

OPERATING MANUAL



GLASSWARE WASHER

BGLW-101 BGLW-102 BGLW-103



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1. Safety Guides

- 1. Electrical Safety Guides
- 1.1 A separate power source with circuit breaker must be used.
- 1.2 The power source must be grounded.
- 1.3 It is prohibited to extend, stretch, tie or stress the power cord. And the power cord should not be dangerously bended or folded.
- 1.4 The machine must be powered off before any repair or maintenance. Also, please wait till the pipes have cooled down for any further action.
- 1.5 The machine must be powered off with the power cord well placed, if the machine will not be used for a long time.
- 2. Operation Safety Guides
- 2.1 The machine has electronic lock, and for safety reason, to avoid any human injury by hot water or hot air, DO NOT try to open the door during its running. For emergency, please press the button "Emergency Stop" (if applicable) or cut-off the power supply at first, wait until the water or air temp reaches its safety level for further actions.
- 2.2 During the machine running, click "Force to Quit" to stop washing.
- 2.3 During normal operation, if abnormal sound or smell is found, please stop the machine right away for inspection or contact the seller for warranty service.
- 2.4 During normal operation, if the machine stops working suddenly, please do inspection right away or contact the seller for warranty service.

2. Summary

2.1 Application

This machine is a fully automatic machine for washing, disinfecting and drying, which is suitable for pharmaceutical companies, research institutions, universities, food factories, testing organizations customers to wash the regular glassware, such as test tubes, flasks, beakers,

2.2 Technical Specifications

Model	BGLW-101	BGLW-102		BGLW-103	
External Dim. (WxDxHmm)	980*740*87 0	690*790*1820		0 690*790*1970	
Internal Dim. (WxDxHmm)	600*629*46 5	600*629*690		600*629*820	
Washing Chamber Dim. (WxDxHmm)	570*600*42 0	570*600*600		570*60	0*760
Input Voltage	220/50	220/50	380/50	220/50	380/50

Water Heating Power	5kw	5kw	15kw	5kw	15kw
Circulating Pump Power	0.75kw	0.75kw		1.5kw	
Drying Fan Power	0.25kw	0.75kw		0.75kw	
Drying Power	2.1kw	3.6kw		3.6kw	
Overall Power Consumption	6kw	6kw	17kw	17kw	
Water Inlet Pressure	0.3~0.8Mpa				

Table 1

3. Installation

3.1 Conditions

Environment	Temperature: 5°C~35°C; Humidity: ≤85%; Barometric pressure: 80 kPa~106 kPa; Note: Do not use the machine in a dusty, dirty, vibrating or outdoor place
Placement	The machine should be placed within the range of 2 meters from power source and water source.
Power Supply	A separate circuit breaker or control switch should be used, and the machine should be well grounded. Power source should be 80cm higher than ground level.
Water Supply	Water inlet pressure: 0.3~0.8Mpa Pure water and tap water Power source should be 80cm higher than ground level.
Draining	The ID of drain outlet should be bigger than 55mm and 5cm at max high than ground level.
Ground	Flat floor and height difference within 1m^2 areas should be less than 5mm. The floor bearing should be heavier than $1T/\text{m}^2$.

Table 2

3.2 Placement

- 1) Dismount outer package, according to the packing list, make sure if the accessories are complete and are in good condition.
- 2) Place the machine to the installing spot, adjust the leveling feet to make sure it is at horizontal position.

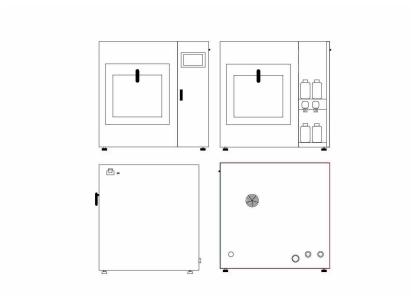
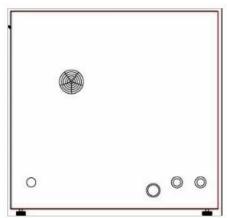


Figure 1

3.3 Installation

3.3.1 Structure View



BGLW-101



BGLW-102/BGLW-103

- 1. Power Cord
- 2. Draining outlet
- 3. Pure Water Inlet
- 4. Tap Water Inlet

3.3.2 Power Supply



The electrical installation must be implemented by professional engineers.

A separate power source with circuit breaker must be used.

The power source must be well grounded.

Please make sure the power cord is tightly connected.

Table 3

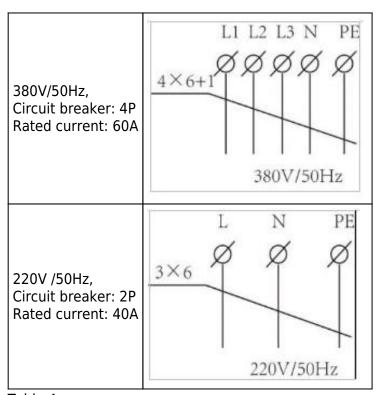


Table 4
3.3.3 Water Supply

Pure Water Inlet

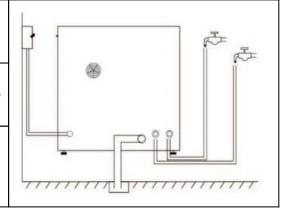
Connect the G3/4 screwed conduit to the pure water inlet on the machine and the other end to the pure water faucet.

