

Operation Manual Technical Manual





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All the images shall be subject to the real products. We will reserve the right of final interpretation.



Version Number: 2019-11-08



2. Specifications

Product Property:

A Cautions

Note: Temperature/Pressure here means the chamber temperature and pressure during the phase of sterilization. These value vary under different atmospheric pressure.

Power fuse	F12AL 250V
Water tank capacity	3.5L
Minimum water level	1.3L
Operation temperature	+5°C ~ +40°C
Relative humidity range	

The maximum wight of instruments which load into the sterilizer chamber during one cycle.

Unwrapped cycle 121℃	Unwrapped cycle 134℃	wrapped cycle 121℃	wrapped cycle 134°C
23L/18L: 6.5kg	23L/18L 6.5kg	23L/18L: 3.2/2.5kg	23L/18L; 3.2/2.5kg

Figures

Menu select

T Step select

Di

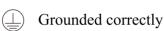
Distilled water only

Confirmation select

Water outlet

Dry select







Start/Stop select

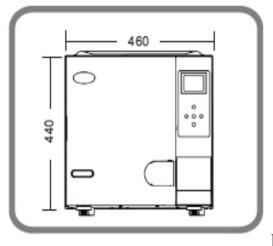
Refer to the operation manual

Tip:

Standard Atmospheric Pressure: It is atmospheric pressure at sea level.which means 1 Standard atmospheric pressure. The value is 0.1Mpa=1000Hpa=100Kpa. Atmospheric pressure decreases by higher altitude. An increase of altitude of 1000 mcters will result in a decrease of atmospheric pressure of 10Kpa if under 3 Km.

3.Installation

The Autoclave should be installed in a ventilated place allowing minimum of 10 cm space at all sides and 50 cm at the top. The ventilation openings at the side of the machine should not be blocked. The Autoclave should be placed on a leveled counter top as Fig 3-1.



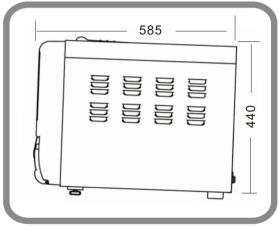


Fig 3-1

A Caution

If the front of the machine is lower than the back the control will display "E3" (E3 means it will not dry completely). Adjust the height by adjusting foot pad of the front of Autoclave. The front should be a little higher than the back.

Preparation before use

We settled the draining filter before the device leaving factory. (See fig 3-3). Water Draining filter needs to be cleaned once per month. For cleaning details, please see page 18:9.3 Water Draining filter cleaning.

Before using the device, you should make electrical connections by using the power cord that comes with the unit. Insert the hollowed end of the power cord in to the inlet of the machine and plug the other end on a power outlet. (See fig 3-5).

If you choose the effluent type steam sterilizer, you need to follow the steps shown below before starting up:

- 1.Put steam sterilizer in place, connect drain pipe to drain outlet. Use steel pipe clamp to fix drain pipe and drain outlet.(see fig 3-5)
- 2.Connect the attached external waste water tank to the drain pipe. Use steel pipe clamp to fix drain pipe. (See fig3-6)
- 3.Put external waste water tank on the floor or hang in place, like wall.

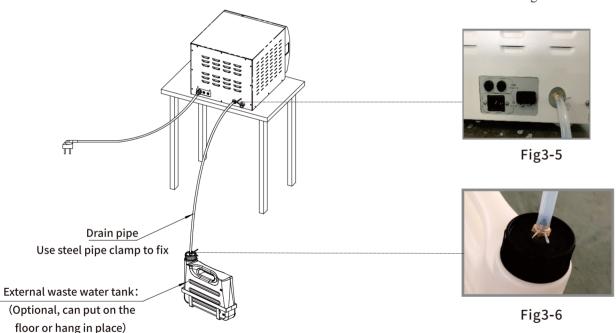




Fig3-3



Fig3-4





The power supply must be able to afford (23L) 2300VA or (18L) 1800VA.

Tips: Before starting the Autoclave, please check on the local atmospheric pressure. If the pressure is lower than 0.095 Mpa or the Altitude is higher than 500 meters, you will need to contact your distributor who should reconfigure the controller in the device.

4. Control Panel

1.LCD Screen (Figure 4-1)

Letter row 1: Working state: show temperature and pressure data Menu state: show menu row or page layout name Ready to work state: show sterilizer cycle name

Letter row 2: Working state: show pressure curve
Menu state: show menu row
Ready to work state: show selected cycle parameter

Letter row 3: Working state: show pressure curve
Menu state: show menu row
Ready to work state: show selected cycle parameter

Letter row 4: Show help information

2.Menu/ C key

Menu/cancel key. In standby, press this key to go to the menu, and press again to exit. There are 7 Selections of cycle, displayed in 3 pages. Choose the right one by pressing STEP▲and DRY▼ keys.

Universal B cycle: 134°C, three times pre-vacuum, 4 minsterilization.

18min B cycle: 134°C, three times pre-vacuum, 18 minsterilization, for instruments that need long time sterilization.

Unwrapped cycle: 134°C, one time pre-vacuum, 4 minsterilization.

Rubber and plastic cycle: 121°C, three times pre-vacuum, 16 minsterilization.

B&D test cycle: BOWIE & DICK, steam penetration test.

Vacuum test cycle: testing sealing performance in vacuum condition.

Cleaning steam generator: clean the steam generator and steam pipe, refer to page 20, 9.7 cleaning steam generator.

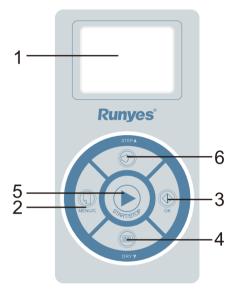


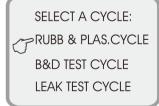
Fig4-1

SELECT A CYCLE:

UNIVERSIAL B CYCLE

18 MINUTES B CYCLE

UNWRAPPED CYCLE



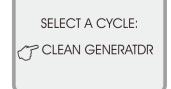


Fig4-2

3.OK key:

Ok key. Set and store parameters. Confirm the cycle chosen on the menu.

