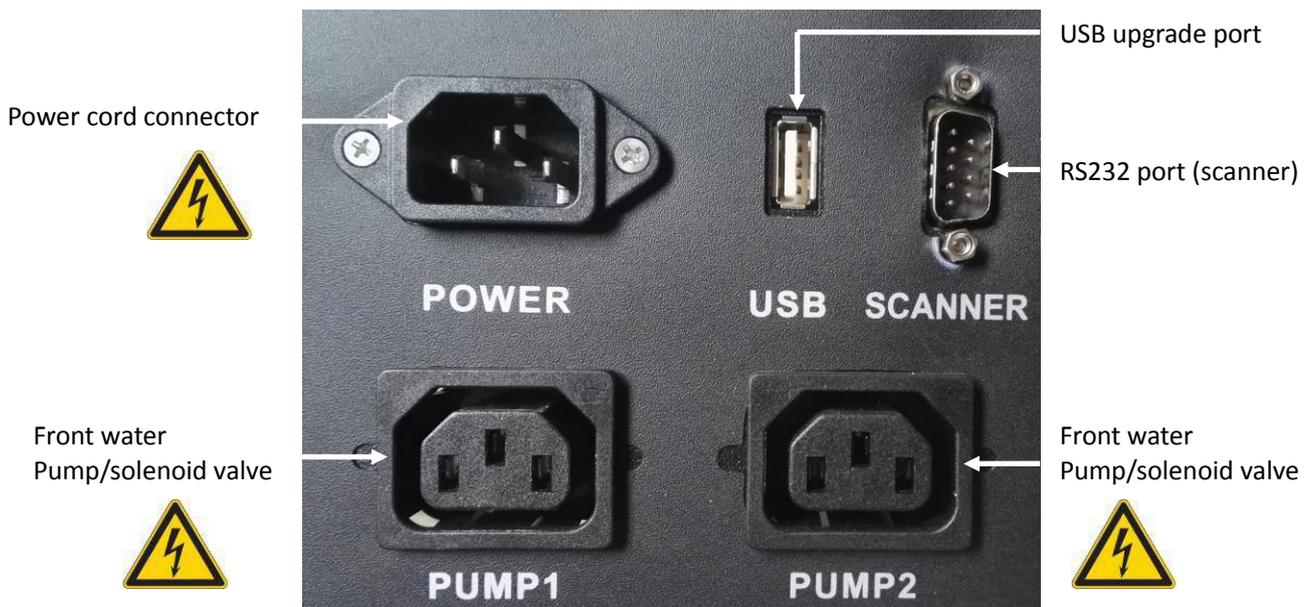
The whole shell is connected with earth wire

#1 Check if the machine switch is off: The ON / OFF switch is in the OFF position and the main power plug is off

#2 Connect the scanner to the RS232 port.

#3 Please plug in the power cord, water pump or solenoid valve power plug.

When the machine need to be connected with its supporting equipment,It should be carried out as shown below



1.6 START THE EDGER

1.6.1 PROCEDURE

Start the machine according to the following procedure:

#1 Check if the machine switch is off: The ON / OFF switch is in the OFF position and the main power plug is disconnected.

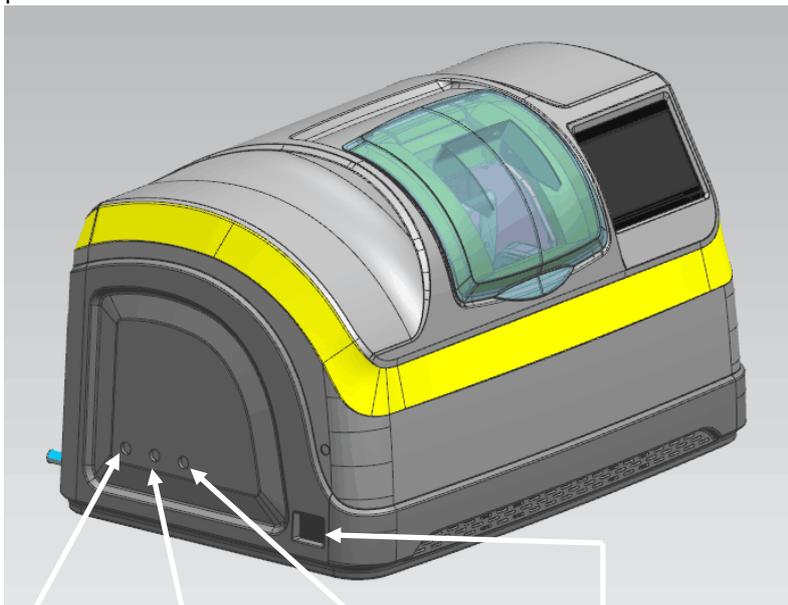
#2 Install the collet and collet seat onto the spindle.

#3 Plug in and open the switch (ON / OFF switch).

#4 simulate to start the machine, adjust the flow adjustment screw located on the left side of the machine, adjust the water flow of the nozzle and the amount of water spray in the grinding room.

#5 Get 1 to 2 tasks to check if the machine is working properly.

The adjustment of the amount of the water outlet in the processing room is as showed in the below picture.



adjustment of the amount of the back water for PC

Adjustment of the amount of the front water for wheel

Adjustment of the amount of the water for the transparent board to block the water.

Switch position of the machine

0: turn off



1: turn on



2. SAFETY PRECAUTIONS

2.1 NOTICE

2.1.1 OPERATOR

- > Read the instructions carefully and keep it near the machine for easy reference.
- > The machine has a rotating device, the wheel has potential danger. don't put your hand near the grinding wheel. The machine is heavy, need at least 2 people to carry.
- > When starting the clip axis, pay attention to put your hands out of the contact area.
- > Before touching the fuse, the power cord must be disconnected.
- > Ensure the water circulation system is well sealed when install the machine.
- > Before repairing the machine, you must unplug the power plug.

2.1.2 MACHINE

- > The voltage of the power supply must be consistent with the rated voltage marked on the nameplate on the back of the machine. If the voltage of the installation place is uncertain, please contact professional electrician.
- > If the machine won't be used for a long time, please disconnect the power supply.
- > The switch is located behind the machine and marked ON / OFF. The plug is used to disconnect the main power.
- > If lightning occurs or if it is not used for a long time, please cut off the connection to the main power supply.
- > The machine should be far away from the heat source, the heat sink and other heat sources will affect the operation performance of the equipment.
- > Do not obstruct and cover the vents on the housing of the machine to ensure the normal operation of the machine.
- > The machine must be installed in a well-ventilated room.
- > Do not overload the socket or plug, otherwise it may cause a fire or electric shock.
- > Avoid using drawn leads of the power cables.
- > The machine should be far away from the windy sand environment.
- > Any maintenance work (need to open, close the shell) must seek the consent of the manufacturer or its distributor.