Tap Water Inlet

Connect the G3/4 screwed conduit to the tap water inlet on the machine and the other end to the tap water faucet.

Draining

Tightly clamp the drain pipe(ϕ 25mm), and connect to the floor drain (the floor drain position must be lower than the machine outfall).



After finishing the connections of water supply, please turn on the water faucets to make sure no water leakage at each joint.

4. Operation Guides

4.1 Structure View

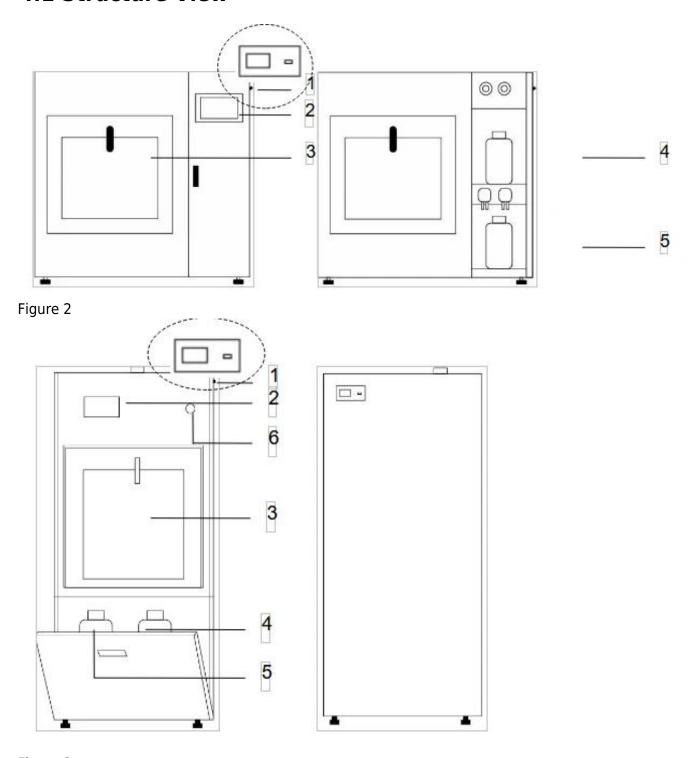


Figure 3

- 1. Power Switch, USB Interface; 2. LCD Touch Screen Controller; 3. Watch Window;
- 4. Detergent Container; 5. Neutralizer Container; 6. Emergency Stop Button

4.2 Load the washing rack

4.2.1 Washing rack installation

Step1

Pull out the slide rails on maximum position

Step2

Place the washing rack on the slid rails and contact the port in below picture

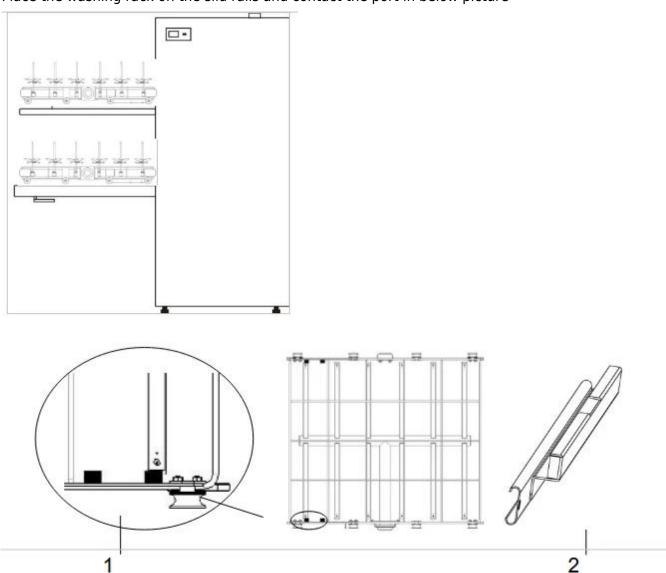


Figure 4 4.2.2 Ware washing loading height Max. height of flask or bottle reference table:

_ · J · · · · · · · · · · · · · · · · ·					
Model	BGLW-101	BGLW-102	BGLW-103		
Washing rack(Layer)	1	2	3		
Up layer height(mm)	/	245	225		
Middle layer height(mm)	/		225		
Bottom layer height(mm)	345	235	115		

