



A2 Automatic Dispenser

☐ 100% Recirculation

☐ Hummingbird

User Manual

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Warning Labels:



Electrical Shock Danger! Cut off power supply before cleaning and maintenance.



Important Information! Read carefully.

1. Using Requirements

- 1) Please read the manual carefully before installation and operation.
- 2) Working environment temperature: 0℃~+55℃, relative humidity: 15%~90%. Transformation and storage temperatures shall be within a range of -10 ℃ to +55 ℃ and for short periods not exceeding 24h at up to +60 ℃
- 3) The machine is for indoors use only.
- 4) The machine is not explosion-proof, neither the machine as a whole nor its internal components are intended for use in potential explosive atmospheres.
- 5) Do keep the children away from the machine. Do not operate the machine except for the staff
- 6) Do provide separate power supply socket and overcurrent protection device for this machine. Make sure the loading capacity of the socket shall be in line with the requirements listed in the Nameplate. Please provide every single phase at least 1.5mm²power supply wire for this machine.
- 7) Please confirm that there is dependable ground wire with the electrical socket before usage
- 8) Before installation and maintenance, must cut off the power supply and Unplug from outlet.
- 9) Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord
- 10) Do not operate any appliance with a damaged cord or plug, or after the appliance malfunctions or is dropped or damaged in any manner. Return appliance to the nearest authorized service facility for examination, repair, or electrical or mechanical adjustment.
- 11) Do not lengthen the power line at pleasure in case of accident
- 12) Keep this machine on the solid ground, then adjust the foundation to make the foundations on a horizontal status before working
- 13) Do not operate the machine in case the machine shell is removed.
- 14) Computer Composition:

1	CPU PIII
2	CD-ROM Driver
3	15 Inches Monitor, screen resolution is 1024X768 pixels or higher
4	USB/COM Interface
5	Windows 2000 or higher Operating System

2. Specifications

Type: A2 **Model:** A2-100%/Hummingbird

Item	Content	Item	Content
Number of Canisters	16/14/12/10	Min Dispensing	100%-0.077ml (1Y/384) Hummingbird-0.015ml(1y/2000))
Max Flow Rate	0.60ltr/min	Canister Size	1.8/3.8 ltr
Pump Size	62mltr	Stirring Speed	20 Revolutions/minute
Power	≤100W	Power Supply	See the Nameplate
Can Size (D x H)	MAX 320mm x 400mm MIN 80mmX100mm	Stirring Timing	Stir 10 minutes every 4 hours or Stir 1 minute every 1 hour
Noise Level	<70dBA	Weight:	130±2 kg
Machine Size (Height x Width x Depth)		1300X710X840 (mm)	

Notes: Stirring time is available for customerization

3. Safety Instructions

1. Please read this manual carefully before installation and operation.
2. Only trained professionals are allowed for operation and/or maintenance.
3. Prolonging wire is prohibited.
4. The machine is only available for 0.5 liter to 20 liter (40kg) paint cans.
5. The machine should be powered on all the time to make the stirring available.
6. The side door shall be closed prior to close the top cover.
7. Press the emergency stop button, the machine will stop working and the stirring will stop at the same time.
8. If it is not used for a long time, the canisters should be cleaned and plugged off.
9. During transportation, the machine should be leveled, preventing from being shocked, pressed, and bottomed up or side faced on the ground. The machine should be kept in ventilated and dry room which is moisture-proof fire-proof.
10. It is forbidden to work the machine in the inflammable and explosive environment.
11. No hot-plug of the serial port line.