- > Different parts of the logo and tips  may cause the corresponding harm, should pay special attention to:
 - > Control the pump socket => danger of electric shock
 - > Grinding room => physical damage
 - > Water system => it may be dangerous if the water pressure is beyond 1 bar

2.2 SUGGESTIONS

- > Observe the equipment maintenance requirements.
- > Place the power cord properly.
- > All maintenance matters, please contact the seller and professional technical personnel, must use the appropriate accessories.
- > Only can be connected online with the device specified by the seller.
- > If following the strict implementation of the instructions in the manual, we can ensure the normal operation of its various functions.
- > The equipment must be cleaned regularly
- > Wipe the case with a light, soft, damp cloth dipped in a little alcohol. .
- > Note: You can not use the following items when cleaning:
 - Liquid containing ammonia, soda or acetic acid;
 - Organic solvents containing acetone, benzene or trichlorethylene.

- > Touch screen:
 - >> Do not force the touch screen, otherwise it will be fractured;
 - >> Do not use pen, scissors, pliers and other sharp objects to press the touch screen;
 - >> When operating the touch screen, the hand must be kept dry;
 - >> Clean the touch screen with a soft, clean, dry cloth.

- > Edging system:
 - >> Check that the water system is ready (valve open) before starting the machine;
 - >> Water supply system must ensure good water tightness;
 - >> If you use recycled water, the water in the tank must be replaced regularly;
 - >> Check the probe status regularly, if there is wear, nick or damage, etc., it should be promptly replaced;
 - >> Wipe the surface of CR39 with water and a soft sponge or brush daily to avoid scratching the plastic surface.
 - >> Regularly wash the board which is to block water.

IF THE USER DOES NOT FOLLOW THE INSTRUCTIONS IN THE MANUAL OR THE NOTICE AND TIPS ON THE MACHINE TO OPERATE, THE MANUFACTURER WON'T TAKE ANY RESPONSIBILITY FOR THE MACHINE FAULT CAUSED BY IT.

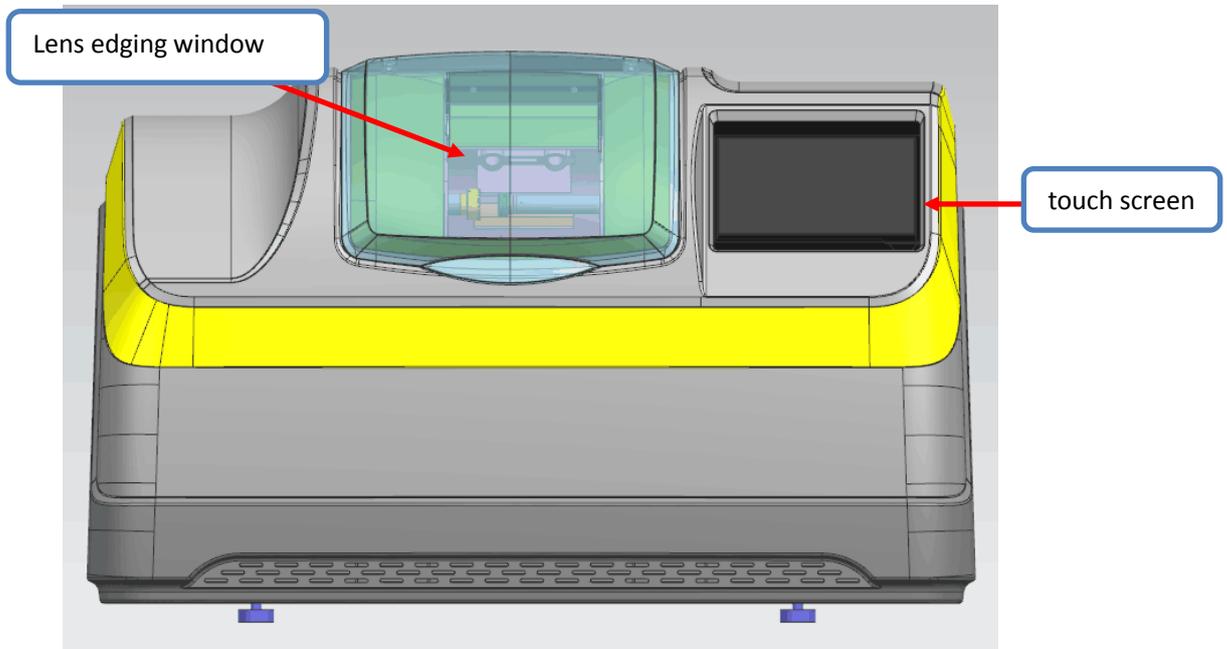


3. USE OF EDGER

3.1 APPEARANCE

3.1.1 APPEARANCE OF THE EDGER

The picture below shows the machine's panorama



3.1.1.1 TOUCH SCREEN

> functions of the touch screen:

- >> operate the interface
- >> Input the data of the processing tasks
- >> Display the shape of the frame and lens
- >> Input the data of the edger

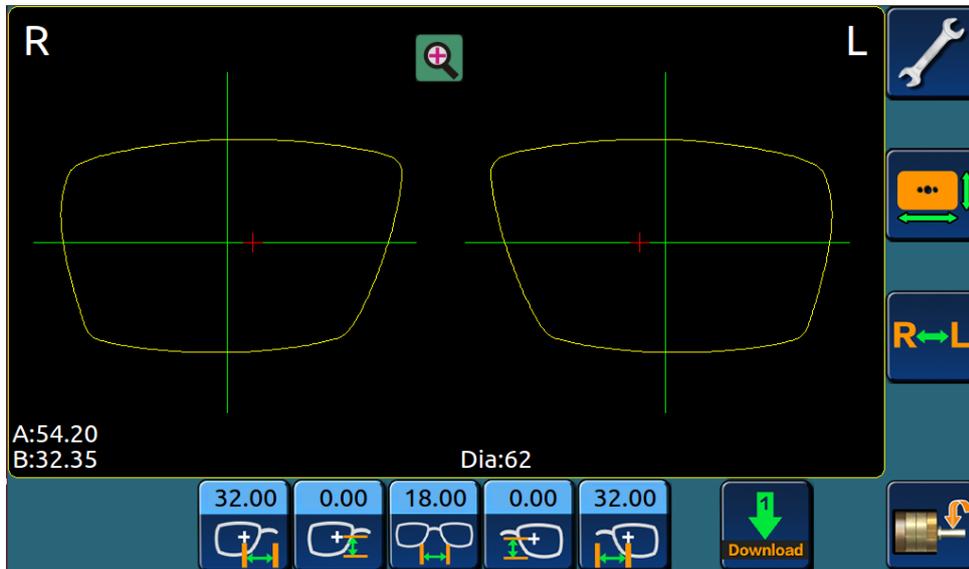
3.1.1.2 LENS EDGERING WINDOW

>Function of the AUTO PATTERNLESS EDGER:

- >> According to the data of frame material, shape and degree to processing lenses.