Table 5

4.3 Operation

4.3.1 Preparation

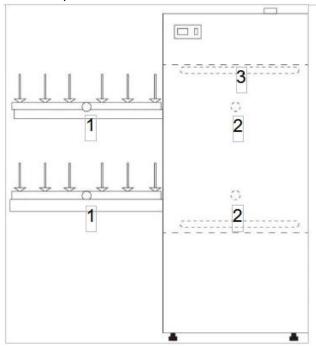


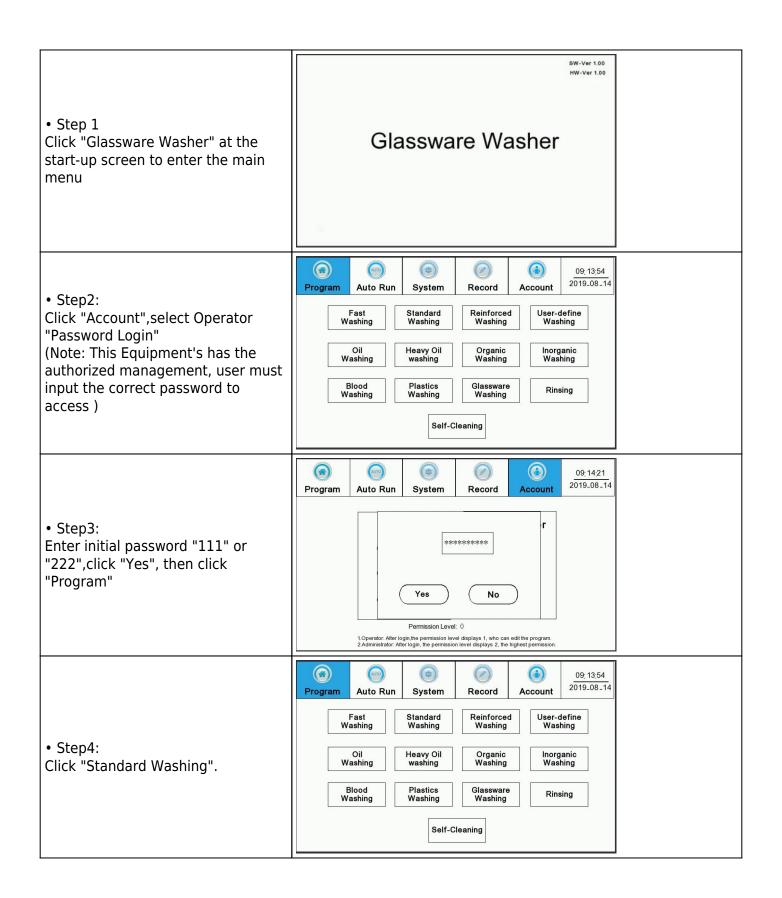
Figure 5

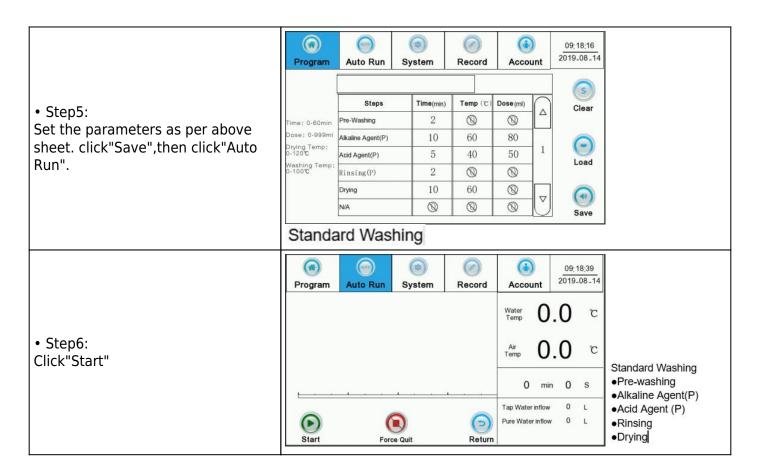
- 1) Turn on the water supply faucet and power supply
- 2) Turn on the power switch, and the start-up menu will be entered.
- 3) Load the items onto the washing rack, and close the door clockwise in 90 degrees.
- Make sure when put the rack back into the machine, the water inlet on the rack should be at your right side as shown in above No.1.
- Make sure the inlet No.1 on the rack to match up with the inlet No.2 shown above inside the chamber, when putting the rack back into the machine.
- The loaded items cannot be contacted with the spray arm No.3 as shown above at the top inside the chamber.
- The diameter of the loaded items must be less than the distance between two spray columns, in order to avoid any broken during washing.
- 4.3.2 Washing Program Selection

Users can select the washing program, which is pre-set or user-defined, according to their specific requirements. Some of the parameters setting are listed below,