4.DRY ▼ key

Fast/Down key. This key is fast dry key when the machine is in standby, and it is down key when the machine is in menu status. You can use the fast dry key to choose the time of dry--1min/5min, in order to shorten cycle. The system has two different sets of dry time, and the default one is 10 min. If you need longer time, you can set on the machine. Refer to 8 System Setup.

5. START / STOP Key

START / STOP key will start sterilization cycle after selecting the sterilization program.

- 1. If you want to stop work during the pre-heating, pre-vacuum and sterilization period, press this key for 3s, and the system will directly go to the releasing period and then go to after 3min dry, the cycle will end. Press this key for another 3min, the system will skip all the processes and stop working.
- 2. If you want to stop it during the dry period and balance period, press this key for 3s and it will end the cycle.

6. STEP ▲ Key

Last cycle/ Up key. When the "MENU" is displayed, this key operates as an "Up" key. When selecting a cycle, pressing this key will switch between "Keeping Warm" and "Last Cycle". If the display reads "Keeping Warm" the chamber will keep warm after the cycle completes. This will reduce the heating time for the next cycle. If the display reads "Last Cycle" then the chamber will cool automatically when the cycle completes. (If no entry is made, the autoclave will enter "Last Cycle" automatically after one hour.)

A Caution

In case of faults, please contact your distributor or the manufacture immediately.

Small steam sterilizers

5.Operation

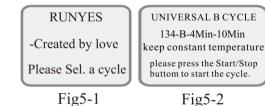
Please connect the power cord before you start the operation. Turn on the autoclave via the ON / OFF switch located behind the small door at the bottom right of the front of the machine. The power switch light turns on , indicating that electric power is connected.1 s later, it enters to work state after automatically examination . The screen will display as (Fig 5-1) shows.

V/N: V901-20100109-L Serial No:XX22L1001001 Cycle Time: 000000

Operation manual

5.1 Select cycle

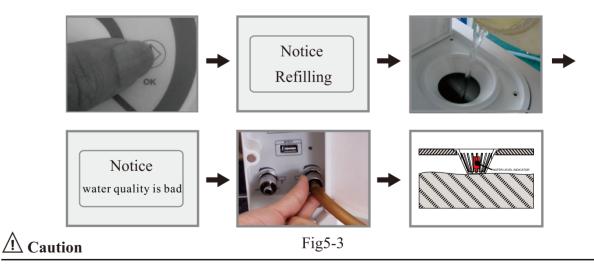
Press MENU/C key, and choose a right cycle in the menu. Press Ok key to start. Refer to figure 5-2.



5.2 Filling Water / Refilling

If the water level is lower than the minimum required, the display will show the refilling page layout (Fig 5-3) with alarm sounding. You should add water. Open the tank cover at the top of autoclave and remove the filler filter. Fill tank with distilled water to cover the red rod.

The water quality sensor installed in the machine will beep, if the quality of the water is not standard distilled water (electrical conductivity $\leq 20 \,\mu$ s/cm).



- 1. Distilled water will prolong the life of the autoclave.
- 2. Do not tilt the autoclave when there is water in the water reservoir.

The used water tank should be emptied frequently. You should empty the used water reservoir when the clean water reservoir is refilled via the used water outlet located below the ON/OFF switch.(page17,9.2)

6 Operation manual

5.3 Start Selected Cycle

Close the door after loading the autoclave and press START key to begin the cycle. After 0.5 seconds the electrical lock will engage. If the electrical lock did not close correctly the autoclave will display a door fault. The sterilization cycle will only start after the door is locked successfully (See fig 5-4). To abort a cycle during sterilization press the Start/Stop key for 3 seconds.

There are two different exit modes: 1. If you press the button for 3 seconds during Pre-heating Phase, Pre-vacuum Phase or Sterilization Phase it will enter into an Exhaust Phase. After 3 minutes drying the whole cycle will end. If you need to end the cycle immediately press the Start/Stop button for 3 seconds again. 2. Press the Start/Stop button for 3 seconds during drying Phase to end the cycle immediately. Refer to page 6.





Fig5-4



The instruments should be put on the instrument tray. Please leave some space between the instruments to make the air go freely. Please use the tray holder to take the tray out to avoid high temperature.

5.4 Cycle End

After sterilization the display will show as fig 5-5 and an alarm will sound. The door can now be opened and the sterilized instruments unloaded. If you decide to stop using the autoclave for a while, please turn the main power switch off, or unplug the power cord should you not want to use the machine for a long time.

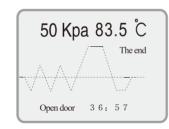


Fig5-5

A Caution

Never try to open the chamber door if and when the pressure display doesn't show 0.0. Please use testing paper to ensure the effect of sterilization.

It's normal that the pressure displayed may be lower than 0 in some high lands and you can change the absolute pressure to relative pressure. Refer to 8 System setting.

The right way to put the tray into the autoclave:

Type 1: refer to figure 5-6.5-7



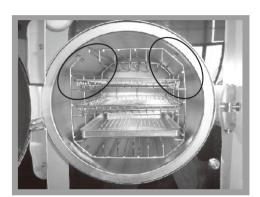


Fig5-6

Fig5-7

Type 2: turn 90° clockwise, refer to figure 5-8,5-9.



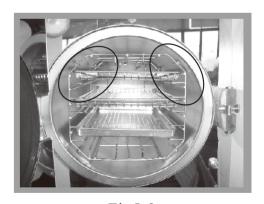


Fig5-8

Fig5-9



The above pictures are only for reference. Instrument plate and tray will vary due to different types or equipment renewal. Take the accessories as valid without prior notice.

Small steam sterilizers
Small steam sterilizers

6.Door Adjustment

- 1. Adjust tie rod which is located inside door cover and could be seen from bottom window of door cover.
- 2. Pull down the tie rod and meanwhile, turn the sealing cover to some angle (not too much). (Fig 6-3)
- 3. Loose tie rod, then continue to turn sealing cover slightly till tie rod automatically back to lock sealing cover, then adjustment is done.

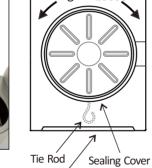
Caution:

1.Do not make sealing cover too loose, it may cause steam leakage when sterilization.
2.Do not adjust until the sealing door gets chucking.



