



Oxygen Concentrator

Versions: 1.1 Date: 06,2024

ENSMY301&501W202407011ZGZ/0000000000/13.14.002.0557

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1. Security Overview

Special Notes:

1. To prevent power failure or possible failure of oxygenerator, the urgent oxygen users and critically ill patients must be equipped with other backup oxygen supply devices (such as oxygen cylinder, oxygen bag, etc.)! The device is suitable for oxygen supplementation and is not considered for life support or continuation!

2. The oxygen inhalation tube is separately provided by the customer. The warnings and cautions shown here are for proper and safe use of the product to prevent hazards or harm to the user or others.

Warnings and cautions are as follows:

Figures	Figure columns
 Warning	It indicates potential for injury or death if used incorrectly
 Caution	It indicates that personnel injury or damage to articles may occur in case of wrong use
	 Indicates coercion (something that must be followed). The specific mandatory content is indicated in or near  by text or drawing. The left panel shows "general coercion".
	 Indicates prohibition (something that must be followed). The specific inhabited content is indicated in or near  by text or drawing. The left panel shows "general prohibition"

1.1 Important Information

Do not disassemble the machine without authorization considering the risk of electric shock. Refer servicing to qualified service personnel. Please read the following contents carefully before operating the product. Seek medical advice before using the device.

 Oxygen has the function of combustion-supporting. The oxygenerator shall be kept away from open flame and heat source. It is prohibited from smoking and open flame near the user. Do not use oil or grease in or around the oxygenerator. Fabrics or other materials that are not easily combustible under normal conditions become flammable and burn rapidly in oxygen-rich air.

 Do not disassemble without permission. Prior to cleaning and wiping this product, it is necessary to unplug the power plug, so as to prevent electric shock. If necessary, please seek the help of professional technicians.

1.2 Pre-installation

1. To prevent damage during transport, the oxygenerator must be kept vertical and not upside down.
2. Do not lie upside down during use.
3. If the supply voltage used is unstable and exceeds the range of $\sim 220V \pm 22V$, please add a voltage regulator before use!
4. Please select a safe and qualified socket and a wiring board with safety electrician certification!
5. For the configuration of atomization device with medical device registration certificate, the accessories produced by other manufacturers have not been tested by the company, which may affect the performance of this product and are not recommended to be used.
 - ⊗ The enclosure shall not be disassembled by any person not authorized by the company.

1.3 Placing Sites

1. The oxygenerator shall be placed in the indoor ventilated place and avoid direct sunlight. It shall be more than 20 cm away from walls, furniture and other analogues. Avoid piles of carpets, heaters, heating furnaces, or hot air ventilation equipment, and do not place the oxygenerator within a narrow range.
 - ⊗ Do not place the oxygenerator in an environment where airflow is obstructed.
 - ⊗ The oxygenerator shall not be placed in the following environment: places near heat source and light and dark ignition source, wet and unshielded places, and places with smoke and pollution and at high temperature or too low temperature.
2. Oxygenerators should be protected from contaminants or fumes.
 - ⊗ Do not place containers of debris and oil on top of the oxygenerator, or place the oxygenerator where it is easy to drip water or other liquids.
 - ⊗ It is forbidden to place any sundries on the bottom, front and rear sides of the oxygenerator, and to place the machine on the soft surface (such as bed and sofa) which may cause inclination or sinking, so as to prevent the shutdown or oxygen concentration drop due to the temperature caused by the blockage of air inlet and exhaust ports.

1.4 Fire Warning or Explosion

1. Oxygenerators should be kept away from flammable and explosive situations.
2. Oxygen is a combustion gas. Do not smoke during use and keep away from other flammable sources such as matches and burned cigarettes. Textiles and other normally non-combustible materials are readily ignited and strongly burned in oxygen-enriched air. Failure to do so may

result in serious fire, property damage, and personal injury or death.

3. The use of oxygen therapy requires special care to reduce the risk of fire. Some materials burn in the air, others do not burn in the air but ignite easily and rapidly in oxygen-rich situations. From a safety point of view, it is necessary to keep the source of ignition away from the product, and it is better to remove the product from use and place it outside the room.
4. At a certain pressure, contacting of oils, grease, or oil materials with oxygen can produce spontaneous combustion and violent combustion. These substances must be kept away from oxygenerators, tubing, connectors, and all other oxygen units. Do not use any lubricants other than those recommended by the manufacturer.

1.5 Maintenance

1. Pre-maintenance or commissioning of the oxygenerator should only be performed by a distributor authorized by the manufacturer or by trained personnel.
2. The manufacturer recommends that each startup operation of the oxygenerator shall not be less than 30 minutes. Do not frequently turn on and off the oxygenerator, shutdown 3-5 minutes before starting up, so as not to affect the life of the compressor.

1.6 Electromagnetic Environment Guidance

1. This machine is applicable to hospitals, families and other buildings directly connected with civil low-voltage mains supply.
2. The radio frequency energy used in this machine only acts on the internal operation of machine. Therefore, its radio frequency emission is very low and it is unlikely to effect other nearby electrical equipment.
3. Serious interference caused by excessive number, too close distance of radio frequency transmitting device or other electrical noise source or too strong power of transmitting source may interrupt the operation of this machine. If such a situation occurs, inspect the use site to find out the source of interference, and take the following measures to eliminate interference:
 - (1) Close the nearby equipment and then open it;
 - (2) Change the direction or position of interference equipment;
 - (3) Increase the distance between interference equipment and this equipment
4. To avoid the interference of this machine by strong electromagnetic environment or other electrical products, please keep this machine at least 30 cm away from other household appliances in use.