1) Pre-set Program

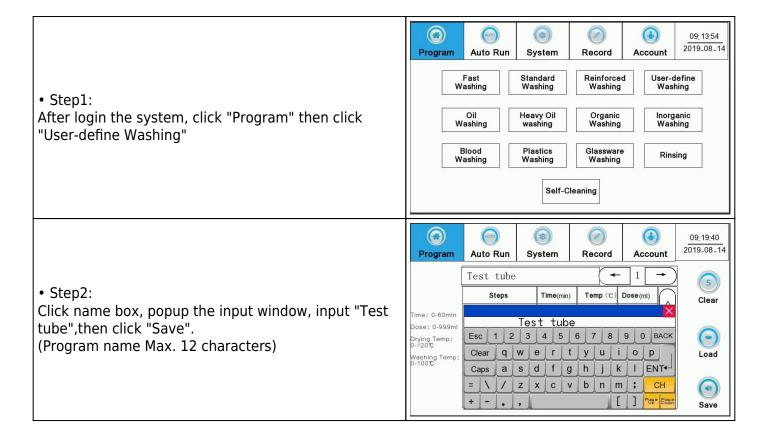
Take the Default washing program as an example,





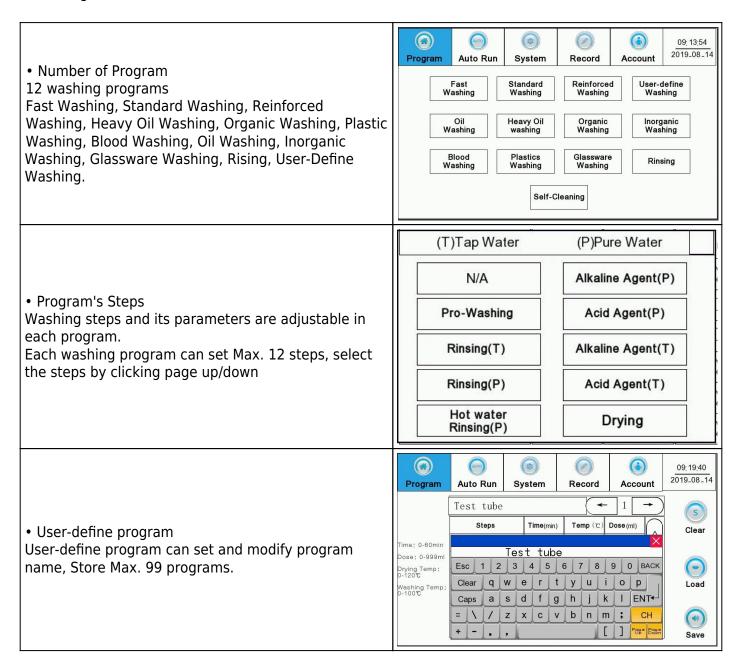
2) User-define Washing

User-define Washing can set the program name, store Max.99 programs



4.4 Operation system

4.4.1 Programs



Steps Description

	(T)Tap Water	(P)Pure Water		
	N/A	Alkaline Agent(P)		
	Pro-Washing	Acid Agent(P)		
	Rinsing(T)	Alkaline Agent(T)		
	Rinsing(P)	Acid Agent(T)	4	
	Hot water Rinsing(P)	Drying		
No.	Name	Notes		
1	N/A	Not applicable		
2	Pre-washing	Washing by tap water (as default)		
3	Rinsing (P)	Select to rinse by pure water		
4	Rinsing (T)	Select to rinse by ta	p water	
5	Hot Water Rinsing (P)	Select to disinfect b	y hot pure water	
6	Alkaline Agent (P)	Select to wash by pure water with detergent added		
7	Acid Agent (P)	Select to wash by pure water with neutralizer added		
8	Alkaline Agent (T)	Select to wash by tap water with detergent added		
9	Acid Agent (T)	Select to wash by tap water with neutralizer added		
10	Drying	Select to dry by the	hot air through HEPA filter	

Notes: P means Pure water, T means Tap water. Pre-washing is default by Tap water. 4.4.2 Auto-Run Screen

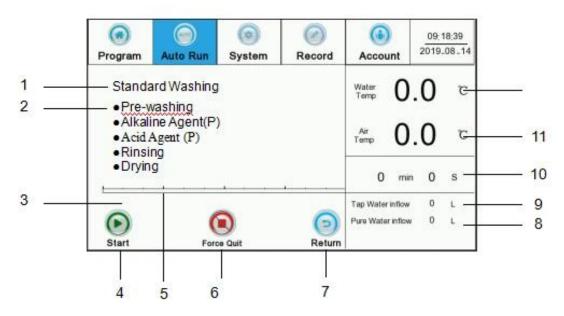


Figure 6

No.	Item	Introduction
1	Program name	Display the program name
2	Program step	Display all washing steps
3	Equipment status	Display equipment status, alarm information is displayed here
4	Start	Program start button. When the program starts, this button is locked and can not click again.
5	Time progress bar	Real-time display the program runs time schedule
6	Force Quit	Stop the running program
7	Return	Return to the program selection interface
8	Pure water inflow	Real-time display pure water inflow volume in current program step.
9	Tap water Inflow	Real-time display pure water inflow volume in current program step
10	Time	Cumulative run time
11	Air Temperature	Real-time display drying temperature
12	Water temperature	Real-time display washing temperature