Fig 6-1





Bottom Window

Of Door Cover

Bottom Window Of Door Cover

over

Fig 6-2

Fig 6-3

A Caution

Never try to readjust the chamber door while the door is locked. When you adjust the door DO NOT touch the sealing cover.

7 Printer Installation and Use(Optional)

Runyes sterilizer can be equipped with an external printer or built-in printer according to customer needs.

Connect the external printer to the lower left side of the sterilizer with the matching printer cable, as shown in Figure 7-1. Turn on the power switch and the two lights on the front panel of the printer are on, indicating that the printer has been installed. The built-in printing is integrated into the sterilizer operator panel, with no need to connect the printer cable, as shown in Figure 7-2.

After the sterilization cycle is completed, you can set to decide wether it needs to be printed or not. For details, see page 14: 8. Function setting. The built-in printer and the external printer operate in the same way.



Fig7-1



Fig7-2

7.1 Print Information

Date:Date

C.N: Cycle name

C.S.T: Cycle start time

Vp1, Vp2, Vp31: Pressure strengthen

Pp1, Pp2, Pp31: Vacuum

H.S.T:Sterilization start time

Max、Min、Ave: Max. Min and average pressure or temperature of chamber

H.E.T:Sterilization end time

D.S.T: Drying cycle start time

C.E.T: Cycle end time

Result:Result

Operator: Operator, you can sign your name if needed

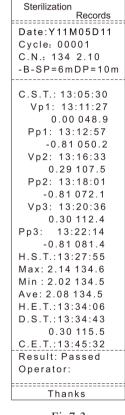


Fig7-3

<u> ((</u> Caution

Runyes sterilizer can only be selected with external or built-in printers provided by our company.

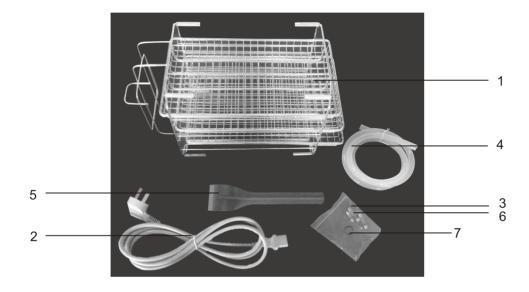
External printers can only use thermal paper with a width of 57mm and a maximum diameter of 50mm.

Built-in printer can only use thermal paper with a width of 57mm and a maximum diameter of 40mm.

10 Operation manual

Operation manual

11 Accessories



- 1). Tray rack, trays(3 piece) 1set
- 2). Power cord 1 piece
- 3). Fuse for main board(F3AL 250V)1 piece
- 4). Draining pipe 1 piece
- 5). Tray holder 1 piece

- 6). Fuse ((F12AL 250V) 2 pieces
- 7). Chamber water filter 1 piece
- 8). Output waste water tank (Option for draining waste water outside type)-----One set
- 9). Steel wire hoop (Option for draining waste water outside type)-----Two sets



- 1. The picture of spare parts in the attachment may be a little different to the parts supplied. Runyes keeps the right of changeing the accessories. Please check the spare parts supplied with autoclave.
- 2. Please contact with professional recycle company to dispose the obsolete devices and do not discard them casually.

12 Appendix.

Form 1 Error code chart(In case of faults, please contact your distributor immediately)

Error Code	Fault type	Causes	Alarm Phase	Alarm Phase
E00	Exit halfway	Manually opt out during operation		Rerun the program
E10	Pressure sensor failure	Detection room to sterilization room pressure ≥300KPA,	In all phases, the alarm will be issued when the condition is reach ed for 5 consecutive seconds	Check pressure sensor or mainboard
E11	Internal temperature sensor failure	Detected abnormal temperature in sterilization room, ≥210 degrees	In all phases, the alarm will be issued when the condition is reach ed for 5 consecutive seconds	Check temperature sensor in sterilization roomor mainboard.
710	Abnormal temperature		Standby phase, it will alarm when the condition is reached for 5 seconds.	Check steam generator
E12	sensor failure	of steam generator detected, ≥210 degrees	2. During the pressurization process, the T1 temperature is still> 205 degrees after 30 consecutive draws.	temperature sensor or mainboard
E13	Pot sensor failure	Abnormal temperature of the pot was detected, ≥210 degrees	In the standby phase, the alarm is issued when the condition is reached for 5 consecutive seconds	Check pot temperature sensor or mainboard
E41	Constant temperature and pressure failure	During the sterilization process, the temperature exceeds + 4 ° C.	In the sterilization stage, the steri lization temperature exceeds 4 degrees.	Check whether the temperature sensor, main board and pipeline are blocked
E42	Constant temperature and pressure failure	The temperature during steriliza tion is lower than the steriliza tion temperature.	Sterilization stage, below the sterilization temperature.	Inspect whether the temperature sensor or main board, door seal, solenoid valve and other places appear air leakage
E02	Overpressure in the pot	The sterilization chamber pressure exceeds the preset value (≥265KPA)	In all phases, the alarm will be issued when the condition is reac hed for 5 consecutive seconds	Check whether the pressure sen sor, main board, steam exhaust valve, drain valve, and related pipes are blocked.
E03	Overtemperature in the pot	The temperature of the pot excee ds the set value (≥200 degrees)	In all phases, the alarm will be issued when the condition is reac hed for 15 consecutiveseconds	Check pot temperature sensor or motherboard
E05	Exhaust steam failure	(The pressure discharge rate in the sterilization chamber is lower than the preset value.)	The pressure release speed is low er than the preset value under the pressure of 30KPA in the pressure relief stage. The pressure drops <10KPA every 30 seconds.	Check whether the exhaust valve, drain valve, and related pipes are blocked.