1.7 Measures for Reducing the Risks of Burn, Electric Shock, Fire Or Human Injury

1. Avoid using an oxygenerator while bathing. If continuous use is required, follow your doctor's instructions and the oxygenerator must be located in another room 2.5 meters away from the bathroom.
2. If the oxygenerator falls into water, do not touch it, immediately cut off the power supply, and contact the qualified distributor or manufacturer.

⊗ After the oxygenerator is powered on, do not leave the machine unattended.

3. For the use method of oxygenerator, see this manual. If the user or service personnel feel insufficient oxygen, immediately contact the supplier or manufacturer to adjust the flow rate according to the instructions of professional staff.
4. During use, please supervise if this product is close to children or people with inconvenient behavior.

⊗ Do not use parts or accessories that are not recognized by the manufacturer as such, as these may degrade the performance of the machine.

⊗ Do not connect this product in parallel or in series with other oxygenerator or oxygen therapy equipment.

5. Oxygen therapy is dangerous in some specific environments. The manufacturer recommends that the user consult a physician before using this product.
6. Avoid sparks near the equipment, including sparks caused by various frictional static electricity.
7. Given that the oxygenerator power cord or plug is damaged, the machine is not working properly, and the machine is dropped or damaged, contact a qualified service person for inspection and repair.

⊗ Keep the power cord away from heated or hot surfaces.

⊗ Do not move the oxygenerator when it is charged.

⊗ Do not drip or insert anything at the opening of the machine.

2. Product Features

2.1 Intended use

Oxygen Concentrator (hereinafter referred to as oxygenerator) can be used by medical institutions and families to prepare oxygen for oxygen supply to patients with hypoxia. (The oxygenerator equipped with atomization function can be simultaneously used as an air-compressing nebulizer to atomize the liquid medicine for human inhalation.)

When using the oxygenerator individually or at home, please follow the guidance from a professional doctor.

2.2 Contraindication

This product is not suitable for people with oxygen poisoning and oxygen allergy.

The atomization function of this product is not intended for use with contusions, burns, inflammation, rash, trauma, or allergies.

2.3 Structural Characteristics

1. The oxygenerator is composed of host, flow indicator and humidification cup. (Configure the atomizing device with medical device registration certificate.)
2. Fully plastic enclosure, safe and reliable.
3. It has real voice function and more intuitive operation.
4. Color screen display, clearer.
5. Remote control function: The machine can be operated remotely and is easy to use.
6. With accumulation function: display the total working time through the display screen.
7. It has the function of timing shutdown, which is easy to use.
8. There is power failure alarm function.
9. The compressor is equipped with a thermal protector to better ensure the safety of the compressor and complete machine.
10. With flow regulation function: The flow can be adjusted at will of 1-7L.
11. It has atomization function. (Applicable to models with atomization function)
12. It has oxygen concentration monitoring alarm function.

2.4 Functions of Oxygen

1. Through oxygen supply to patients, it can be used in combination with the treatment of cardiovascular and cerebrovascular diseases, respiratory system, chronic obstructive pneumonia and other diseases, and the rehabilitation of hypoxia.
2. Oxygen can improve the body's oxygen supply. Applicable to middle-aged and elderly people, poor physical fitness, pregnant women, college entrance examination students and other people with different degrees of physiological hypoxia.

2.5 Oxygen Generation Principles

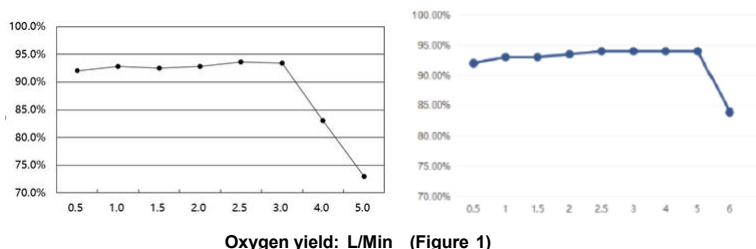
This machine takes ~ 220V power supply as power source, air as raw material, adopts high quality molecular sieve, and produces high purity oxygen by pressure swing adsorption separation method

(PSA method) at room temperature.

2.6 Main Technical Indicators

1. Maximum recommended flow rate: 3L:3L/min 5L:5 L/min
2. Flow range when nominal pressure at outlet of 7kPa:
3L:1 L/min~3L/min 5L: 1 L/min~5 L/min
3. At the maximum recommended flow rate, apply a back pressure of 7kPa, and the flow rate change shall be accurate to $\pm 10\%$ of the indicated flow rate.
4. The oxygen concentration when the nominal pressure at outlet is zero (reach the specified concentration level within 30 min after initial startup) :
oxygen yield 1 L/min ~ 3 L/min, and oxygen concentration $\geq 90\%$
oxygen yield 1 L/min ~ 5 L/min, and oxygen concentration $\geq 90\%$
5. Output pressure: 0.02MPa ~ 0.07MPa
6. Plot of oxygen concentration as a function of oxygen yield when outlet nominal pressure is zero (see Figure 1):

Oxygen concentration:%



Oxygen yield: L/Min (Figure 1)

7. Relief pressure of safety valve of compressor: 280kPa $\pm$ 50kPa
8. Noise of complete machine: ≤ 60 dB
9. Maximum atomization rate: ≥ 0.2 ml/min (applicable to the models with atomization function)
10. Supply voltage: $\sim 220V \pm 22V$, 50Hz
11. Input power:
3L: 300VA 5L: 450VA
12. Net weight:
3L: 12kg 5L: 17kg
13. Overall dimension: 36 $\times$ 30.5 $\times$ 58.5 (cm)

14. Altitude: does not reduce oxygen concentration from sea level to 1828 meters with less than 90% efficiency from 1828 meters to 4000 meters.