Table 6

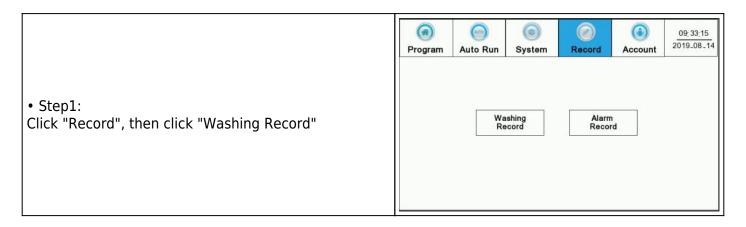
4.4.3 System

System parameters includes parameters setting, manual test and adjust (date, Dos, temperature. (note: System function is mainly for service engineer to debugging and maintenance.)



4.4.4 Record

1) Washing Record





- 1) View record, select the record " click the "check chosen"
- 2) Record output"

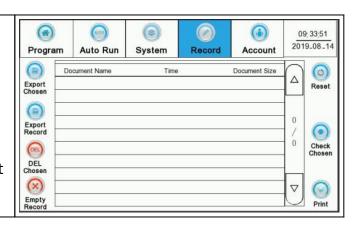
Insert the U disk, click "export chosen"

3) record print:

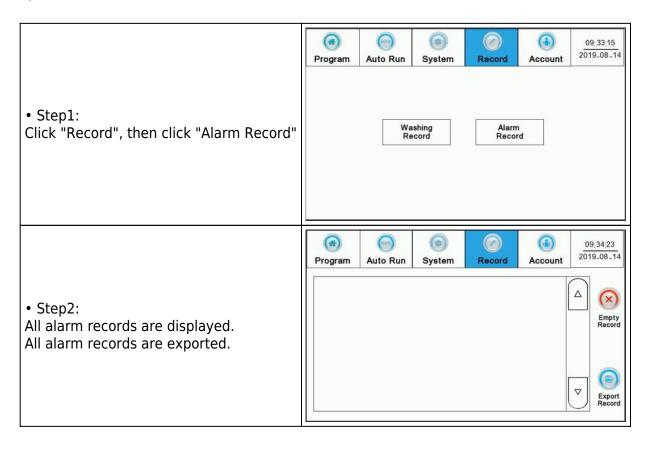
Choose the one record, click "Print"

(Note: Only insert the U disk, it can display the export

record.)



2)Alarm record



4.4.5 Account

1) Code Management

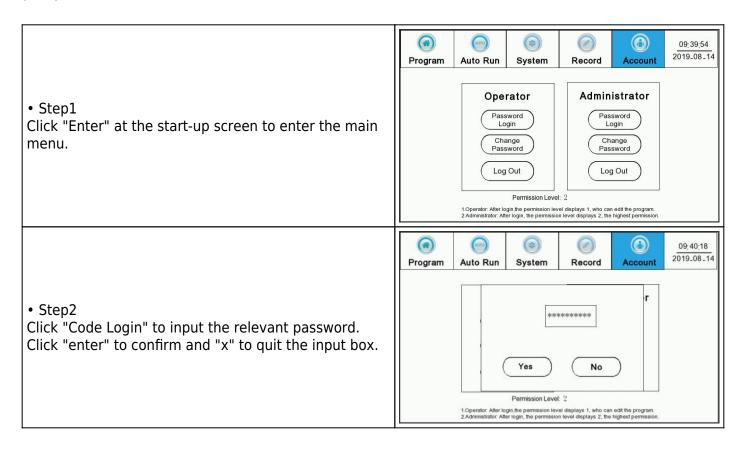
Code Level	Initial Passwords	Limits of Authority
Level 1	N/A	Select and start program, can not change parameters Check, export and print the washing records, can not delete the records check alarm record, can not delete the record
Level 2	111	can do level 1 change washing program parameters
Level 3	222	All can do.

Table 7

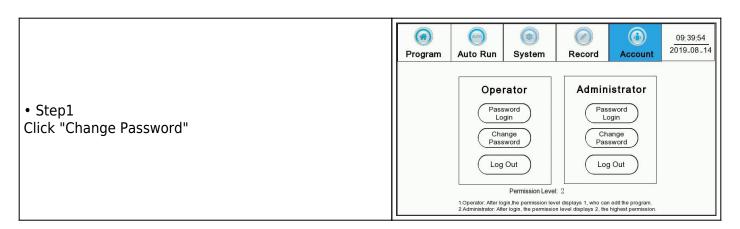
Note: Logging by the high priority password can change the other two levels passwords.

2) Password Logging

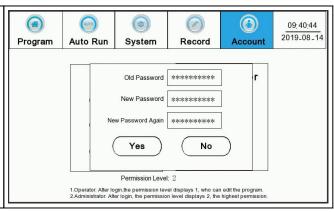
To access different levels of control, the passwords with different levels of priority should be used to login at first.