3.2 INTRODUCTION OF THE OPERATE INTERFACE

3.2.1 DISPLAY INTERFACE



>>Menu interface;



>>Enter the data change shape interface,can change the shape of the lens;



>>Symmetrical display of the data for both left and right eyes



>>Enter the interface of lens processing ;



>>Get the current required processing data and display;



>>Input PD of right eye;



>>Input PD of left eye;



>>Input PH of right eye;



>>Input PH of left eye;



>>Input the DBL;



>>Enter the 1: 1 display interface;

Dia >>The minimum lens diameter required to processing the current lens;

3.2.2 SCREEN 1:1DISPLAY:



>click in the screen,enter frame 1:1 display surface.



>click in the screen,back to the,back to Main interface.

>>DBL: nose bridge distance of the frame;

>>PD: Pupil distance of two eyes;

>>FPD: Geometric center distance of frames;

>>Dia: The minimum lens diameter required to processing the current lens;

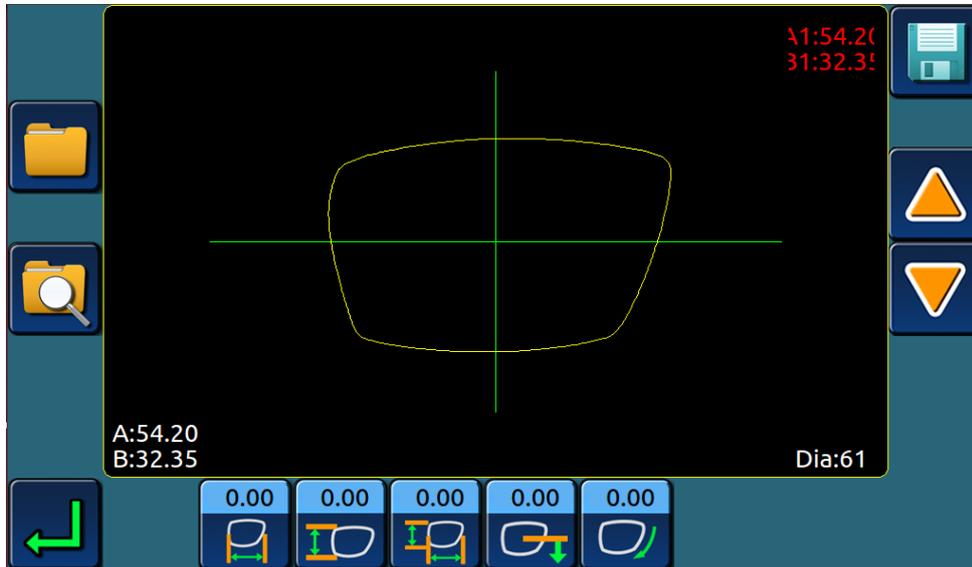
>>A: The maximum width of the lens template;

>>B: The maximum height of the lens template.

3.2.3 MODIFY OF PATTERN DATA



>click on the main interface, enter the interface that the data change the shape.



>>Retrieve existing template data from memory;



>>Find the template data in memory;



>>Save the current template data to memory;



>>Template height unchanged, width modified;



>>Template width unchanged, height modified;



>>Template height and width both modified;



>>The lower edge of the template change shape;



>>Template data rotation;



>>Template data rotation angle;



>>return.

3.2.3.1 STORAGE OF THE TEMPLATE DATA



>click on the interface,The system pops up a save window, enter the template number coding, as is shown below.

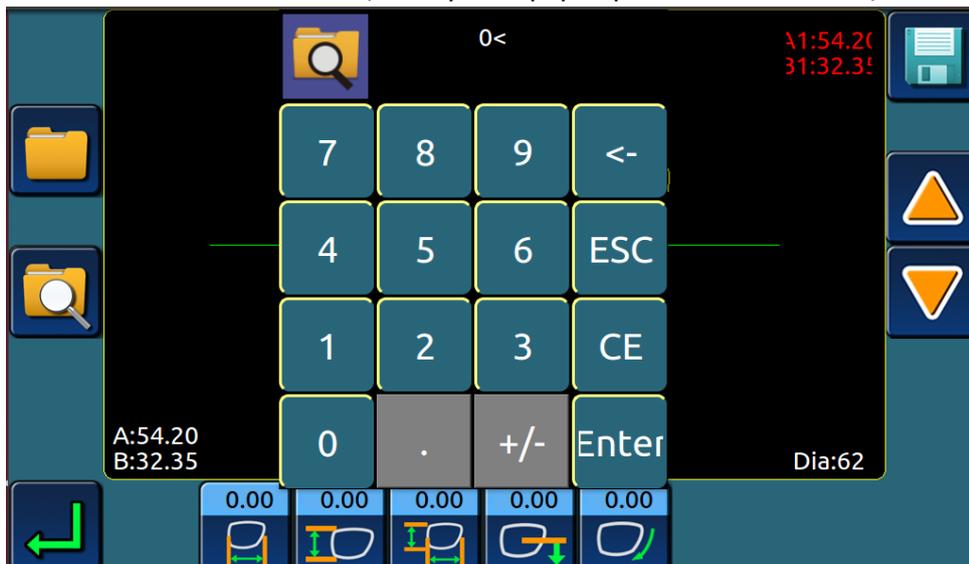


>Click the "Enter" button on the numeric keypad, the system automatically saves the current template data.

3.2.3.2 TEMPLATE DATA SEARCH



>click on the interface, the system pops up the search window, as is shown below:

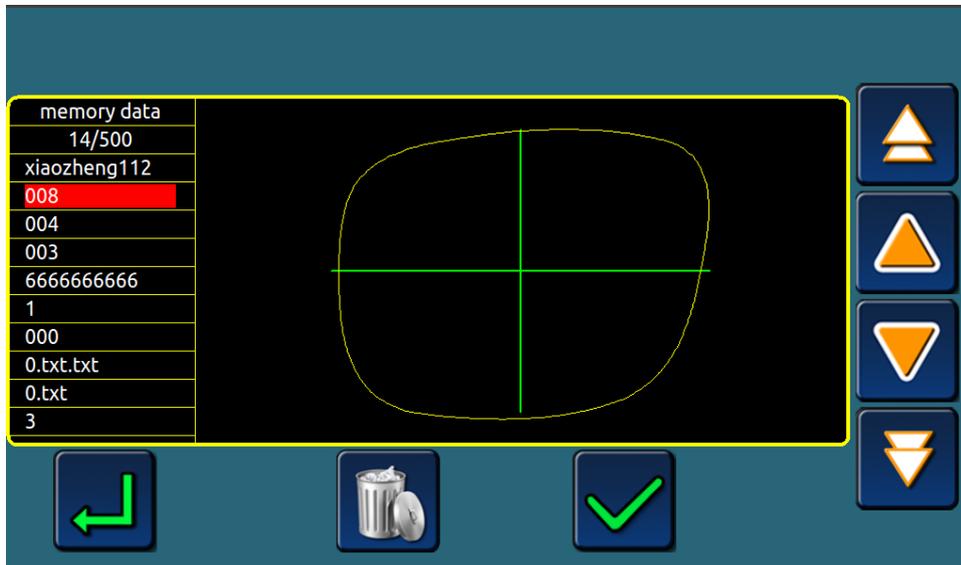


>Enter the number of the template you want to find, click the " Enter " button on the numeric keypad, and the system will automatically find the current template data.

3.2.4 PICK UP STORED DATA



>click on the shape change interface,enter the template data retrieval interface, the memory data list will be showed



>>Display previous page data;



>>Display next page data;



>>Display the previous data;



>>Display the next data;



>>Retrieve the current data;



>Delete memory data;

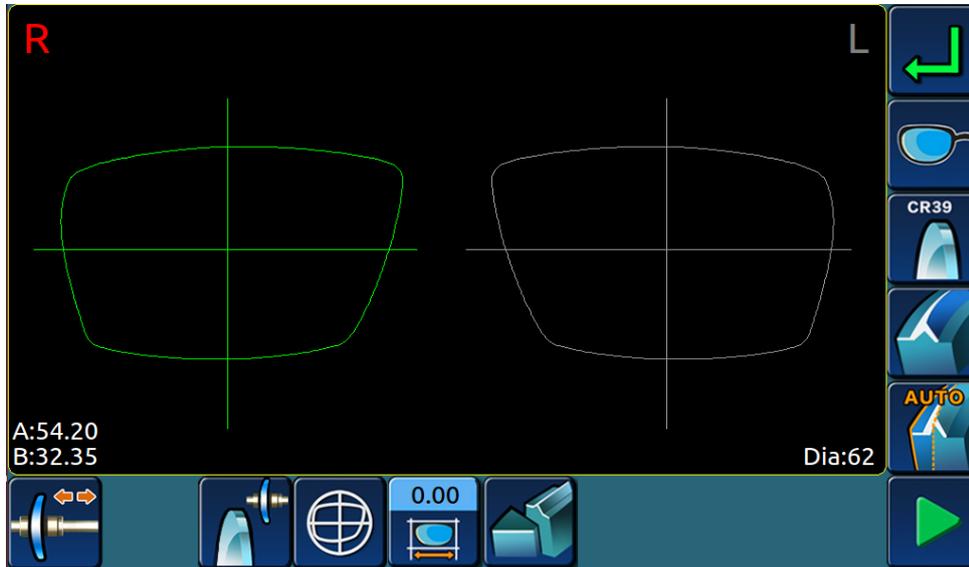


>>Return.

3.2.5 EDGING LENS INTERFACE



>click the  on the main interface, Into the lens processing settings interface.



1. Left and right eye processing options:



2. lens material options:



3. edge shape options:



4. sharp edge rate:



5. Lens processing mode:



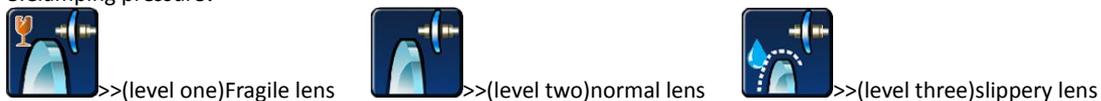
6. Polishing choice:



7. Others:



8. Clamping pressure:





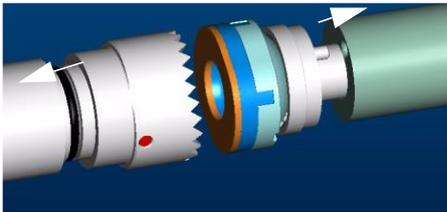
>>return

3.3 LENS PROCESSING

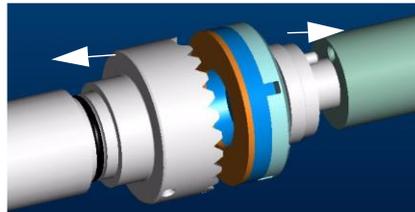
3.3.1 CLAMP/REMOVE THE LENSES

> Clip the lens into grinding window

After all the grinding data is entered, clamp the lens;
Each kind of lens should choose appropriate clamp.

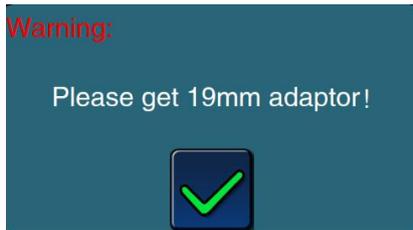


19mm small clamp



25mm big clamp

The warning information will display if the processed lenses needs special clamp,as the following figure:



Warning: please install 19mm small clamp

> Remove the lens from the grinding window

Open the water-proof cover after the machine stops or breaks.



Press  , the clip shaft opens automatically.

Remove the processed lens, but do not remove the block so you can re-grind it if necessary.

3.3.2 START/STOP THE GRINDING PROCEDURE

> Start:

After enter all data of grinding and put lens into clamp,



press 

> Stop

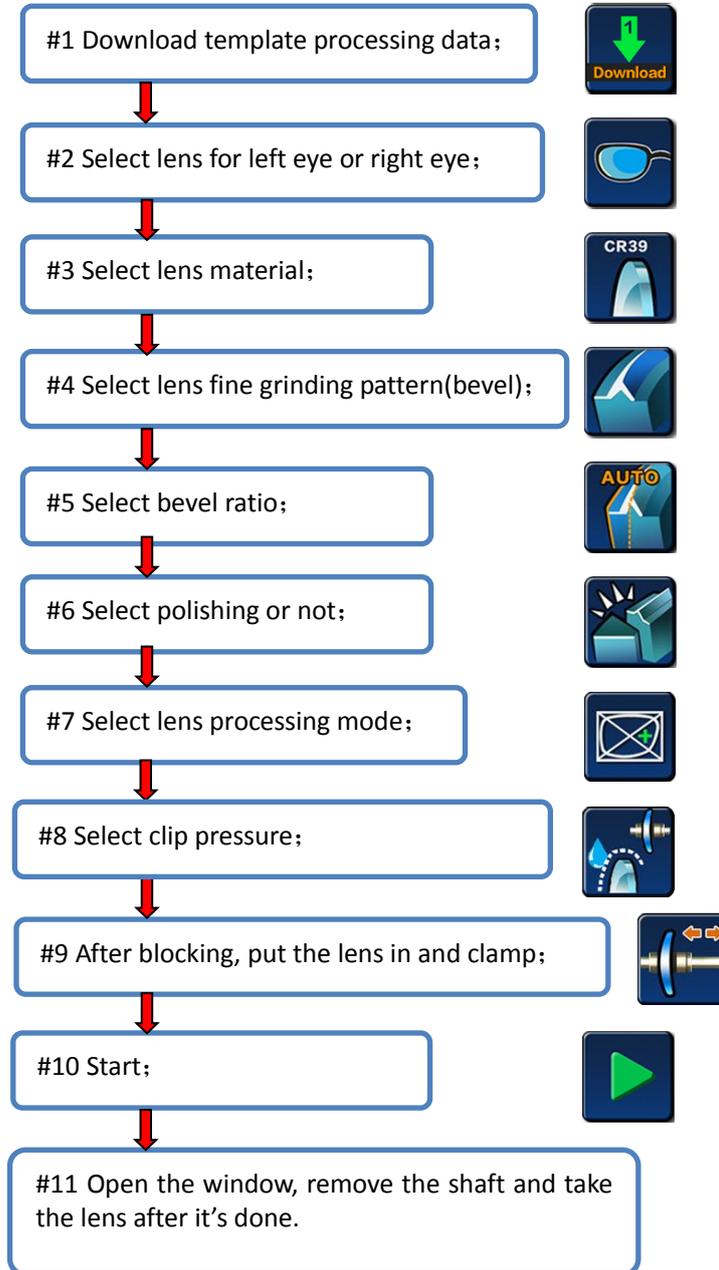
If you want to stop the procedure

press icon .

When the grinding is processing, this key can be transferred from another key.

3.3.4 LENS PROCESSING STEPS

> Full frame lens processing



IMPORTANT NOTE:

> Automatic bevel

The tip vertex position is automatically located 1/3 of the front of the lens.

> 33% bevel

The apex of the tip is located about 33 percent above the front of the lens.

> 50% bevel

The apex of the tip is located at 50% of the front surface of the lens.

> Front bevel

The tip vertex position is located on the front surface.

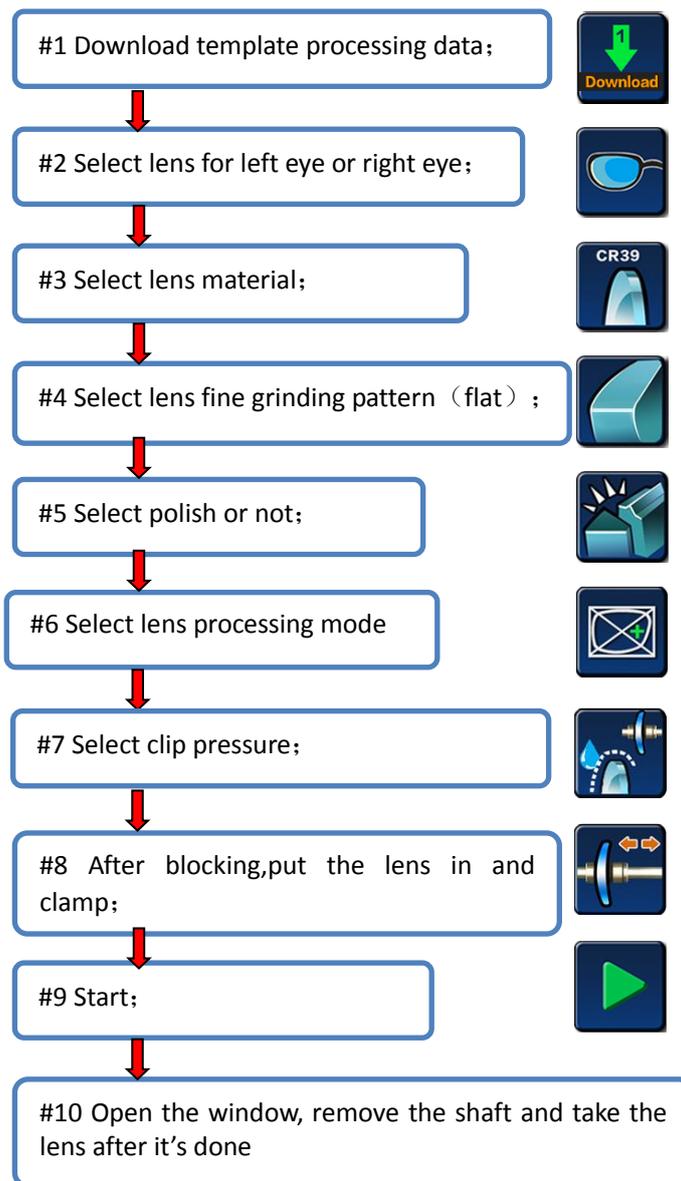
> Back bevel

The apex of the tip is located on the back surface.

IMPORTANT NOTE:

> If the maximum thickness of the lens is less than 2mm, the position of the bevel/slot will be automatically located at half of the lens.

> Half - frame or rimless lens processing



3.3.5 PROCESSING RANGE

> Lens

Diameter: Unprocessed lenses, with a diameter of 80mm and 10mm offset, that is to say, the maximum diameter of 100mm without offset lenses.

Thickness:

maximum thickness of resin lens: 18mm

maximum thickness of glass lenses: 16mm

Lens minimum center thickness: 1.2mm

Completed rough lens, the maximum thickness of the flat side: 11mm

Completed rough lens, the maximum thickness of the edge of the glass: 15mm

Completed rough lens, the maximum thickness of the resin tip: 15mm

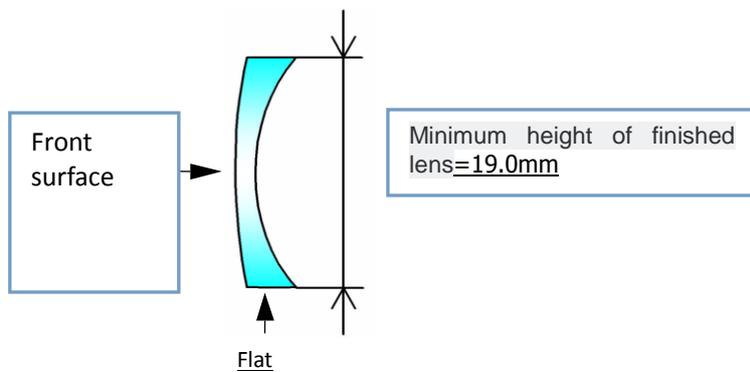
> Shape

The minimum height of the flat: 19.00mm

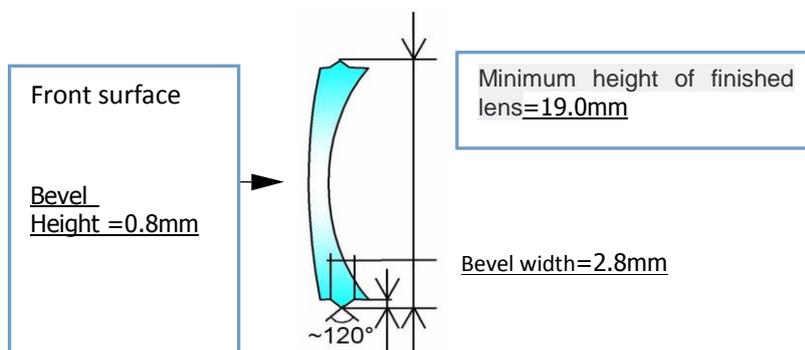
The minimum height of bevel: 19.00mm

> Machining range diagram

>>Flat lens



>>Bevel lens



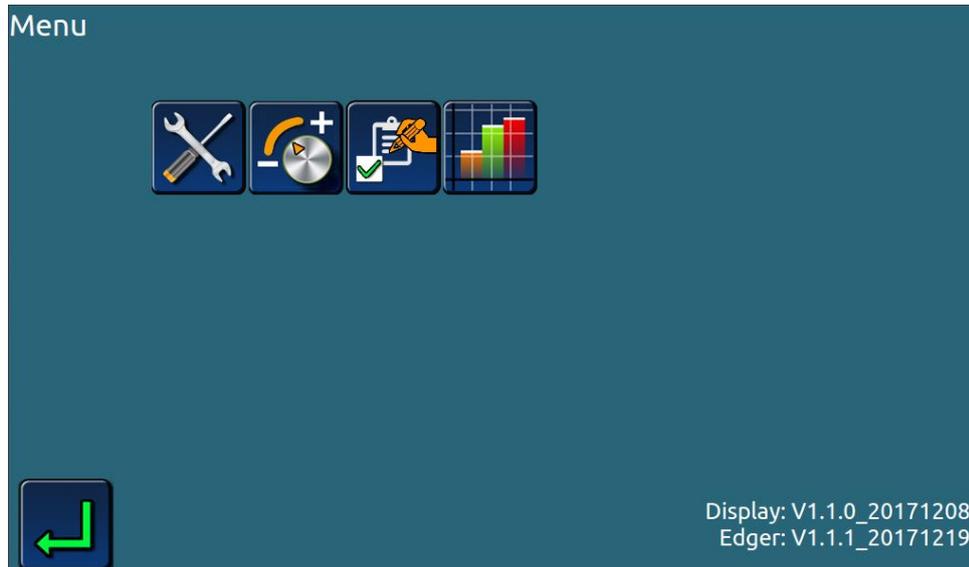
4.CONFIGURATION MENU

4.1 CONFIGURATION MENU INTRODUCTION

4.1.1 SYSTEM MENU INTERFACE



>Click the icon on the main interface, Enter menu password, Enter the menu.



>>The whole machine test;



>>The machine set;



>>Initial settings;



>>Processing statistics table;

4.1.2 THE TEST MENU



>Click the key  on the main interface, Enter the machine test menu.



>>The performance test of the machine head lift motor and encoder;



>>Machine head horizontal moving motor, encoder performance test;



>>Performance test of lens rotary motor and encoder;



>>Scan probe component performance test;



>>Performance test of main motor and sprinkler system;



>>Performance test of clamp/loose system;



>>Machine test;

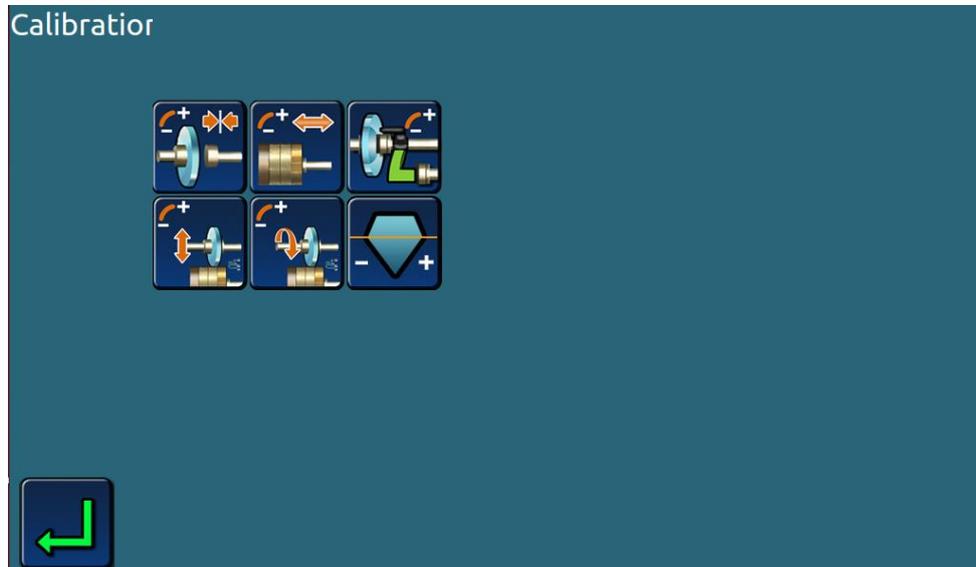


>>Lock the carriage head, pack the whole machine for transportation.

4.1.3 SETTING MENU



>Click the key on the main interface, Enter the machine setting menu.



>>Clamp pressure correction;



>>Grinding wheel position correction;



>>Scanning probe correction;



>>Processing size setting;



>>Processing winding number setting;



>>Base axis setting.

Note:

The parameter setting needs to be completed under the guidance of the professional after-sales service staff. Users should not enter the parameter setting menu by themselves. Otherwise, improper operation may affect the performance of machine processing.

4.1.4 INITIAL PARAMETER SETTING



>Click the key  on the main interface, Enter the initial setup menu.



>After setting, click , Save the initial setting parameters.

4.1.5 PROCESSING STATISTICS TABLE



>Click the key  on the main interface, View the processing statistics.