E06	Door failure	Door switch released	The alarm will be issued when the door is open for 2 consecutive seconds, during the period from warm up to the end of the serilization.	Check whether the door switch, door switch wire and door body are adjusted in place.
E07	Steam generator over temperature	Steam generator temperature exceeds 210 degrees	No alarm for the time being, heating will stop when T1> 1800.	Check temperature sensor or main board, water inlet valve, water pump.
E08	Heating timeout	Sterilization preheat time exceeds preset value	In the preheating phase, the time for heating the heating coil and the heating rod to reach the predetermined temperature is> 25 minutes.	Check whether the temperature sensor, main board, temperature protector, and connecting wires are disconnected.
E91	The first vacuum failed	When vacuuming for the first time, the vacuum degree in the sterilization chamber cannot be set to the preset value within the specified time.	The first vacuum is less than -20 KPA in 6 minutes / less than -70 KPA in 8 minutes in pressure mode	Check whether the vacuum pump, main board, two-position three- way valve, drain valve, exhaust valve, and filter in the sterilization room are blocked
E92	Second vacuum failure	During the second evacuation, the vacuum in the sterilization cham ber cannot be set to the preset val ue within the specified time.	Vacuum is less than -20KPA in 4 minutes during the second vacuu m / less than -70KPA in 8 minutes in the pressure mode	Check whether the vacuum pump, main board, two-position three-way valve, drain valve, exhaust valve, and filter in the sterilization room are blocked
E93	Third vacuum failure	During the third vacuum, the vacuum degree in the sterilization room cannot be set to the preset value	The third vacuum, less than -20 KPA in 4 minutes, and less than -70KPA in 8 minutes in pressure mode	Check whether the vacuum pump, main board, two-position three-way valve, drain valve, exhaust valve, and filter in the sterilization room are blocked
E94	Leak program vacuum failed	The vacuum in the sterilization room cannot be set to the preset value within the specified time	The vacuum is less than -20KPA in 4 minutes during the LEAK test. The pressure returns to -20KPA after the equilibrium and holding pressure stages.	Check whether the vacuum pump, main board, two-position three- way valve, drain valve, exhaust valve, and filter in the sterilization room are blocked
E95	First boost timeout	During the first boost	The pressure cannot reach 100KPA in 30 minutes	Inspect the pump, water inlet val ve, steam generator, water inlet line or whether water tank is lack of water
E96	Second boost timeout	During the second boost	The pressure cannot reach 100KPA in 30 minutes	Inspect the pump, water inlet valve, steam generator, water inlet line or whether water tank is lack of water
E97	Third boost timeout	During the third boost	The pressure cannot reach 100KPA in 30 minutes	Inspect the pump, water inlet valve, steam generator, water inlet line or whether water tank is lack of water
A01	Water quality alarm	Water quality alarm	All phases, check once every 0.5 seconds	Please use distilled water, check the main board for failure
A02	Water shortage in water tank	Water shortage in water tank	All phases, check once every 0.5 seconds	Please add water, and still check the water level switch and main board
A03	The waste water tank is full	The waste water tank is full	All phases, check once every 0.5 seconds	Drain the waste water and check the water level switch and main board

24 Operation manual

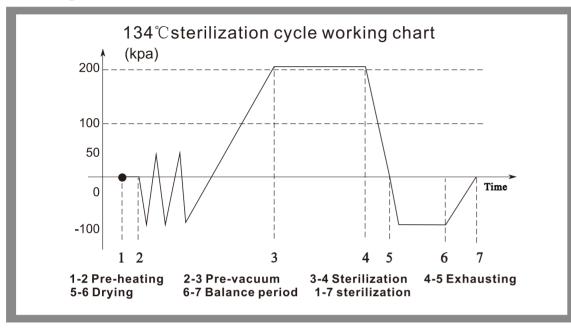
Form 2 Work mode chart

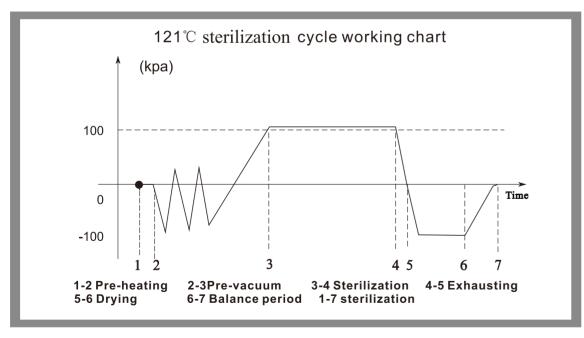
	134 °C package	134 °C non package	121 °C package	121 °C non package	134B+	BD test	Vacuum test cycle	CLEAN test
Sterilizing temperature	134	134	134	121	134	134		
Sterilizing pressure	2.10	2.10	2.10	1.10	2.10	2.10		
Class	В	S	В	S	В	В		
Pre-heating	0-10min	0-10min	0-10min	0-10min	0-10min	0-10min		
Vaeuuning time	24min	16min	25min	4min	27min	25min	6min	Clean 20 min
Admission time	5min	5min	5min	5min	5min	5min		
Sterilizing time	6min	4min	20min	16min	18min	3.5min	Keep pressure 10min	
Drying time	15min	10min	15min	10min	15min	1min		Drying 10 min
Total time	60min	45min	75min	45min	75min	45min	16min	30min

Operation manual

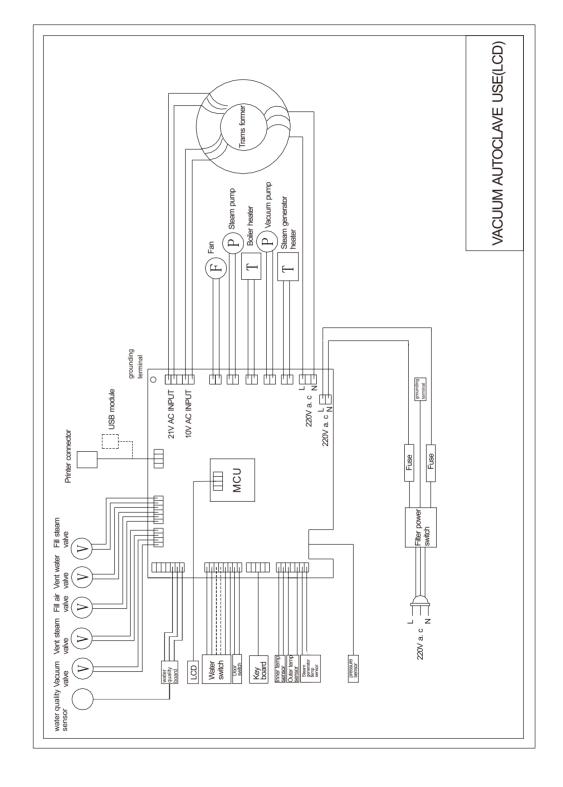
Small steam sterilizers
Small steam sterilizers