15. Security system:

Current overload or connection loosening, shutdown;

High temperature of compressor, shutdown;

Low oxygen concentration alarm;

16. Working time: not less than 30 minutes

17. Product Service life: 3 years

18. Electrical classification: class II equipment, type BF parts

19. Operation mode: continuous operation

20. Normal operating environment:

Ambient temperature range: $5^{\circ}\text{C} \sim 40^{\circ}\text{C}$;

Relative humidity range: $\leq 80\%$;

Atmospheric pressure range: $860\text{hPa} \sim 1060\text{hPa}$.

 Note 1: When the storage environment is lower than 5°C , the equipment shall be placed at normal working temperature for more than four hours before use.

 Note 2: When this equipment is started in the low temperature (below 10°C) environment, since the system needs to be preheated, it is easy to generate transient noise at this time. This phenomenon is normal after the completion of preheating and does not affect the normal use.

21. Oxygen output port temperature: $\leq 46^{\circ}\text{C}$

22. Suggestion: the length of oxygen inhalation tube should not exceed 6 meters and should not be collapsed.

23. Storage and transportation environment:

Ambient temperature range: $-20^{\circ}\text{C} \sim +55^{\circ}\text{C}$;

Relative humidity range: $\leq 93\%$, without condensation;

Atmospheric pressure range: $860\text{hPa} \sim 1060\text{hPa}$.

 Note: The oxygenator shall be stored in a well-ventilated room where there is no strong sunlight, no corrosive gas, and it shall be transported to avoid sharp shock and inverted recumbent.

3. Handling

3.1 Unpacking

 Note: Unless the oxygenator is used immediately, the carton and storage packaging materials

must be retained until the machine is used

1. Inspect the carton or other packaging for obvious damage. Notify the carrier or your local distributor of any damage.
2. Remove all bulk packages from the carton.
3. Carefully remove all components from the carton.

3.2 Inspection

1. Inspect the external surface of the oxygenerator for damage such as nicks, dents, abrasions, etc. Inspect all components.

3.3 Storage

⊘ Store the repackaged oxygenerator in a dry place.

ⓘ Do not place anything on top of the oxygenerator.