Statistics

	Rough	Bevel Finish	Rimles: Finish	Bevel Polish	Bevel Polish
CR39	0	0	0	0	0
HI	0	0	0	0	0
PC	0	0	0	0	0
Trivex	0	0	0	0	0
GL	0	0	0		
Total	0	0	0	0	0

Delete

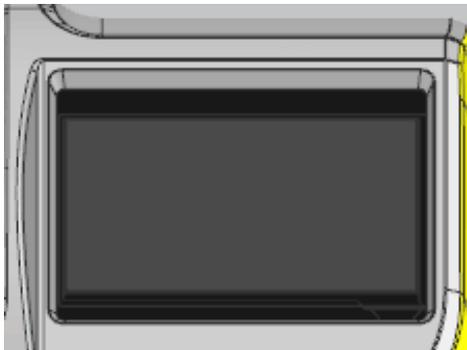
5.DAILY MAINTENANCE OF MACHINERY

5.1 MAINTENANCE INSTRUCTIONS

To ensure that your edger is at its best, you must perform several maintenance operations to achieve the desired results within a range.

- > Clean touch screen
- > Maintenance of edger
 - >> Use water spray bottle to clean the edger
 - >> Regular replacement of movable lens block (every 100 lenses)
 - >> Regularly check the lens scanning probe, and change the probe once the wear or damage is found (or replacement per 3000 lenses)
 - >> Clean the baffle board and replace when necessary.
 - >> If the machine uses circulating water, replace the water in the tank regularly.
 - >> Wash the filter and water tank regularly.
 - >> Check the situation of each piece of grinding wheel. Please replace them under the technical person instruction when necessary.

5.2 MAINTENANCE OF TOUCH SCREEN PARTS



#1 Turn off the power switch if the machine is on;

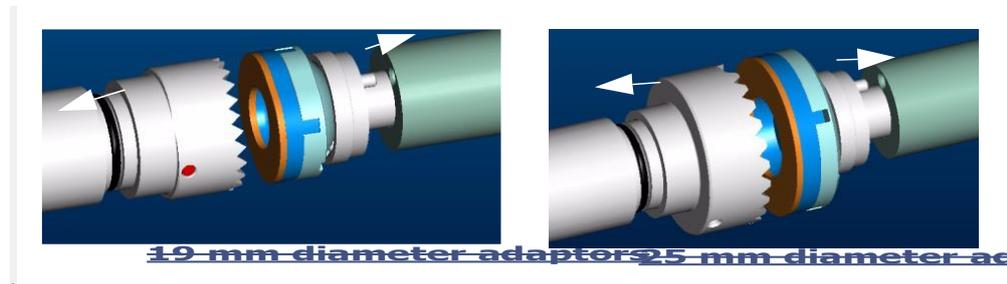
#2 Gently wipe the touch screen with soft, dry linen.

Warning:

Disable such products as water or chemical reagents. If the stain is difficult to clean For dry cloth, it can be treated with alcohol. Damage caused by improper maintenance the touch screen, not within the warranty scope.

5.3 REPLACE REMOVABLE CLAMPS

Note: the lens holder is serrated and the lens probe is sharp. When touching the head and probe, make sure your hands are protected.



5.3.1 REPLACE THE RIGHT CLAMP RUBBER PAD

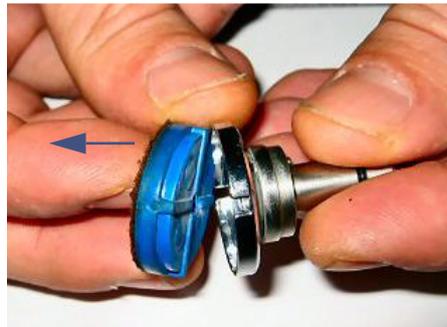
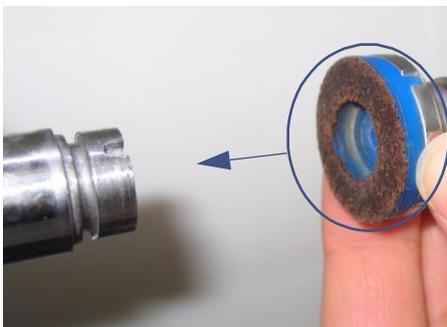
Replace the rubber pad procedure as below:

#1 Gently remove the right clamp from the clamp shaft;

#2 Remove the old rubber pad from the clamp-on and replace it with a new one;

#3 Put the right chuck back on the clamp axis.

As pictures show below:



5.4 REPLACE LENS FEELER

> Check the lens scanner regularly, change the it once the wear or damage is found (Or replace every 3,000 lenses) .