4. Machine Composition

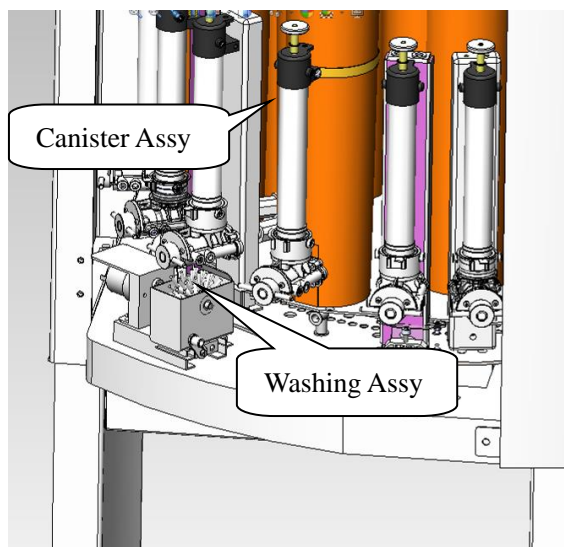


Fig 4.1

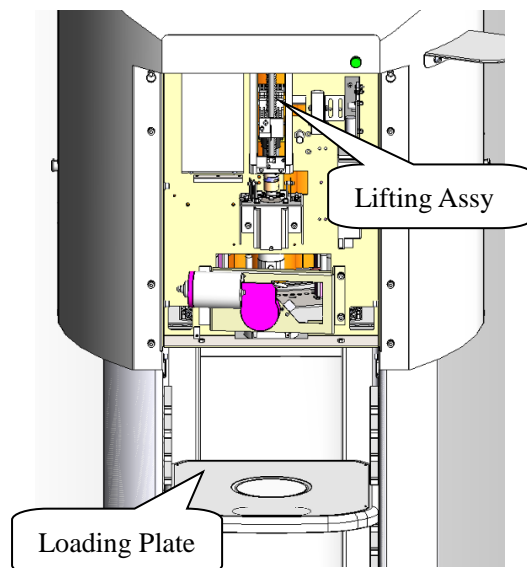


Fig 4.2

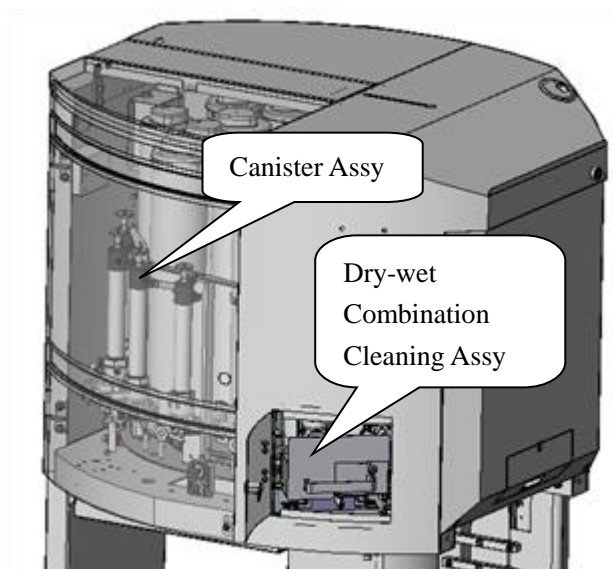


Fig 4.3



Fig 4.4

- **Canister Assembly:** container of colorant is with piston pump and valve, on the valve there is a valve handle and a nozzle for colorant dispensing.
- 1. ⚠ Do not make the added colorant exceed the maximum volume of the canister. See the label on the canister.
- 2. Keep the nozzle clean.
- 3. The plastic lid of the canister shall be properly covered to prevent dryness.
- **Turntable assembly:** canisters are fixed on the turntable, which can be turned to send the canisters to dispensing position, stirring inside canisters also can be carried out while turning. ⚠ Stirring avoids the

colorants depositing.

- Washing assembly: Clean the nozzle after colorant dispensing. The washing wheel wants to be keeping clean to insure the washing function for the nozzles.
- Lifting assembly: with the assistance of electrical control system, the machine can make the piston up and down so to dispense colorant out.



Only authorized personnel are allowed to open the front door for service.

- Loading plate: base paint can is located here. Put bracket up or side face according to the size of paint cans. Photoelectric sensor (Fig. 4.5) will sense the base paint can.

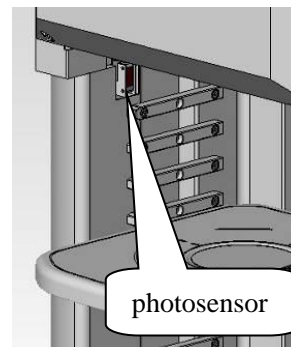
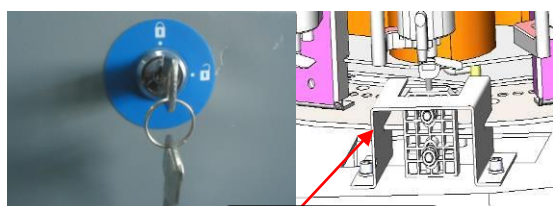


Fig. 4.5

5. Installation

5.1 Machine Installing



Fixing Plate

Fig 5.1.1

- Unpack the wooden case and inner film of the machine with necessary tools.
- Take out tool box, check the items inside according to the packing list. Preserve the tool box for next use.
- Get the side door keys from the tool box and unlock the lock to open the side door.
- Remove the transportation fixing plates using inner hexagon spanner 5.