4. Installation and Use

4.1 Appearance Diagram and Function Introduction

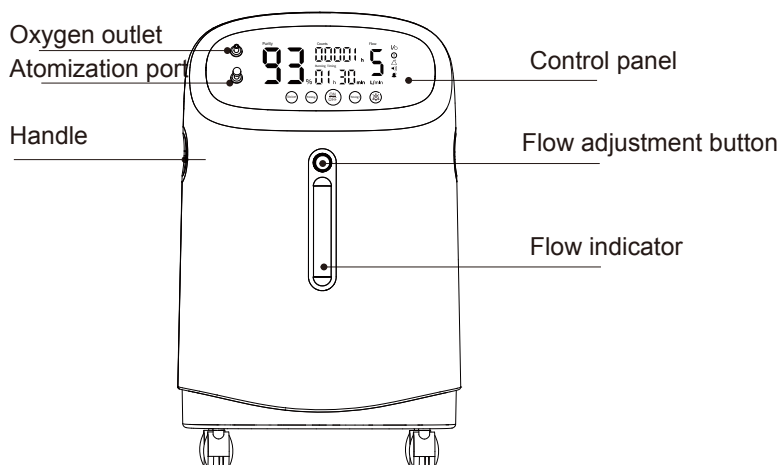


Figure 2: Front view of complete machine

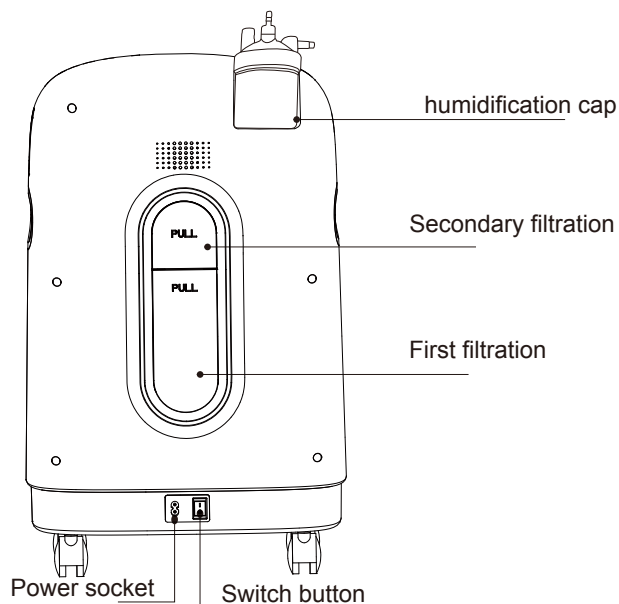


Figure 3: Rear view of complete machine

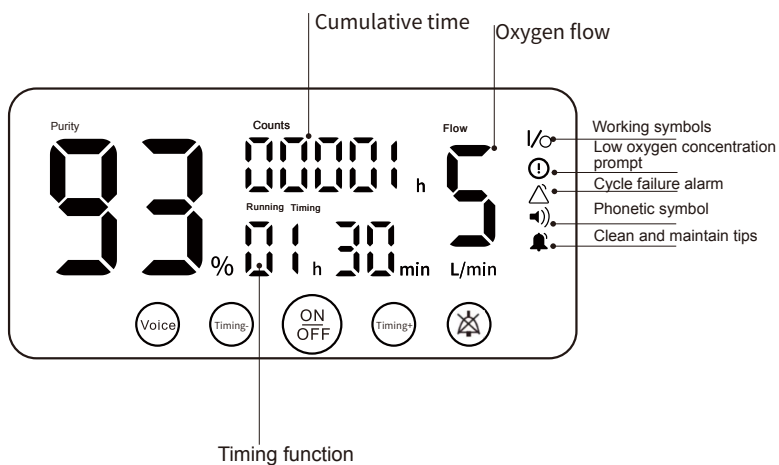


Figure 4: Display interface diagram

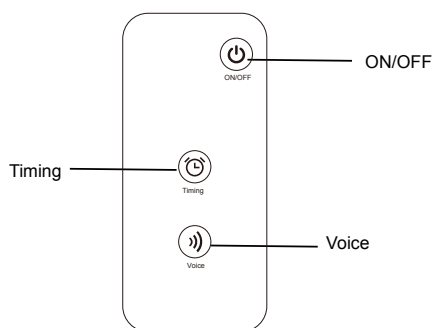


Figure 5: Remote controller

4.2 Preparation

1. Remove the machine from its packaging, remove the plastic pouch, and place the machine on a horizontal floor or table.
2. Take out the silicone tube used for connecting the humidification cap from the accessory pack and connect one end of the silicone tube to the air inlet of the humidification cap. Unscrew the cap of the humidification cup counterclockwise and fill with purified or distilled water between the "MAX IMUM" and "MIN IMUM" identifications. After adding water, gently tighten the humidification cup clockwise.
3. The other end of the silicone tube is connected with the oxygen outlet of the oxygenerator and inserted into the bottom, the humidification cup is placed in the groove of the humidification cup and tightened, and the silicone tube remains freely bent.

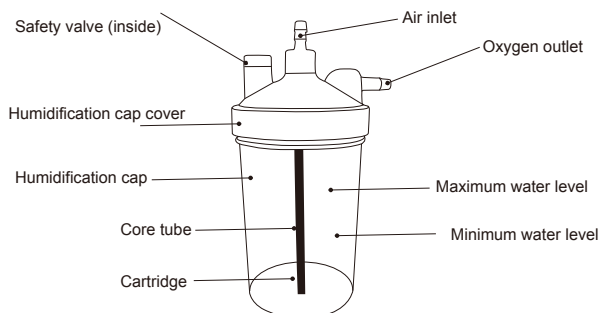


Figure 6: humidification cup diagram

4. Confirm that the oxygenerator power switch is off, and then connect the power plug to a safety grounded socket that has a power output.

Press the power switch to "I", the display panel on the control panel (on/off) illuminates "Cumulative Time", meanwhile, there will be voice broadcasting: "Hello, Welcome to use are oxygen concentrator", then the machine enters into standby. Click the "ON/OFF" key, it will report "Intelligent oxygen therapy begins.", the display screen shows the timing time and accumulated time. After the machine works for 4 seconds, the display screen shows the oxygen flow rate and oxygen concentration, and the oxygenerator enters the normal operation state.

When the oxygenerator works, it emits the sound of "wheezing -" every few seconds, which is the normal ventilation sound.

-  Do not use the extended power cord.

4.3 Operation of oxygenation

1. Rotate the adjusting knob to achieve the required flow rate. Rotate the adjusting knob clockwise to increase the flow rate and counterclockwise to decrease the flow rate. At the same time, bubbles shall pop out in the humidification cup, and oxygen outlet shall have oxygen output.
2. Connect one end of the oxygen inhalation tube to the oxygen outlet, and the other end (oxygen inhalation head or nasal suction head end) is well worn by the user, so that the oxygen inhalation can be started.

-  Please follow the doctor's advice for oxygen inhalation time and oxygen flow rate.

 Warning: If no air or bubbles are generated in the oxygen outlet or the humidifier cup, inspect the tubing or its vicinity for blockages, kinks, or defects such as air leaks or missing seals in the humidifier cup.

4.4 Self-Setting Time

1. This machine has timing function. If the user needs timing shutdown, it can set itself by pressing the (Timing-) and (Timing +) keys on the control panel within the range of 30 ~ 240 minutes.
2. At the beginning of startup, the display screen shows "cumulative time", indicating that the oxygenerator power has been turned on. Click the "oxygen generation" key to start the oxygenerator.
3. When the "Timing -" or "Timing +" key is pressed each time, the voice broadcasts the currently set timing time. When the timing time is set to -- minute (s), the timing of operation key returns to the continuous operation state.
4. The oxygenerator will automatically shut down after the set time. The machine enters into standby state, voice broadcasting: " Intelligent oxygen therapy finished. Thank you for using. ", LCD

screen turns off, only "cumulative time" is lit, and the machine is in standby state.