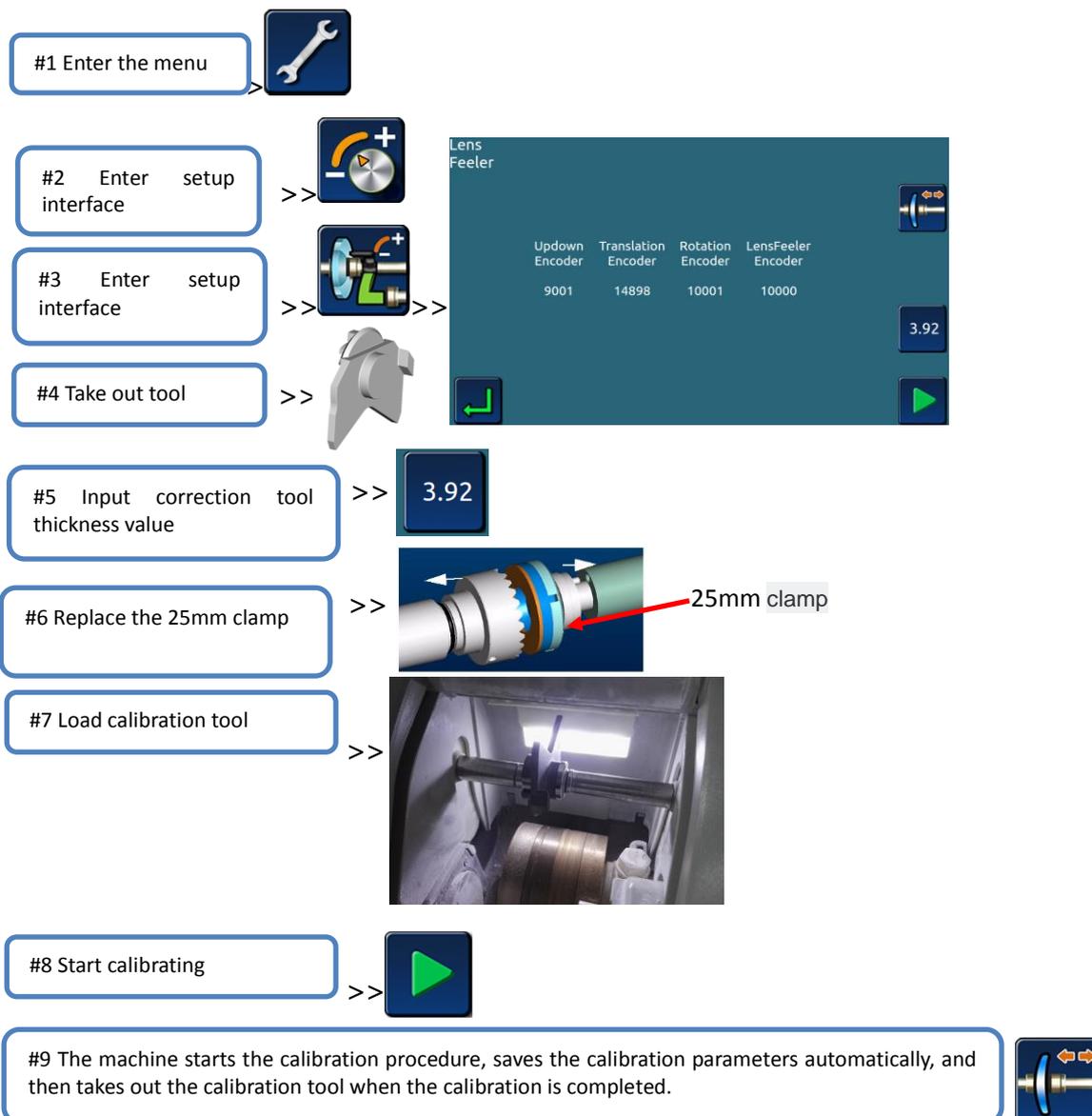
Dismountable lens feeler



Remove the screws and replace the lens feeler

>After the lens feeler is replaced, the lens feeler position needs to be recalibrated.

The calibration probe procedure is as follows:

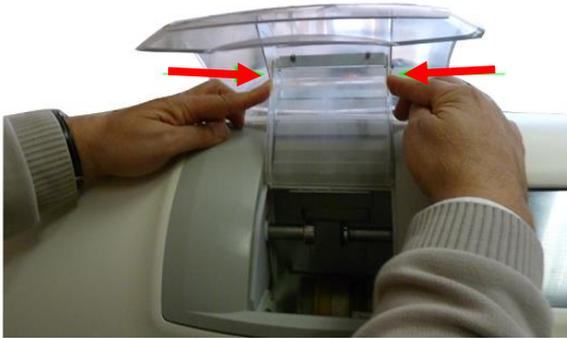


5.5 CLEAN/REPLACE WATER-PROOF COVER

> Before starting any operation, you must ensure that the machine switch is Off: the On/Off switch is in the Off position and the main power is disconnected.

The replacement procedure is as follows:

#1



#2



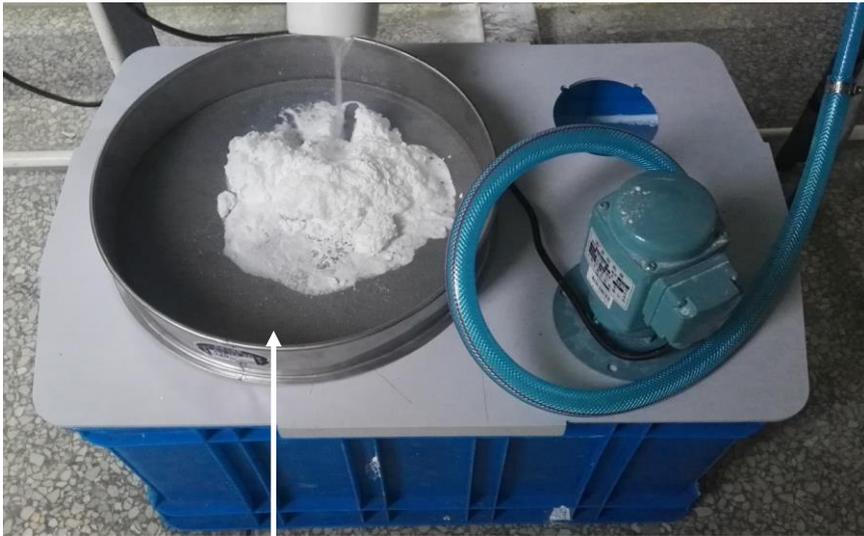
NOTE:

> Regular cleaning of the cover plate can clearly see the grinding edge chamber and the processing process;

> The use of circulating water will affect the cleaning level of the water retaining board.

5.6 CLEAN THE FILTER AND WATER TANK

- > Before starting any operation, you must ensure that the machine switch is Off: the On/Off switch is in the Off position and the main power is disconnected.
- > Regular cleaning can ignore the number of lenses to be processed, but the manufacturer's recommendation is to clean about 100 pieces of lens (glass and plastic) per process.
- > Gloves and eye masks must be wear-resistant. It's better to wear overalls.



Please clean the water tank and filter regularly!

6. TECHNICAL SPECIFICATIONS

6.1 FEATURES

- > Automatic initialization
- > Three - dimensional probe front & rear surface camber
- > wheel configuration:
 - >> Glass grinding wheel
 - >> Resin rough wheel
 - >> Bevel/flat edge grinding wheel
 - >> Bevel/flat edge polishing wheel
- > Automatic clip, three selections of clip pressure, adapt to different material lens processing
- > Connect with water pump using circulating water and connect with solenoid valve when running water
- > Grinding diameter
 - >> ≤ 80 mm
 - >> Flat (No secured bevel) ≥ 19.00 mm
 - >> Bevel (No secured bevel) ≥ 19.00 mm
- > Automatic cleaning of lens fixing system and grinding room
- > Lens processing statistics

6.2 TECHNICAL PARAMETERS

- > The design standard is for indoor use
- > Dimension specification
 - >> Length: 705mm
 - >> Width: 465mm
 - >> Height: 442mm
- > Weight: 65kg
- > Input Voltage: 220V-230V/50Hz, 110V-115V/60Hz
- > Machine power: 1500W
- > Noise: 72db
- > Operating Temperature: 5°C~40°C
- > relative humidity: 10% - 80%
- > Pump working voltage: 220V-230V /50Hz, 110V-115V /60 Hz
- > Pump rated power: <=150W
- > FUSE:
 - 220V-230V /50Hz==15A
 - 110V-115V /60Hz==25A

7.ATTACHMENT LIST (PACKING PARTS)

NO.	PART NAME	QUANTITY
1	Block pliers	1
2	Butterfly head correction tool	1
3	Scan probe	3
4	25mm clamp	1
5	19mm clamp	1
6	25mm clamp rubber mat	2
7	19mmclamp rubber mat	2
8	Large block	5
9	Middle block	5
10	Sticker	1
11	Power line	1
12	Fuse (220V-15A or 110V-25A)	5
13	Certificate of conformity	1
14	Warranty card	1
15	Operation menu	1
16	Drier	2
17	Allen wrench (5*8)	1
18	Drain piper	1