Working chart



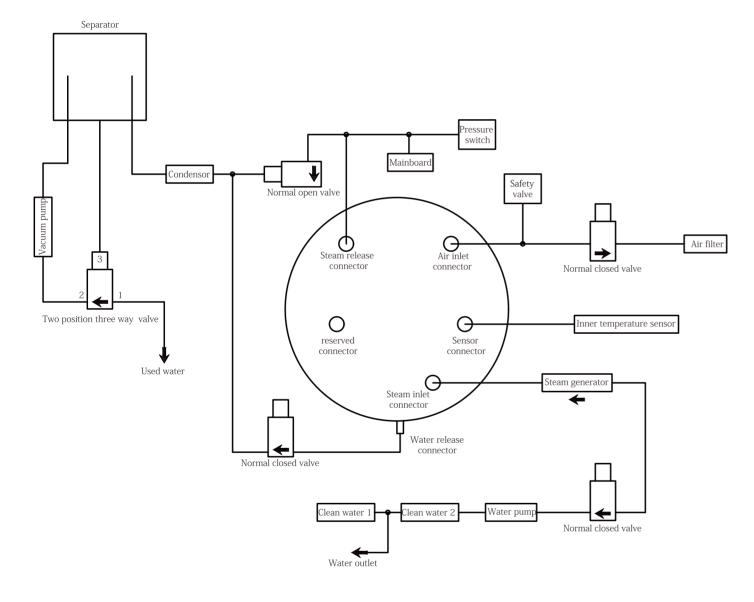


Circuit connection chart



Small steam sterilizers
Small steam sterilizers

Piping Diagram



13 Important information

- 1. The autoclave must be installed on a leveled surface.
- 2.Distilled water must be used for prolonging the life of the machine.
- 3. The ventilation openings in the machine must not be blocked or covered.
- 4.Instruments should be placed on tray with space between one another allowing steam to pass through.
- 5.Condensed water collector must be emptied from time to time. It should be emptied when refilling the water reservoir. (Draining of the collector can be followed as per item 9.2)
- 6. Keep the door closed when working.
- 7. Never try to open the chamber door if and when the pressure display doesn't show 0.0.
- 8.Before any kind of maintenance turn off the power to the autoclave and allow it to cool down.
- 9.DO NOT drag the autoclave when it is being moved.
- 10. Power connection must be grounded properly.
- 11. Must be provided enough power.
- 12.If the ambient temperature is low please pre-heat the autoclave without instruments for 30 minutes before sterilizing.
- 13.DO NOT power off the unit during sterilization,.

 To abort a cycle during sterilization press the Start/Stop key for 3 seconds.
- 14. The charts in the operation manual are for reference only.



Integral Dental Unit Chair Operation Manual (technical manual)









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Version Number:2020-04-09

2. Product introduction and features

2.1 Dental unit standard configuration

NO.	Configure	Quantity	Function Description	Remarks
1	Four-hole high speed turbine handpi ece (optional)	Two sets	With blowing and anti-absorption functions	
2	Four-hole low speed motor handpiece (optional)	One sets	With straight and bend head tube	
3	Three-way syringe	Two sets		
4	Constant rinse water temperature system	One sets	Adjustable range 30°C - 45 °C	Care-22/Care-33 standard
5	Dental lamp	One sets		
6	Film viewer (optional for down mounted)	One sets		
7	Rotatable cuspidor	One sets		Care-11U/11D/22U/22D
8	Integral luxury cuspidor	One sets		Care-33U/33D
9	Rotatable side-box	One sets	Available for four hand operation	Care-22U/22D/33U/33D
10	Suction	One sets	time delay function	
11	Strong suction	One sets	time delay function	
12	Clean water system for handpiece	One sets	Clean water system for handpiece	
13	New design of foot switch	One sets	Fashionab le and flexible	
14	New design of doctor chair	One handles	Ergonomic design backrest, beautiful and practical	

2.2 Dental chair standard configuration

1	With DC 24voltage motor, lower noise, easier to control and more reliable
2	Linkage compensation structure comply to the human engineering design
3	With safety protection function, make the users have more safe guards
4	With chair lock system
5	Digital computer program setting (three chair position user-defined memory)

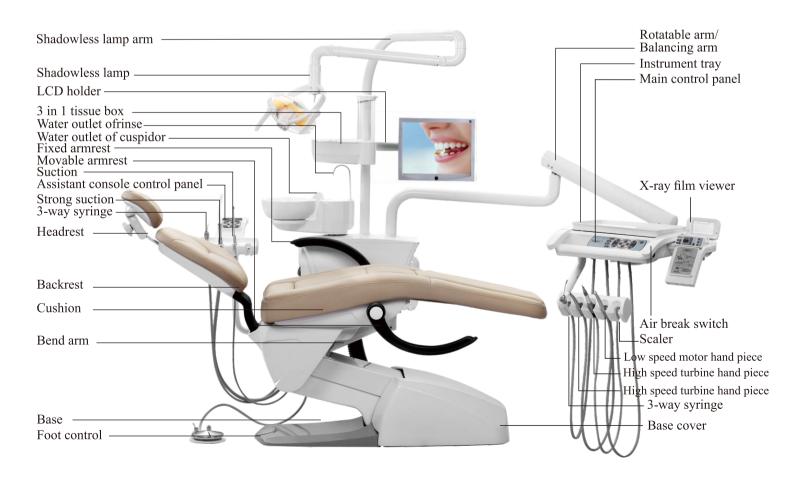
2.3 Dental unit features

1	Linkage compensation structure comply to ergonomic design and make the patient more comfortable
2	prevention for leg/foot clamping. Safety protection setting ensure the safety of the doctors.
3	Chair will be locked while handpiece is working, ensure the safety of doctors
4	Integrated PU base with perfect combination ofluxury and steady. (Care-22/Care-33 standard)
5	New luxury armrest