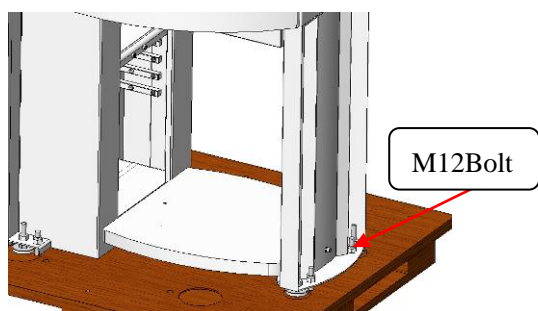


Fig 5.1.2

- Remove the four screws on the foundation by using the spanner 19. Move the machine to the working site.

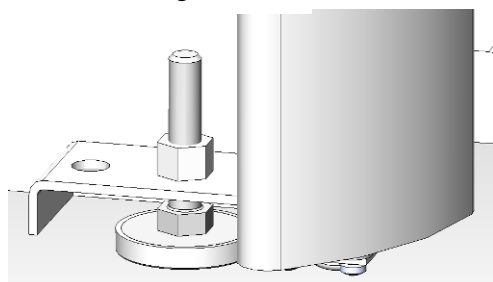


Fig 5.1.3

- Use the spanner 19 to rotate the four feet clockwise. Level the machine. Make sure the machine doesn't move or make noise.

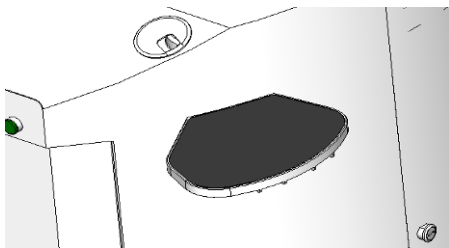


Fig 5.1.4

- Find the mouse tray in the tool box and install it on the left side of the machine.

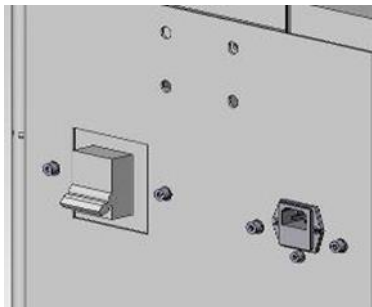


Fig. 5.1.5

- Insert the power chord as shown in 5.1.5

Before installation and maintenance, must cut off the power supply and unplug from outlet.

Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.

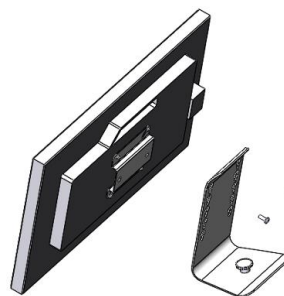
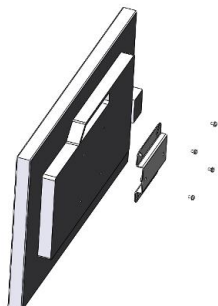
Do not operate any appliance with a damaged cord or plug, or after the appliance malfunctions or is dropped or damaged in any manner. Contact the nearest authorized service facility for examination, repair, or electrical or mechanical adjustment.

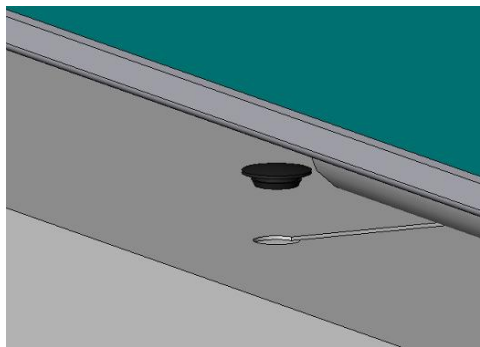
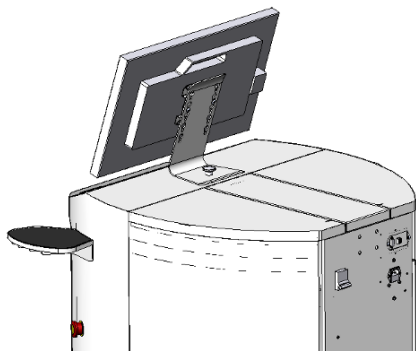
Do not lengthen the power line.


Do not operate the machine in case the machine shell is removed.