4.5 Shutdown

1. If oxygen needs to be temporarily stopped during use, you can press the "ON/OFF" key on the control panel to stop oxygen supply.
2. During use, press the "ON/OFF" key on the control panel, the buzzer rings, the machine is standby, and the voice broadcasting: "ON/OFF".
3. After the end of use, turn off the power switch, unplug the power plug, and cut off the mains supply. Unplug the oxygen inhalation tube or connecting tube from the oxygen outlet, take out the humidification cup, unscrew the cap of the humidification cup, pour out the remaining purified water (or distilled water), tighten the cap of the humidification cup to the humidification cup after cleaning, and load the humidification cup back to the machine.

4.6 Remote Control Operation

1. The oxygenerator can be operated remotely through the remote control. the remote control function remains consistent with the oxygenerator control panel. when the "Timing" key key is pressed each time, the number is displayed plus 30 minutes. please alignment the remote controller to the control panel before clicking the panel. the oxygenerator will make the corresponding function adjustment according to the key function.

4.7 Symbols of Safety Requirements In This Machine

Symbols	Implication	Symbols	Implication	Symbols	Implication
	Alternating current		Caution		Keep dry
	Class II equipment		Type BF applied part		Date of manufacture
	On (mains)		No smoking		Manufacturer
	Off (mains)		This way up		Fragile, handle with care
	Alarm sound off				

4.8 Atomization Operation

1. Before startup, unscrew the atomization plug of the atomization interface head of the host counterclockwise.
2. Connect both ends of the air delivery catheter to the atomization cup and host atomization interface, respectively. (Please pour out the purified water or distilled water in the humidification cup during atomization).
3. Unscrew the cap of the nebulizer; according to the doctor's advice, pour an appropriate amount of the solution into the nebulizer, without exceeding the maximum scale mark.
4. Turn the cap on the nebulizer cup; attach the mouthpiece or mask.
5. Power on the generator; turn on the power switch; click the "ON/OFF" key, after the generator works normally for 1-2 minutes, atomization treatment can be performed (please follow the doctor's advice for atomization time).
6. After the end of atomization of liquid medicine, please click the "oxygen generation" key to stop the oxygen generator, screw the atomization plug into the atomization interface clockwise and tighten. If the oxygen inhalation is not continued, the oxygen generator can be closed.

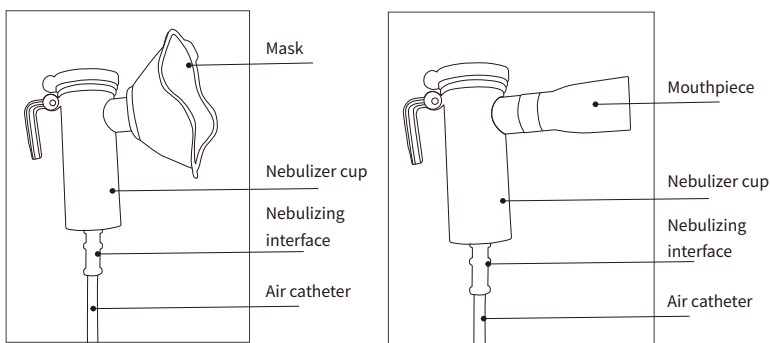


Figure 7: Diagram

4.9 Analysis and elimination of common faults in atomization function.

Implication	Faults	Cause analysis	Exclusion Method
1	Excessive atomizing noise	Inspect whether the atomizing device has meridian shape in the process of cleaning and	Replace the atomization device

		disinfection	
2	Atomizer cannot spray	Whether power supply is connected	Ensure power is on
		Whether the air infusion catheter is collapsed	In use, keep the air infusion catheter free from collapse and smooth air flow.
		Check atomizer nozzle for blockage	Clean the spray nozzle of atomizing device, and keep the tools unobstructed.
		Whether the drug solution is used up	Refill the right amount of solution
		Whether the atomization cup lid is installed correctly	Mount the cap of the nebulizer cup correctly in place
3	Water droplet in air delivery catheter	Excessive liquid drug is added.	Connect the air infusion catheter to the host; after startup, repeatedly open and close the air infusion catheter port with fingers to discharge water drop.

5. Electromagnetic Compatibility

Statement:

- The product or user should use the product in the electromagnetic environment specified in the following table, otherwise it may cause abnormal operation of the product.
- Warning: Use of the product adjacent to or stacked with other equipment should be avoided because it could result in improper observed to verify that they are operating normally.
- Warning: Replacement of accessories will affect safety and performance. Please consult the manufacturer.
- Warning: Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30cm (12 inches) to any part of the product, including cables specified by the manufacturer. Otherwise, degradation of the performance of the product could result.