2.4 Dental chair features

1	Ai r turbine high speed hand piece has anti-resorption function		
2	Ai r turbine high speed hand piece has the blowing function		
3	Chair will be locked while handpiece is working, ensure the safety of Seat cushion and backrest: Care 11 apply sofa leather, Care 22 and 33 apply imported sewing leather		
4	Film viewer - clamshell design.(optional for down mounted)		
5	Constant temperature water supply system& adjustable temperature option(standard for care 22/33)		
6	Built-in water storage system standard for care 22		
7	Water storage insufficiency alert system (standard for care 22)		
8	Rotatable luxury cuspidor (standard for care 11)		

3. Structure diagram



4. Environment requirements

Items	Environment requirement
Preconditions	 Temperature:5°C~ 40°C Relative humidity: ≤ 80% Pressure: 860Hpa~1060Hpa
Power supply 1. The devices used in medical should conform to the installation All the water and electricity installation should be accorded with national regulations 2. The power used: AC230 50Hz/60Hz	
1. conformance to local drinking water regulations. 2. Cleaning all the pipes before using 3. Pressure: 0.2 MPa ~ 0.4 MPa 4. Water flowing rate: no less than 10L/min 5. The water hardness limit is less than 2.14mmol/L 6. PH valve: 6.8-8.5 7. Maximum particle diameter less than 100 microns	
Air supply	1. Clean, dry and no oil 2. Pressure: 0.55MPa ~0.6 MPa 3. Air flowing rate: no less than 50 L/min 4. use the air source supply which has related exhausting pressure as 0.8mp.
Waste water pipe	The arrangement of the waste water pipeline should slope one centimeter in the direction of draining off water every meter pipeline.

Integral Dental Unit Chair Operation Manual

5. Technical parameters

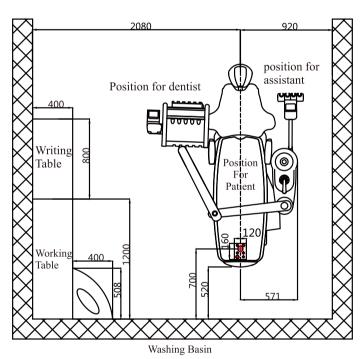
Items		Technical parameters		
Power supply		220V-50HZ		
Power		600VA		
Fuse		¢6X20 T2AL, T3Al	H、T5AL、6.3AL、T8AL	
High Speed Turbin	ne hand piece	Unload speed:≥300000r	r/min Working pressure: 0.26MPa	
Low Speed hand p	oiece	Unload speed:≥2000	000r/min	
Foot switch		IPX 1		
Lamp luminance		Halogen lamp L 8000Lx -15000Lx L	OCI LED Light JEVEL 1: 6300~6500Lx JEVEL 2:11 625~12400Lx JEVEL 3: 16750~18000Lx JEVEL 4: 21875~23600Lx JEVEL 5: 27000~ 28000Lx	
Lamp bulb		Halogen lamp 12V-5 DCI LED 24V-0.25A		
Film-viewer luminance		≥2000 Lx		
Rinse water therm	ostat	24V-80W Temperature range 35-45 ° C		
Linear motor		24V == 100W		
Instrument tray loa	ad	1KG		
Dental chair max	oad	185KG		
Maximum height	from ground	Care 11/22 800mm	Care 33 830mm	
Minimum height f	rom ground	390mm		
Elevation and deport of backrest	ression angel	0° -80°		
Cycle Time		One minute for working and 15minutes for rest		
Pipeline color identification		Blue pipeline for water. Yellow/black pipeline for air		
Equipment weight		Net weight: 225 KG	Gross weight: 336 KG	
Da also a a (2.1)	Dental chair	Length:1450mm Wi	idth:900mm Height:935mm	
Package(2 boxes)	Dental unit	Length:1610mm Wi	idth:1130mm Height:1340mm	
1 Box	Dental unit(short)	Length:1610mm Wi	idth:1130mm Height:1275mm	

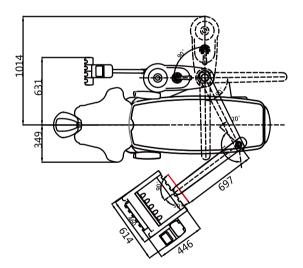
Integral Dental Unit Chair Operation Manual

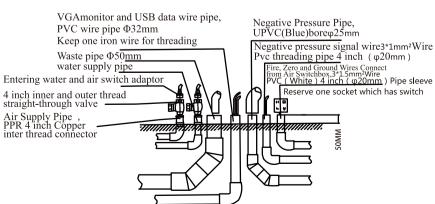
6. Plane layout drawing

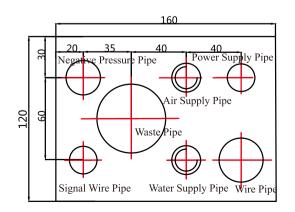
- 1. water supply pipe: white PPR hot melt pipe, reserve 4cent copper internal teeth interface. (PPR hot melt pipe, 4 cent inner outer teeth straight through valve is recommended)
- 2. air supply pipe: the same as water supply pipe.
- 3. waste water pipe: white PVC drain pipe, main pipe Φ 75mm, branch pipe Φ 50mm
- 4. VGA monitor and USB data wire pipe: white PVC threading pipe Φ32mm, reserve one iron wire for threading.
- 5. negative pressure pipe: blue UPVC water supply pipe, main pipe outer diameter 50mm, branch pipe outer diameter 32mm, pipe connect to the chair diameter 25mm
- 6. negative pressure signal wire: white PVC pipe, 4cent(Φ20mm) pipe sleeve 3*1mm 2 wire.
- 7. power cord: white PVC pipe, $4\text{cent}(\Phi 20\text{mm})$ pipe sleeve 3*1mm, 5mm 2 wire.

Notes: do not use right angle connector between drain pipe and negative pressure pump, 45degree connector is recommended.