5.2 Computer Installing

- Unpack the carton, locate the computer on the bottom plate under the dispenser.
- Locate the keyboard and the mouse on the top of the machine.
- Install the monitor





- Connect the power supply wire, data wire with the monitor.
- Connect the series port wire to the corresponding plugs, the installation is finished.
-  Hot plug of serial port line is prohibited

5.3 Installing software

1. Turn on the switch on the bottom of the machine.
2. Open CD-ROM, put in the installing disk, run the CD-ROM;

See **Software Manual** for detail info about installation and using

6. Machine Adjustment

The machine has been tested before leaving factory, normally the professional go to your site to do machine adjustment. If you don't need, please install and adjust the machine under the guidance of the professional

6.1 Software adjustment

1. Turn on the switch on the back of machine. Ensure that the emergency stop button is on (if equips uninterruptable power supply, ensure that the power supply is on)
2. Open (double-click the icon) Color Expert 3.0 program
3. Machine begins to initialize, and pop up the below figure(See use introduction for details of how to use) , if there is abnormal sound coming from the machine, press emergency stop button and start problem solving.;



Switch

6.2 Machine Adjustment

When the software shows **Ready**, please start to adjust the machine.

- Check whether the piston is on the bottom; the initialization of turntable should be in normal condition.
- Locate the paint can in the center of the loading plate. If there is no paint can or take away the paint can

suddenly, the software shows **E18 “No paint can, colorant could not be spouted out”**


- Test the top cover: the machine could not be operated when the top cover is opened.

Press the emergency stop button under any suddenness.



Pressing the emergency stop button also can stop stirring.


6.3 Add Colorant

- Before colorant is added in to canister, it must be fully mixed by stirring ruler, it is not recommended to mix the colorant by shaker; in that case, too many bubbles are produced and they will affect the accuracy
-  The maximum capacity of canister is 1.8/3.8L notice that the colorant must not be filled above the uppermost mark of stirring device.
- The machine has good distribution before leaving factory. See **Service.exe** in the **bin** file of the installation catalog; with the instruction of **Software Manual**, and please assign the colorants to respective canisters if it is necessary to change.
- The left side of the machine is default side for adding the colorant.
- Open maintenance, choose the colorant code, click “add colorant” to add corresponding colorant, please ensure the colorant names in the software match the colorant of the canisters.
- Open the top cover. The canisters are pasted with sequential labels corresponding to the colorants.
- Open the cover of the canister and insert the stirring ruler, and then the colorant can be poured into canister along the stirring ruler. Be careful not to pour the colorant out of the canister. Cover the canister cover when you finish adding the colorant. When the top cover is opened, machine will not rotate.
- Add the actual corresponding colorant quantity in the adding colorant interface, and click “add”.
- Rotate the canisters and add the corresponding colorant in the other canisters.
- Click the *stir* to stir the colorant

6.4 Emptying Pump



- Air in the pump affect the accuracy, so emptying the air in pumps is a must
- Lift the piston pole and then press it to the bottom and repeat for 4-5 times. Turn the valve rod from horizontal to vertical position. If there is no colorant dropping from the valve rod, it means the pump is emptied. Then turn the valve rod to horizontal position. If any colorant drops, turn the valve rod to horizontal position. Lift

and press the piston rod for 2-3 times. Repeat the foregoing steps till there is no colorant drops out.

- Rotate the turntable and empty the canisters in turns with the same method.
- The machine will lift and press the piston rod for recirculation and exhausting the air automatically in every 24 hours.
- Do not lift the piston rod if not necessary
-  Please cover the lids promptly to avoid evaporation of colorant.

6.5 Calibration of Colorants



The machine had been calibrated in the factory. Customers can also recalibrate in 4-7 hours after colorants have been filled if they need. A scale with minimum accuracy of 0.001g and the colorant density are a must for recalibration.

-  Stir for 30 minutes after adding colorants, to remove bubbles.
-  When no continuous dispensing of colorants, please re-empty air or check if nozzle is blocked.

All the preparation steps are followed, the colorants could be dispensed after 4 hours.

7. Operation

The operations of how to search, dispense and modify the formula are explained in the software using manual. The operator can operate the machine according to the user manual. But normally, the operator should be got well trained to operate the dispenser better

-  The machine should be powered on all the time, there will be no action when emergency button is pressed.
-  The colorant volume in canister should not be lower than 0.5L.

7.1 Put the base paint can

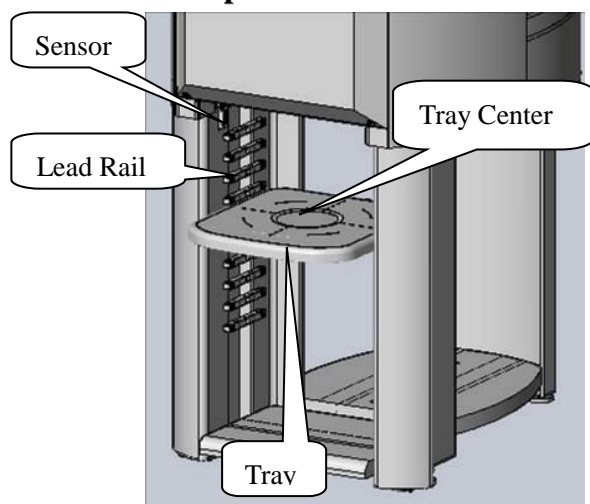


Fig.7.1.