3) Password Change



• Step2
Click "Code Login" to input the high priority password.
Click "enter" to confirm and "x" to quit the input box.



Memory Function

The machine has a memory function if its power supply is cut off but gets recovered within 15 minutes. The machine will enter its Auto-Run screen, and click "Start" to start washing according to the step as it was running before the power was cut off.

4.5 Loading Instruction

Model		BGLW-10 1	BGLW-10 2	BGLW-10
	Single Level (mm)	345	525	685
Effective	Upper Level (mm)	*	245	110
Height	Middle Level (mm)	*		235
	Lower Level (mm)	*	235	235
Effective Capacity (L)		120	220	320
Washing Level		1	2	3

Table 8

4.6 Liquid Agent Adding

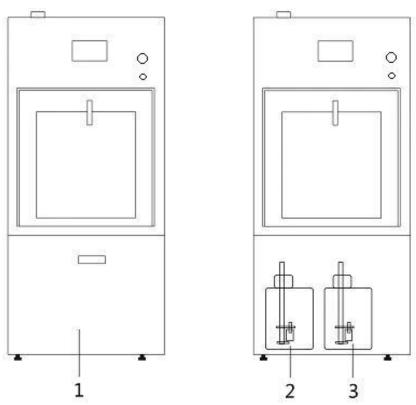


Figure 7

9	· · · · · · · · · · · · · · · · · · ·	
No.	Description	Notes
1	Area to place liquid agents	Open the lower secondary door to access
2	Detergent container	DO NOT place the two barrels in a wrong position.
3	Neutralizer container	DO NOT place the two barrels in a wrong position.

Table 9

There will be indication message shown on the screen when the liquid agents are in short supply. So, please add the agents accordingly as per the following steps,

- 1) Open the secondary door, screw off the cap of the agent barrel, and take out the barrel.
- 2) Add the liquid agent into the relevant barrel and put the barrel back into its original position with its cap tightly screwed on.
- 3) After adding the agents, indication message on the screen will be disappeared.

5. Maintenance

5.1 Regular Maintenance

The maintenance period depends on the using frequency and components physical lifespan. The maintenance periods of the components are as following.

Parts	Annual Check	Replaced if needed	Annual Replace	Replaced every two years	Checked if needed
Filter net inside the washing chamber					•
Water over-heated protective switch	•				
Drying-box protective switch	•				
HEPA filter	•				
Emergency stop button					•
Filter net of water inlet valve					•
Plastics of spray arm	•				
Additives hoses	•			•	
All water pipes	•				

Table 10

5.2 Functions Inspection

Verification Contents	Annual Check	Replaced if needed
Check if power switch runs in order, make sure the power cord is in good condition.	•	
Check if water heating pipe, fan, dry heating pipe, circulation pump, drainage pump, metering pump, liquid leveling sensor, position switch and water inlet valve runs in order.	•	
Check if all the electric elements in the control box are working properly in good condition.	•	

Table 11

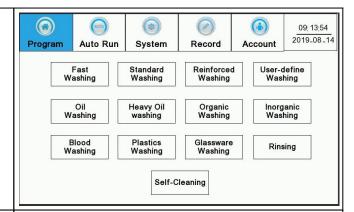
5.3 System Clean-up

5.3.1 Circulating System Cleaning

To clean the circulating system, the self-clean program can be used.



Click "Self-clean" at the main menu.



Step2

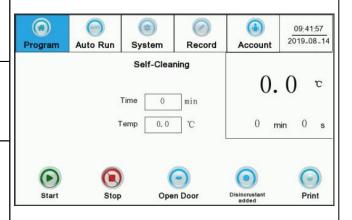
Set the time as 30min. Click "Start" and the water will be filled automatically into the washer (the machine will not be started to run at this moment).

• Step3

Click "Door Open" to open the door manually and add disincrustant into the washing cabinet, and then close the door.

Step4

Click "Finish Adding Disincrustant". At this point, the washer will start to run for cleaning and water drainage will be done automatically once the process is completed.



5.3.2 Rack Cleaning

Take the washing rack#CWIR222 as an example,

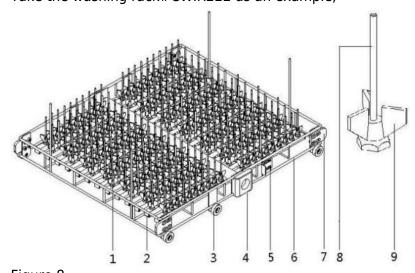


Figure 8
1) Parts on the rack

No.	Parts	No.	Parts
1	Distributive Pipe	2	End Cap
3	Nylon Wheel	4	Water Inlet Joint
5	Side Board	6	Frame
7	Stop Block	8	Spray Column
9	Bracket	*	*

Table 12

2) How to clean

Issues	Cleaning Methods
	1) Use screwdriver to unscrew the screws in the position#2 and take off the end cap. Clean the distributive pipes by hairbrush. 2) Get the taken-off parts assembled back.
Spray Column Block	Take off the spray column by wrench and clean it by wire rod from top to bottom.