7. Installation

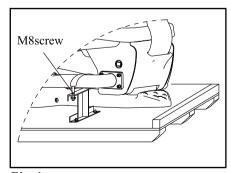
7.1 Preparations

- 1> Confirm the installation position according to the actual situations layout of clinic, light and operation convenience of the clinic, and ensure the device can work on the clean, dry and ventilated place.
- 2> Ensure the floor hold the device is solid and level, reserve enough space for operation
- 3> The socket of power supply is triangle socket with ground wire.
- 4> Open the packing box of the treatment machine, take out spare parts.
- 5> Check accompanying documents: instructions, qualification card, guarantee card and packing list.
- 6> Check if the equipment is intact and accessories are complete.
- 7> Arrange the water inlet pipe, air inlet pipe, water outlet pipe and power cord within the range of the base box according to the structure drawing below.
- 8>Standards and requirements of the water inlet pipe, air inlet pipe, water outlet pipe and power cord:

Item	Standards	Height above the ground	Remarks
Inlet pipe for water	Φ15mm(½")	20mm	G½"Pipe threads; safety valve switch should be installed in the connector
Inlet pipe for air	Φ15mm(½")	20mm	G½"Pipe threads; safety valve switch should be installed in the connector
water outlet pipe	Φ40mm(1½")	20mm	
Line cord	2mm ²	50mm	

7.2 Dental unit installation

- 1> Open the packing box of the dental unit, take out spare parts.
- 2> Check enclosed documents: Instructions, quality certificate, guarantee card and packing list.
- 3> Dental unit installation procedures as below:
- 1. Use the NO. 14 tool to unload the fixed screws on pallet (as picture 1 shows). Then connect the power, switch on the power, lift the dental chair and open the base box cover.
- 2. Screw off the two M8 screws with NO. 14 tool (as picture 2 shows) so that the dental unit can be moved away from the baseboard. Please fix the two screws on the baseboard.
- 3. Move the dental unit to the appointed position (Attention! Please carry the base of the dental unit. Do not carry the backrest or seating cushion)



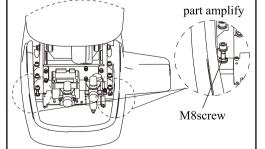


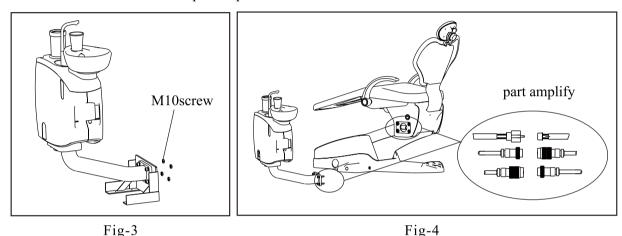


Fig-1

Fig-2

Remove the screw sleeve when disassembling the machine, then remove the screw. After lifting the machine off the wooden bracket, screw back the screw in time. Then cover the screw socket.

- 4 > Fission type disassembling step
- 1. Switch on the power, lift the dental chair, open the base box cover. Screw off the two M8X45 using the NO. 6 tool (as picture 2 shows) so that the dental unit can be moved away from the baseboard. Please fix the two screws on the baseboard. (Attention! Please carry the base of the dental unit rather than the backrest or seating cushion).
- 2. Remove the side box from the fixed iron plate. Attention! Several people should work together during this process.(as picture 3 shows).
- 3. Move the side box board to the dental chair connection. After connecting the joint in the installation hole, please use the NO.8 tool to connect the side box and dental chair with M10X45 screws. Several people are needed during this process. (As picture 4 shows)
- 4. Move the dental unit to the specific position



7.3 LCD supporting installation (as picture 5 shows)

- 1 > Thread the core line through the supporting stand, and fix the M4 screws
- 2 > Joint the connector with the connector in the side box standing. Attention! One is the shadowless lamp power, and the other is the display power. Put display power cord into the side box standing. (Attention! Please do not damage the wire during installation)
- 3 > Put the lamp pole into the standing and install the lamp arm in a suitable place. (Attention! Do not forget to install the decoration ring during installation)

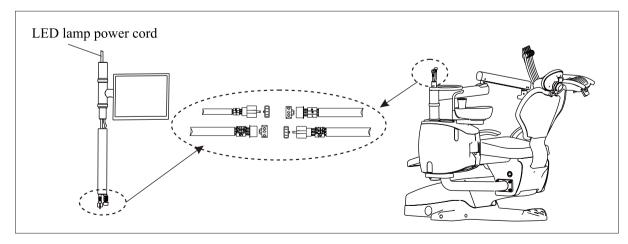


Fig-5

7.4 Lamp arm and lamp installation

- 1. Wires on the lamp arm should thrill through the lamp column and connecting well.
- 2. Connect the wire connector of the lamp arm with the one in the column of the side box, and put them into the column
- 3.Insert lamp column into column hole on side box, install the lamp arm on the suitable place (Attention: avoid damage the wire when install)
- 4. Take out the lamp, unscrew the lamp, then fix the lamp to lamp arm and tighten the screw. (Attention: connect the wire and tighten the screw)

7.5 Pipeline Installation

- 1. Drain the water inlet pipe and air inlet pipe to get rid of the dirt and impurity in the pipeline, keep the pipes unblocked, before connecting the pipeline to dental unit.
- 2. Connect $\Phi 8$ high pressure air pipe to water pipe (green) and air pipe (yellow), ensure no leak between pipes. (attention: if the air inlet pipe and water inlet pipe have no independent switch, find the two 1/4 ball valves in accessories and install to the water inlet pipe and air inlet pipe. It will be more convenient for maintenance)
- 3. Insert the drain pipe of dental unit into the drain pipe connector, keep the water outlet and air outlet pipe unblocked. (Attention: Pay attention to the color of the pipes.)

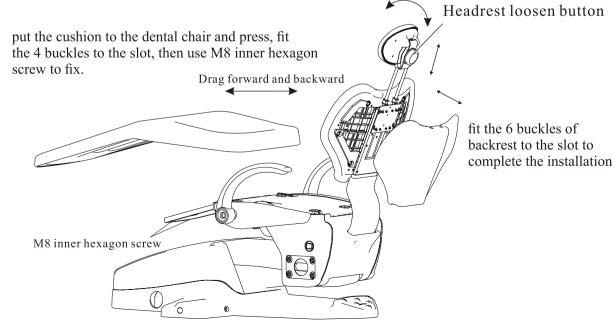
7.6 Power supply installation

- 1. Insert the power supply wire into the socket with ground line.
- 2. Open the switch on the bottom of the dental unit.

7.7 Doctor chair installation

- 1. Open the packing box.
- 2. Press down the five wheels of the chair soleplate (or twist into by wrench).
- 3. Put the thick side of the air spring into the chair soleplate.
- 4. Connect the chair side with the armrest, and put it on the side of thin air spring.