- 1) Select a lead rail with proper height for the tray.
(The upper rim of the paint can shall be higher than the sensor.) Insert the tray inside the rail till the bottom.
- 2) Open the lid of the base paint can.
- 3) Locate the base paint can in the center of the tray.
- 4) Start dispensing

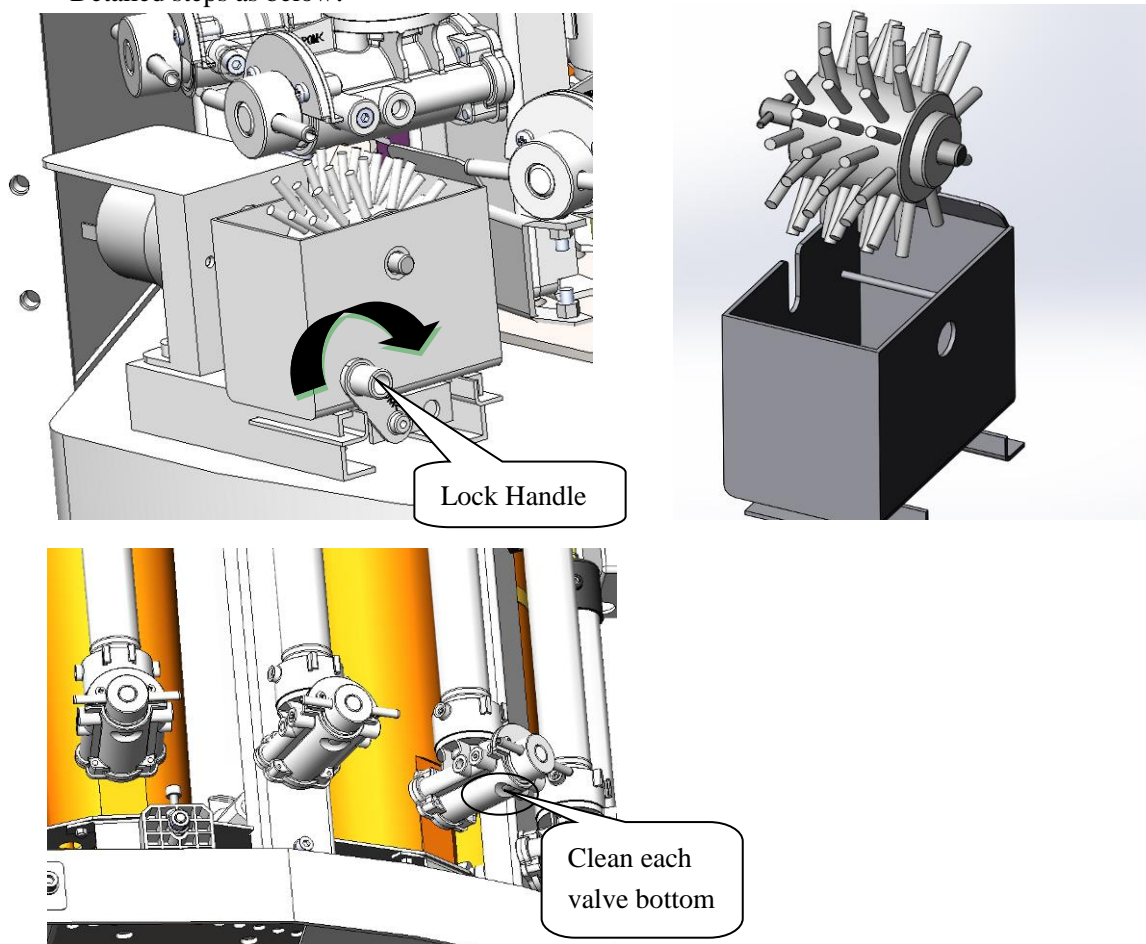
7.2 Three types of built-in cleaning box for clients' choice

A. Cleaning of the type A built-in cleaning box

The cleaning box is build-in. The daily maintenance and periodically maintenance shall be implemented by following the reminders from the dispensing software.