Table 13

5.4 Worn Parts Replacement

- 5.4.1 Additives Hose Replacement
- 1) Take off the clips at the No.8, and replace the suction hose between the additives barrels and metering pump.
- 2) Take off the clips at the No.5, and replace the injection hose between the metering pump and washing chamber.
- 3) Assemble the clips back after replacing the hoses.

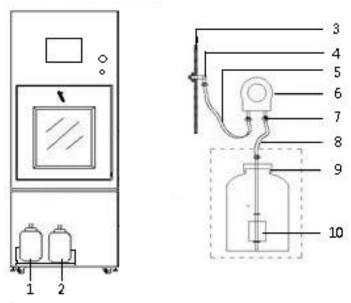


Figure 9

No.	Parts	No.	Parts
1	Detergent Barrel	2	Neutralizer Barrel
3	Side Wall of Washing Chamber	4	Stainless Steel Fixer

5	Injection Hose	6	Peristaltic Pump
7	Plastic Clip	8	Suction Hose
9	Seal Cap	10	Liquid Level Switch

5.4.2 HEPA Filter Replacement

- 1) Open the left side panel of the machine to find out the location of HEPA filter.
- 2) Separate the filter carrying box with the intake air pipe as shown below, take out the filter inside the box and change to a new one.
- 3) Get the filter carrying box back to its original location, connecting to the blast pipe.

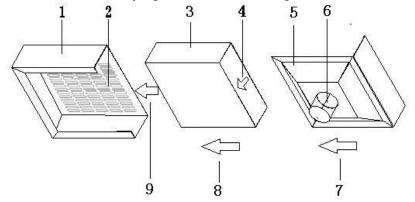


Figure 10

No.	Parts	Notes
1	Carrying Box	To carry the HEPA filter inside
2	Vent Hole	Where the air go through
3	HEPA Filter	Filtering efficiency 99.99%(assembled as show above)
4	Direction Sign	Assembling must be complied with this sign of intake air.
5	Guard Board	To protect the filter inside
6	Air Outlet	Connect to the fan (φ50mm)
7	Direction Sign	Assembling directions (8/9)

5.5 Trouble Shooting

5.5.1 General Failures

In case of failure, the warning will be shown on the display and explained as below,

No	Warning on Display	Possible Reasons	Actions to Take
1	Door open	Door opened or signal switch broken	Close the door or ask for warranty service
2	Detergent shortage	Detergent used out or leveling switch broken	Add detergent or ask for warranty service
3	Neutralizer shortage	Neutralizer used out or leveling switch broken	Add neutralizer or ask for warranty service

4	Malfunction on water heating	Water heating pipe or temp controller broken	Ask for warranty service
5	Malfunction on air heating	Air heating pipe or temp controller broken	Ask for warranty service
6	Malfunction on pure water inlet	Pure water inlet valve blocked or broken	Clean the valve or replace the parts
7	Malfunction on tap water inlet	Tap water inlet valve blocked or broken	Clean the valve or replace the parts
8	Malfunction on draining	Draining delay: draining pipe or floor drain is blocked; Draining pump or draining solenoid blocked or broken	Clean the pipe or floor drain; Replace the parts;

Table 14

5.5.2 Others

Malfunctions	Possible Reasons	Actions to take
The washer does not work	 No power supply Main power switch is not turned on. Emergency stop button is not got re-set. 	1) Check out the power cord and power source 2) Turn on the power switch 3) Re-set the emergency stop button
Bad washing effects	1) Washing pipes are blocked 2) Improper placement of washed items 3) No detergent or neutralizer added 4) Filter net in the chamber is blocked.	1) Clean spray arm, spray column and water pipelines on the rack 2) Load the items as per the instruction 3) Use the suggested washing detergent/neutralizer 4) Clean the filter net before use.

Table 15

Appendix

1. Washing Parameters of Pre-set Programs

1) Setting Range

Name	Uni t	Set Range	Remark				
Dispensing	ml	0~999	Add 100ml every 60 seconds				
Time	mi n	0~60	*				
Washing Temp	°C	0~100	*				

Drying Temp	°C	0~120	*
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2) Program