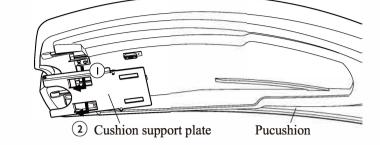
7.8 Care 11/22 dental chair cushion, backrest and headrest installation



7.9 Care 33 dental chair cushion, backrest and headrest installation

1> cushion installation

- (1) turn the 2 buckles to horizontal position
- (2) put the cushion on the cushion board, aim the square hole and install in
- (3) ensure the iron plate is in right position, then turn the buckles to fix





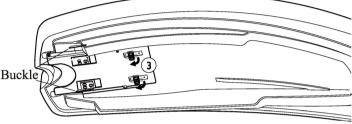
Warning: incorrect installing of cushion will cause damage to equipment and injuries to people

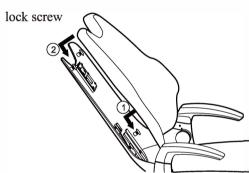
2> backrest installation

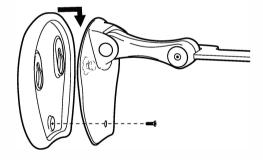
- (1) move the backrest to 45-degree position
- (2) aim the holes on the backrest to the plat head screw on the metal plate, then install in.
- (3) press the backrest and push to the cushion direction to fit the plat head screws in the lock hole.
- (4) ensure all of the 4 plat screws are in the lock holes, and keep pushing till the backrest is totally fix to the metal plate.



- (1) aim the lock hole on the headrest to the plat head screw on the headrest plate
- (2) press the headrest and push to the cushion direction till the screws are lock to the holes
- (3) fix the headrest to the plate with #6-32 screw



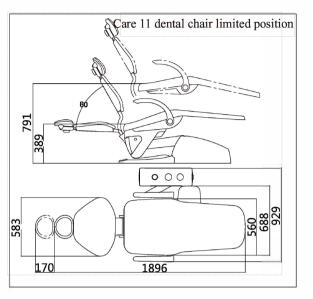


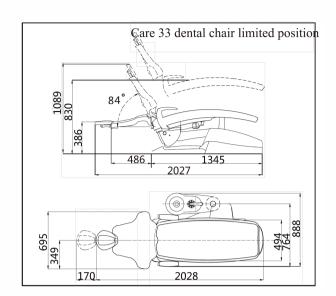


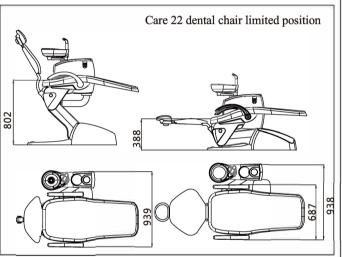
8. Device debugging

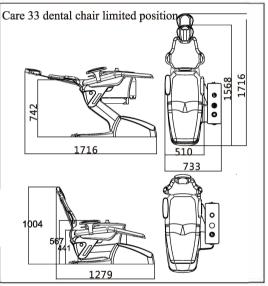
8.1 Dental chair parts

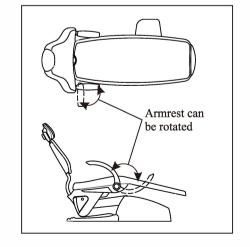
- 1> Dental chair adopt 24V straight line driving motor, low noise
- 2> Dental chair limited position measurement (see drawings below)
- 3> Headrest can be lifted and rotated
- 4> Right armrest can be rotated
- 5> buttons on the back of dental chair control the cushion and backrest to move up and down (Care 33)
- 6> Anti clamping function on the back of chair frame

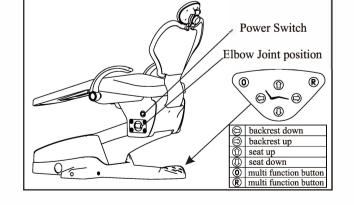












Attention: maximun load of armrest is 20KG

8.2 Side box part

8.2.1 Side box main part

Care 22/33 side box can be rotated in 0-90°, convenient for different treatment and four hand operation

8.2.2 Ceramic cuspidor, mouth wash water and cuspidor flush water

1> Care 11/22 ceramic cuspidor can be rotated in 0-90°

Care 33 cuspidor is fixed

2> Users can open the side box to adjust the flow of mouth wash water and cuspidor flush water. Tighten the pipe pressure valve to reduce the flow, or loosen the valve to increase the flow.

Attention: do not loosen the valve too much, or will cause water leakage.

8.2.3 Water temperature indicator (care 22/33 standard)

1> the indicator indicates the temperature of the water in the water heater.

2> press the mouth washing water heating button, choose the temperature between 35 and 45°C.

3> ensure the measured temperature is the same as the display temperature before use.

8.2.4 Water storage

The dental chair has two water supply modes for instruments: water storage water supply system and external water supply system.

- 1> water storage supplies pure water to handpieces, syringe and scaler
- 2> the volume of water storage bottle is 1000ml
- 3> the water must be medical grade pure water or distilled water
- 4> care 22 side box has internal water storage bottle, do not need to take off the bottle for filling water
- 4.1 turn off the water storage bottle air switch
- 4.2 after no air leak sound from the water storage bottle air switch, open the cap of the bottle
- 4.3 Use water funnel to fill water, close the cap after filling water
- 4.4 turn on water storage bottle air switch
- 5> Fill water for care 11/33 side box water storage bottle
- 5.1 turn off the water storage bottle air switch on the bottom of side box
- 5.2 after no air outlet sound from the water storage bottle air switch, take down the bottle
- 5.3 after filling water, install it back to side box, ensure there is no leakage
- 5.4 turn on water storage bottle air switch
- 6> find the water source change switch from the top or bottom of side box, it is for choosing water storage water supply system and external water supply system

Here we suggest you to use the purified or distilled water as the main water source of instrument.

It is not only good for the patients, but also do good to the air pipelines of dental unit's instruments (such as high-speed hand piece, low speed hand piece, three-way syringe and ultrasonic scaler), which can extend the service life.

Integral Dental Unit Chair Operation Manual