Guidance and manufacturer's declaration – electromagnetic emission – for all EQUIPMENT AND SYSTEMS

Guidance and manufacturer's declaration – electromagnetic emission
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The Product is intended for use in the electromagnetic environment specified below. The customer or the user of Product should assure that it is used in such an environment.	
Emissions tests	Compliance
Radiated emissions CISPR 11	Group 1 Class B
Conducted emissions CISPR 11	Group 1 Class B
Harmonic emissions IEC 61000-3-2	Pass
Voltage Fluctuations/Flicker Emissions IEC 61000- 3-3	Pass

**Guidance and manufacturer's declaration – electromagnetic immunity –
for all EQUIPMENT and SYSTEMS**

Guidance and manufacturer's declaration – electromagnetic immunity		
The product is intended for use in the electromagnetic environment specified below. The customer or the user of the product should assure that it is used in such an environment.		
Immunity test	EN 60601 test level	Compliance level
Electrostatic discharge (ESD) IEC 61000-4-2	± 8 kV contact ± 15 kV air	± 8 kV contact ± 15kV air
Radiated RF EM fields IEC61000-4-3	10 V/m ^{f)} 80 MHz – 2,7 GHz ^{b)} 80 % AM at 1 kHz ^{c)}	10 V/m ^{f)} 80 MHz – 2,7 GHz ^{b)} 80 % AM at 1 kHz ^{c)}
Proximity fields from RF wireless communications equipment IEC61000-4-3	Table 3	Table 3
Electrostatic transient / burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines

Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode
Conducted RF IEC 61000-4-6	3 V 0, 15 MHz -80 MHz 6 V in ISM and amateur radio bands between 0, 15 MHz and 80 MHz 80 % AM at 1 kHz	3 V 0, 15 MHz -80 MHz 6 V in ISM and amateur radio bands between 0, 15 MHz and 80 MHz 80 % AM at 1 kHz
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0 % U_T ; 0,5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % U_T ; 1 cycle and 70 % U_T ; 25/30 cycles Single phase: at 0° 0 % U_T ; 250/300 cycle	0 % U_T ; 0,5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % U_T ; 1 cycle and 70 % U_T ; 25/30 cycles Single phase: at 0° 0 % U_T ; 250/300 cycle
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30A/m
Proximity magnetic fields IEC61000-4-39	Table 4	Table 4
NOTE U_T is the a. c. mains voltage prior to application of the test level.		

**Test specifications for enclosure port immunity to RF wireless
communications equipment**

Test frequency (MHz)	Band ^{a)} (MHz)	Service ^{a)}	Modulation ^{b)}	IMMUNITY TEST LEVEL (V/m)
----------------------------	-----------------------------	-----------------------	--------------------------	---------------------------------

385	380 -390	TETRA 400	Pulse modulation ^{b)} 18 Hz	27
450	430 - 470	GMRS 460, FRS 460	FM ^{c)} ± 5 kHz deviation 1 kHz sine	28
710	704 - 787	LTE Band 13, 17	Pulse modulation ^{b)} 217 Hz	9
745				
780				
810	800 - 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation ^{b)} 18 Hz	28
870				
930				
1 720	1 700-1 990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3 4, 25; UMTS	Pulse modulation ^{b)} 217 Hz	28
1 845				
1 970				
2 450	2 400-2 570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation ^{b)} 217 Hz	28
5 240	5 100-5 800	WLAN 802.11 a/n	Pulse modulation ^{b)} 217 Hz	9
5 500				
5 785				

If necessary to achieve the IMMUNITY TEST LEVEL ,the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1 m. The 1 m test distance is permitted by IEC 61 000-4-3

- a) For some services, only the uplink frequencies are included.
- b) The carrier shall be modulated using a 50 % duty cycle square wave signal.
- c) As an alternative to FM modulation, the carrier may be pulse modulated using a 50 % duty cycle square wave signal at 18 Hz. While it does not represent actual modulation, it would be worst case.

Test specifications for ENCLOSURE PORT IMMUNITY to proximity magnetic fields

Test frequency	Modulation	IMMUNITY TEST LEVEL (A/m)
30 kHz ^{a)}	CW	8
1 34,2 kHz	Pulse modulation ^{b)} 2,1 kHz	65 ^{c)}
1 3,56 MHz	Pulse modulation ^{b)} 50 kHz	7,5 ^{c)}
a) This test is applicable only to ME EQUIPMENT and ME SYSTEMS intended for use in the HOME HEALTHCARE ENVIRONMENT b) The carrier shall be modulated using a 50 % duty cycle square wave signal. c) r.m.s., before modulation is applied.		

6. Maintenance

Warning: Disconnect the power supply before servicing the oxygenerator. To avoid electrical shock, do not disassemble the housing.

6.1 Cleaning the Enclosure

The exterior of the enclosure should be wiped clean at least once a month: first cut off the power supply and wipe it with a clean and soft moistened cotton cloth or sponge, without penetrating the liquid into the crevices of the enclosure.

6.2 Replacement of Air Inlet Filter

Every 300 hours of accumulated machine time, the screen will appear cleaning prompt, cleaning and replacing the inlet filter is very important to protect the compressor and molecular sieve and prolong the life of oxygenerator. Please replace them in time; the replacement cycle of molecular sieve is 2-3 years. Warning: Do not operate the oxygenerator if the air inlet filter is not installed, severely blackened or wet, causing permanent damage to the machine.

1. Disassembly:

- (1) The inlet filter is located on the back side of the machine, forcefully pull it out by pinching the inlet

cover plate by hand, and then forcefully pull out the filter. (Eg. Figure 8)

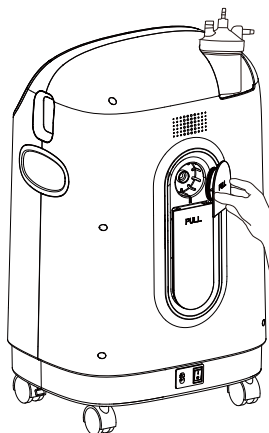


Figure 8: Diagram

- (2) The actual replacement time of inlet filter should be determined according to the actual use time and environmental impact. It is recommended to change every 1 month.
- (3) If the filter surface is black, regardless of the use time, it should be replaced immediately.