Program name	Step	Step Description	Temp (°C)	Time (min)	Water Supply	Dispensing Vol.(ml)
	1	Alkaline Agent(P)	60	10	Tap Water	80
Fact Washing	2	Acid Agent(P)	50	5	Pure Water	50
Fast Washing	3	Rinsing	RT	2	Pure Water	RT
	4	Drying	60	10	RT	RT
	1	Pre-washing	RT	2	Tap Water	RT
	2	Pre-washing	RT	2	Tap Water	RT
	3	Alkaline Agent(P)	60	10	Pure Water	80
	4	Alkaline Agent(P)	50	5	Pure Water	50
User defined Washing	5	Acid Agent(P)	60	10	Pure Water	80
User-defined Washing	6	Acid Agent(P)	50	5	Pure Water	50
	7	Rinsing	RT	2	Pure Water	RT
	8	Rinsing	RT	2	Pure Water	RT
	9	Rinsing	RT	2	Pure Water	RT
	10	Drying	60	10	RT	RT
	1	Pre-washing	RT	2	Tap Water	RT
	2	Alkaline Agent(P)	60	10	Tap Water	80
Oil Washing	3	Acid Agent(P)	50	5	Pure Water	50
Oil Washing	4	Rinsing	RT	2	Pure Water	RT
	5	Rinsing	RT	2	Pure Water	RT
	6	Drying	60	10	RT	RT
	1	Pre-washing	RT	2	Tap Water	RT
	2	Alkaline Agent(P)	70	10	Pure Water	100
	3	Alkaline Agent(P)	60	5	Pure Water	80
Reinforced Washing	4	Acid Agent(P)	70	10	Pure Water	80
	5	Acid Agent(P)	50	5	Pure Water	50
	6	Rinsing	RT	2	Pure Water	RT
	7	Drying	60	10	RT	RT

	1	Hot Rinsing	60	2	Pure Water	RT
	2	Alkaline Agent(P)	70	10	Tap Water	80
	3	Acid Agent(P)	50	5	Tap Water	50
Organic Washing	4	Hot Rinsing	60	2	Pure Water	RT
	5	Hot Rinsing	60	2	Pure Water	RT
	6	Rinsing	RT	2	Pure Water	RT
	7	Drying	60	10	RT	RT
	1	Acid Agent(P)	50	5	Tap Water	50
	2	Alkaline Agent(P)	60	10	Tap Water	80
	3	Acid Agent(P)	50	5	Tap Water	50
Inorganic Washing	4	Rinsing	RT	2	Pure Water	RT
	5	Rinsing	RT	2	Pure Water	RT
	6	Rinsing	RT	2	Pure Water	RT
	7	Drying	60	30	RT	RT
	1	Pre-washing	RT	2	Tap Water	RT
	2	Alkaline Agent(P)	60	10	Pure Water	80
Standard Washing	3	Acid Agent(P)	50	5	Pure Water	50
	4	Rinsing	RT	2	Pure Water	RT
	5	Drying	60	10	RT	RT
	1	Pre-washing	RT	2	Tap Water	RT
	2	Alkaline Agent(P)	60	10	Pure Water	80
	3	Acid Agent(P)	50	5	Pure Water	50
Plastic Washing	4	Rinsing	RT	2	Pure Water	RT
	5	Rinsing	RT	2	Pure Water	RT
	6	Rinsing	RT	2	Pure Water	RT
	7	Drying	60	10	RT	RT
	1	Alkaline Agent(P)	60	10	Pure Water	80
	2	Alkaline Agent(P)	60	10	Pure Water	80
	3	Acid Agent(P)	50	5	Pure Water	50
Glass Washing	4	Rinsing	RT	2	Pure Water	RT
	5	Rinsing	RT	2	Pure Water	RT
	6	Rinsing	RT	2	Pure Water	RT
	7	Drying	60	10	RT	RT

	1	Alkaline Agent(P)	70	10	Pure Water	80
Heavy-oil Washing	2	Alkaline Agent(P)	70	10	Pure Water	80
	3	Acid Agent(P)	50	5	Pure Water	50
	4	Rinsing	RT	2	Pure Water	RT
	5	Rinsing	RT	2	Pure Water	RT
	6	Rinsing	RT	2	Pure Water	RT
	7	Drying	60	10	RT	RT
Blood Washing	1	Pre-washing	RT	2	Tap Water	RT
	2	Alkaline Agent(P)	60	10	Pure Water	80
	3	Acid Agent(P)	50	5	Pure Water	50
	4	Rinsing	RT	2	Pure Water	RT
	5	Hot Rinsing	60	2	Pure Water	RT
	6	Drying	60	10	RT	RT
Rinsing	1	Rinsing	RT	3	Pure Water	RT
Kilisiliy	2	Drying	60	10	RT	RT

Note: if re-set the programs to be factory default, please click "Default"

2. Packing List

No	Items	Unit	Qt y	Note s
1	The Washer	Unit	1	
2	Washing Rack	Unit	*	
3	Water Inlet Pipe	Pc	2	
4	Draining Pipe	Pc	1	
5	Liquid Paraffin	Bottle	1	
6	Detergent	Barrel	1	
7	Neutralizer	Barrel	1	
9	User Manual	Ea	1	
10	Draining Pipe Clip	Рс	1	

3. Service Information

1) The User and Product Information

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Product	Model			
S/N	Buying Date			
User Name	Phone			
Address	Post Code			

2) Service Records

Date	Service Contents	Parts Replacement	Qty	Serviced By	The User Signature

Note: the above contents should be filled by the service technician and signed for confirmation by the user. Please keep this service record card carefully for a future use.



Biolab Scientific Ltd.