The hairbrush shall be used in the following manners to ensure the cleaning effects;

Detailed steps as below:



- 1) Lift the locking handle to loose the cleaning box.
- 2) Hold the box handle, take it out.;
- 3) You may clean the brush wheel and the cleaning box separately. Clean each valve bottom thoroughly.
- 4) Put the cleaning box back, please make sure it is in bottom position, and push down lock handle

B. Cleaning of the type B built-in cleaning box.

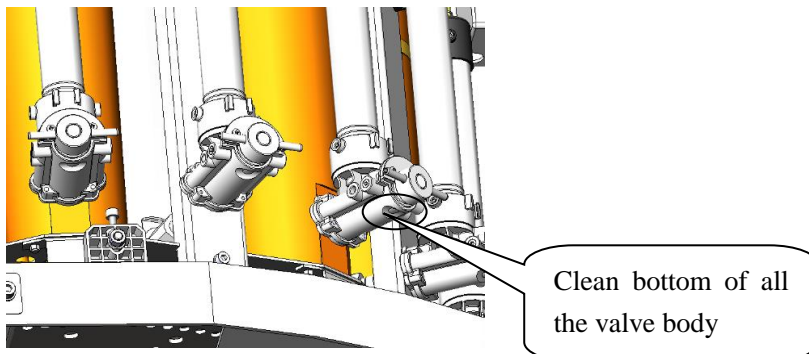
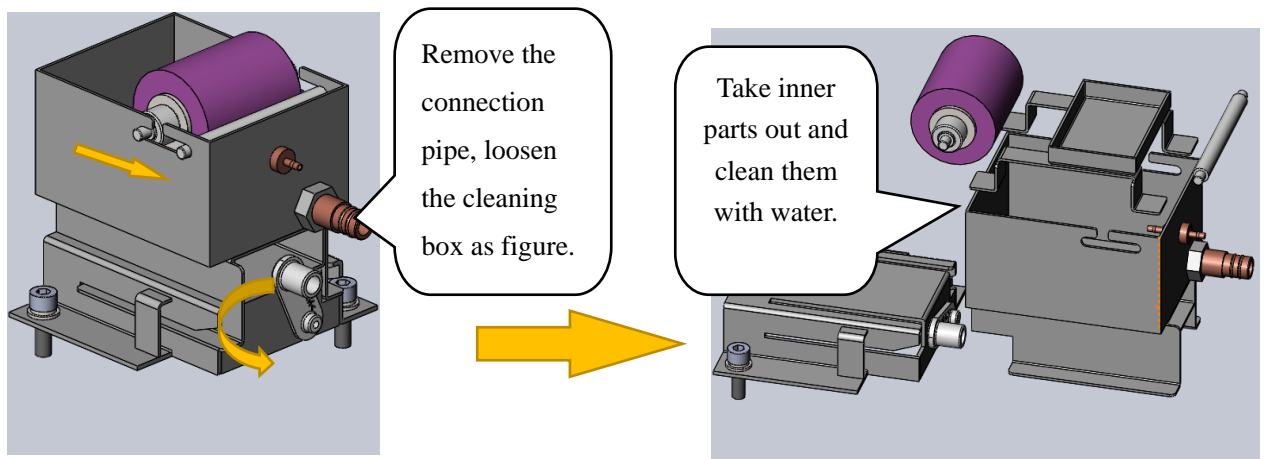
1. Cleaning of the cleaning box

The cleaning box is built-in. The daily maintenance and periodically maintenance shall be implemented according to the dispensing software reminders.

Please follow these steps to clean the cleaning box to ensure the cleaning effects.

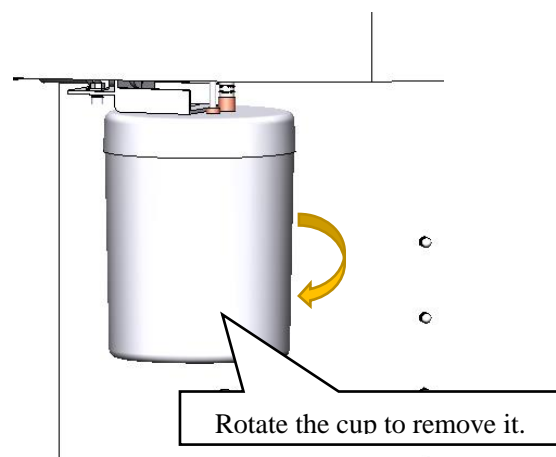
Detailed steps as below:

- 1) Remove the connection pipe, lift the locking handle as figure to loosen the cleaning box.
- 2) Pull the cleaning box out as below figure.
- 3) Take the sponge brush and other parts out and clean them with water.
- 4) Put back of the sponge brush and other parts in proper order.
- 5) Put the cleaning box back, turn the locking handle to press the cleaning, install the water pipe.