2. Replace the new filter:

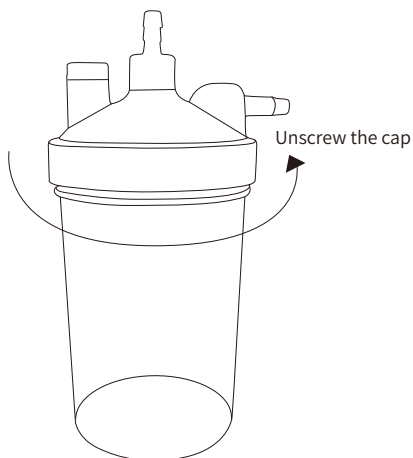
Remove the new filter and press it firmly into the correspondent place on the machine.

3. After replacement, press the cover plate text upwards into the groove.

6.3 Cleaning the Humidification Cup

1. The water in the humidification cup should be changed daily.
2. The humidification cup is washed once a week and repeatedly with clean water to ensure oxygen hygiene. When cleaning the humidification cup, pay attention to cleaning the ventilation rod on the cap of clean and equipped bottle.

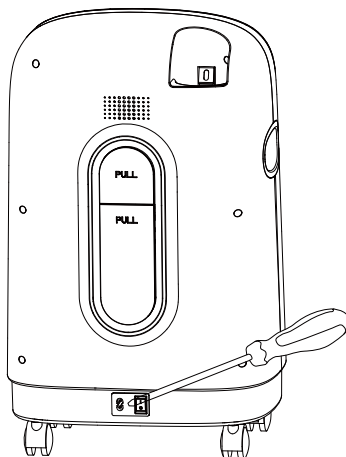
Note: If the water tank is not cleaned for a long time or the water is not changed for a longtime, resulting in scale or odor, it can be soaked in white vinegar for more than half an hour, shaken vigorously to clean and then washed with clean water.



(Figure 9)

6.4 Replacement of Fuses

First cut off the power supply, the fuse holder is located at the back of the machine, next to the power cord socket, and use a straight screwdriver to pry the fuse seat cover, then it can be removed and replaced.



(Figure 10) (Note: Fuse model: 250V 5A)

6.5 Power Failure Alarm

The energy used by this alarm device is capacitive alarm. When the electric energy of backup power supply is almost consumed, the alarm sound will be weakened. After the fault is solved, it will be normally used after restarting.

6.6 Low Oxygen Concentration Alarm

1. If the oxygen (displayed concentration) is < 82% after 10 minutes of machine oxygen generation, the alarm indicator "  " on the LCD screen lights up and the buzzer sounds long;
2. The user presses the "  " key in the control panel of the display screen, and the alarm sound is turned off ,and the "  "key is pressed again to restore the normal alarm state.

6.7 Other Alarms

1. The compressor stops for automatic protection shutdown at over temperature.
2. The pressure of compressor is automatically relieved at over pressure, and the release pressure is 280kPa $\pm$ 50kPa.
3. Oxygenerator cycle failure alarm, buzzer intermittent audible alarm and "  " red indicator light when oxygenerator cycle failure occurs.

7. Troubleshooting

Faults	Possible Causes	Exclusion Method	Remarks
Press the "oxygen generation " key, the light is not on, the display board is not displayed, the machine is not operating, and the power is suddenly off during the operation	1.Power cord plug not plugged in	1. Firmly plug the power cord into the socket	First cut off the power source, which should be carried out by professional maintenance personnel
	2. The socket has no power output	2. Move to a socket with power output	
	3. Loose connector wires	3. Inspect and reinsert the insert	
	4.Power board damage	4.Replace the power board	
	5. Insufficient input voltage	5.Do not use extension plug, move to the socket with voltage regulator	
	6. Loose fuse cover or broken on-board fuse	6. Tighten the fuse cover with a cruciform screwdriver or open the machine to replace the on-board fuse	
	7. Failure of the main control circuit board	7.Replace the main control circuit board	

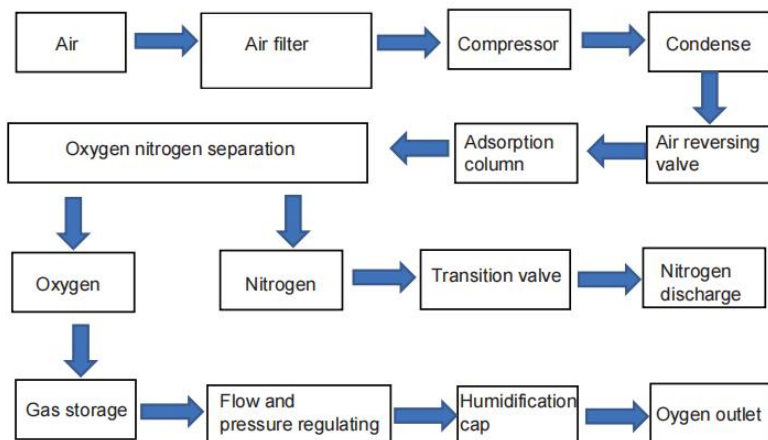
Machine running with little or no oxygen output or failure	1. Too low environmental temperature	1.Start after half an hour placed in 5℃~ 40℃ environment
	2. Too small flow	2.Adjust the flow rate and check whether the nasal oxygen tube is kinked or blocked
	3. Blocked inlet filter	3. Replace the inlet filter
	4. Kink in the suction port connecting tube of the compression pump	4. Check and straighten out the pipeline after disassembling the chassis
	5. Throttle valve blockage	5. Check and replace the flow throttle valve
	6. Air leakage or detachment of the pipeline	6. Check the tubing and replace or tighten the tubing again
	7. Insufficient or damaged air exchange of solenoid valve	7.Replacement of solenoid valve
	8. Failure of the main control circuit board	8.Replace the main control circuit board
Machine squeaking or machine stops running	1. Exhaust silence blockage	1.Replace the exhaust silencer
	2. Solenoid valve failure	2.Replace the solenoid valve
	3. Failure of the main control circuit board	3.Replace the main control circuit board
	4. Molecular sieve failure or internal management leakage and shedding	4.Replace the molecular sieve or replace/sort out the internal pipeline