2. Clean the cup

- 1) Remove the cup as figure
- 2) Pour out the sewage, clean the cup and refill
- 3) 80%-90% fresh water of the cup capacity.
- 4) Put the cup back and screw it down.



C. Cleaning of the type C built-in cleaning box.

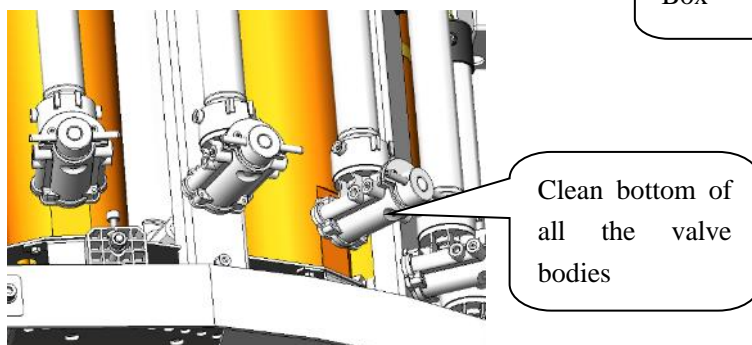
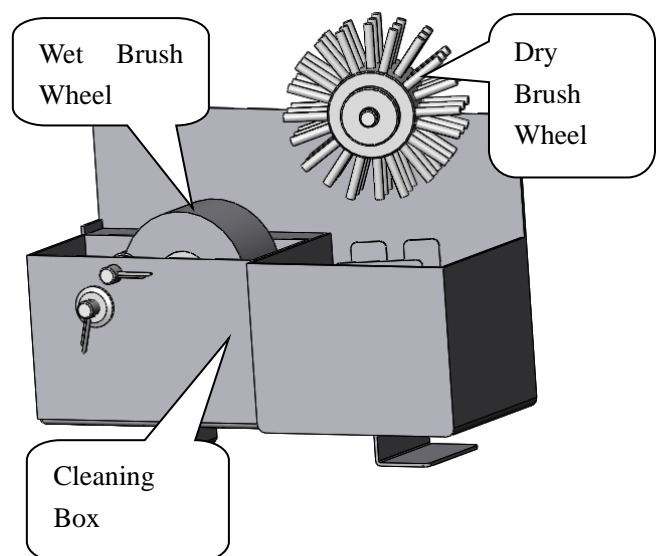
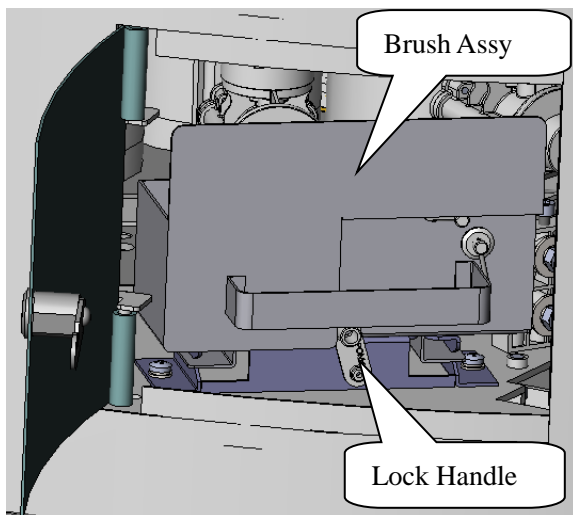
The cleaning box is built-in. The daily maintenance and periodically maintenance shall be implemented

according to the dispensing software reminders.

No need to add water to the dry brush container. Add some water to the wet brush container (Do not exceed the cleaning wheel shaft). The clean shall be done by following manners to ensure the cleaning effects.

Detailed steps as below:

- 1) Open the side door of the left front of the dispenser then turn the lock handle clockwise to loose the cleaning box;
- 2) Pull the cleaning box out;
- 3) You may clean the brush wheel and the cleaning box separately. Rotate the wet brush for a better clean of the cleaning box. Clean each valve bottom thoroughly.
- 4) Put the cleaning box back and push down lock handle. Lock the side door.



8. Maintenance

Routine maintenance is needed to ensure that the machine remains in good working condition and has a long service life. Maintenance and any repairs should only be carried out by qualified personnel.

8.1 Daily Maintenance

- Add colorant in time when software shows low colorant warning
- If the colorant in the canister is too little, less than 0.5L, which will affect the accuracy of the dispensing. Then cover the canister lid
- Keep machine power on; even it is not used.

8.2 Periodical Maintenance

Do the following maintenance every 1-6 months:

- Check stirring paddle inside each canister, see whether it works; if not, repair.
- Lubricate screw and guiding rod in every six months
- If the machine has not been used over one week, it shall be powered on and recirculate it automatically before usage.;

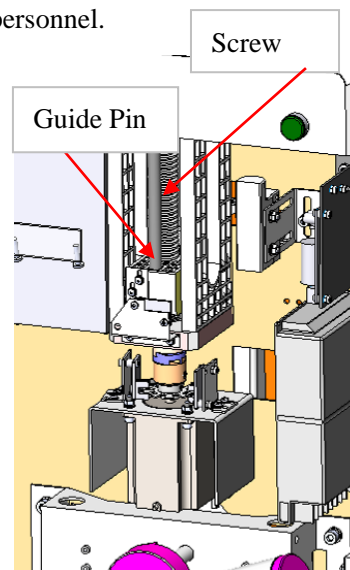


Fig8.2.1

9. Replacing Spare Parte

1) Replacing Outer Canister:

Loose the three screws which fix the canister on the turntable using screwdriver, and then drive the canister anticlockwise to take off the canister.

2) Replacing Inner Canister:

- If you want to replace the inner canister, you will take off the outer canister first.
- Remove the screw on the bracket to fix the canister, pull out the bracket for 10mm. Pay attention to not to pull out the bracket too much to avoid the colorant leaking off the canister.
- Rotate the canister anticlockwise, the canister can be taken off the turntable

10. Circuit Diagram

11. Troubleshooting

Issue	Cause	Solution
Mixing motor doesn't work.	1. Unconnected power supply. 2. Broken fuse. 3. Motor wiring falls off. 4. Broken motor.	1. Connect the power supply. 2. Change the fuse. 3. Open the lower side door to connect it. 4. Change the motor.
Intermittent outpouring of colorants.	1. Air bubble in the cylinder. 2. Insufficient colorants. 3. Sedimentation blockage.	Reference "Preparation prior to operation". Add colorants. Clean "Canister Units" and accessories.
Loose canister on the rotary plate.	Unfastened screw.	Fasten it.
No outpoured colorants.	Nozzle blocked. Valve motor in trouble. Valve handle doesn't work.	Clean it. Change the valve motor structure. Change the position of the valve motor and the handle.
Piston blocked.	Dry colorants in the cylinder. Resistance between the guide screw and guide pin. Unfastened screw.	Empty it and clean the canister and cylinder. Lubricate the guide screw and the guide pin. Fasten it.
Noisy stepper motor.	Abnormal voltage. Resistance between the guide screw and guide pin. Unfastened screw.	Check the power supply voltage. Lubricate them. Fasten it.
Colorants leakage from the nozzle.	Sealing ring is broken.	Change it.
LCD shows "Emergency Stop Switch Unreleased"	1. It is not released.	Release it.
	2. Broken emergency stop switch or the wire is broken.	Change the switch or connect the wire.
LCD shows "Door Unclosed"	1. The door is not closed properly.	Close it properly.

Issue Code	Cause	Solution
E11	Emergency stop switch is unreleased.	Release it.
E12	Top cover is not closed. Top cover sensitive switch is broken.	Close it. Change it.
E18	Base paint can is not located. The base paint can is too far away from the sensor. Base paint can sensor is broken.	Locate it. Make them nearer. Adjust it or change it.
E31	Valve motor is broken. Valve motor driver is broken. Right valve sensor is too far away. Right valve sensor is broken.	Change it. Change the driver circuit board. Make it nearer. Change it.
E32	Step motor is broken. Step motor driver is broken. Lifting block sensor is too far away. Lifting block sensor is broken.	Change it. Change it. Make it nearer. Change it.
E35	Rotary plate motor is broken. Rotary plate motor driver is broken. Can coder sensor in trouble.	Change it. Change the driver circuit board. Change it.
E36	Magnet is not in the proper location. Can coder is broken.	Locate it properly. Change it.
E38	Pump is lifted. Pump sensitive switch is broken.	Reset it. Change it.
E39	The plate is rotated when the step motor or valve is not reset.	Check the valve and the sensor.
E41	Valve motor is broken. Valve motor sensor is broken. Left valve sensor is too far away. Left valve sensor is broken.	Change it. Change the driver circuit board. Make it nearer. Change it.

Contact the supplier with the model and serial number for other issue(s)

ZHENGZHOU SANHUA TECHNOLOGY & INDUSTRY CO., LTD.

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