Faults	Possible Causes		Exclusion Method	Remarks
Excessive mist or water droplets in nasal oxygen tube	1.Incomplete ventilation around the machine and high working temperature		1. Ensure that the machine is surrounded by at least 20 cm from walls or other obstacles and heaters	First cut off the power source, which should be carried out by professional maintenance personnel
	2.High operating temperature caused by fan not rotating or low speed inside machine		2.High operating temperature caused by fan not rotating or low speed inside machine	
	3.High temperature of water added to the humidification cup		3.Add cold water to the bottle and do not overheat	
	4.Water added to the humidification cup		4. The added water is between the highest and lowest scales of the bottle	
Machine operates properly without any unusual sound but with little or no oxygen	Flow is displayed and adjustable, but oxygen output is small	1.Blockage of the humidification cup Not installed	1.Reset the blockage	
		2.Defective nasal oxygen tube	2.Replace the nasal oxygen tube	
		3. Loose oxygen outlet tube	3.Firmly insert the tubing	
		4.Nasal oxygen tube kink or blockage	4. Straightening out the tubing	
		5. Kink or blockage of internal connection line	5. Straightening out the tubing	

	Flow is displayed but not responsive to adjustment	1.Loose internal tubing	1. Turn on the machine and sort or replace the tubing	
		2.Defective nasal oxygen tube	2.Replace the nasal oxygen tube	
		3.Loose oxygen outlet tube	3. Firmly insert the tubing	
No voice prompts	1. Horn damage		1. Change the speaker	
	2. Chip damage		2. Replace the main control board	
	3. Voice not set		3. Reopen the speech function	

8. Additional Precautions

8.1 Schematic Diagram of Gas Circuit Work



8.2 Transport

1. This product is suitable for automobile, train, ship and plane transportation.
2. The product shall be transported to prevent violent vibration, collision and drop, and shall be upwards, cautiously, lightly and rain-proof, and it is prohibited to stack heavy objects beyond the

provisions.

8.3 Storage

1. This product shall be stored in a well ventilated room where there is no corrosive gas.
2. When the product is not used for a long time, it is necessary to clean the package to be dried for storage, so as to prevent moisture and mold damage.

8.4 After-sales Service

1. In case of any non-human factor quality problem within one week from the date of purchase, the Company shall be responsible for guarantee refund, replacement and repair; in case of normal use and preservation, if the product has any problem within one year from the date of purchase, the Company shall provide free maintenance (the warranty period of compressor is three years); if the product has any quality problem one year from the date of purchase, the user may, with invoice and warranty card, visit the after-sales service department, office or distributor of the Company for maintenance, and charge appropriate material fee, labor fee and transportation fee.
2. Warranty does not apply to:
 - (1) Vulnerable and consumable products: fuse, inlet filter and humidification cup;
 - (2) The user causes that water, drug and other liquids enter the machine and fail to work normally;
 - (3) Water inlet or rain of complete machine;
 - (4) The fault caused by unauthorized disassembly, repair and renovation of this product;
 - (5) The fault caused by accidental drop in the process of use and transportation;
 - (6) The fault caused by failure to operate according to the correct method specified in the instructions for use;
 - (7) Damage caused by unforeseen natural disasters (such as fire, earthquake and flood);
 - (8) Machine damage caused by not replacing the inlet filter.

8.5 Components

1.Oxygenator	1Set
2.Air inlet filter	1Pc
3.Fuses	1Set
4.Certificate and IFU (including warranty card)	1Pc
5.Oxygen inhalation tube	1Pc
6.Oxygen mask	1Pc
7.Remote controller	1Pc

8.Humidification cap	1Pc
9.Silicone tube	1Pc
10.Primary filter cotton	1Pc
11.Power cord	1Pc

The oxygenator with atomization function is additionally provided with a set of atomization accessory device.

8.6 Disposal of Wastes and Residues

The disposal of wastes and residue shall comply with the relevant national laws and regulations.

The right to change the technology and appearance of this product is reserved. If there is a change, it is forbidden without further notice!

8.7 Disclaimer

If it is found that the product cannot work normally after unpacking self-inspection, or the oxygen concentration fails to reach more than 90% after 30 minutes of operation according to the product model purchased, please do not use it, and contact the sales point or our company after sale immediately.

9. Warranty Card

1.Product information (stub page)

1.Product information (stub page)			
Product name	Oxygen Concentrator	Specification/mode	
Product No.		Invoice No.	
Purchase store			
Purchase date	(*required)		
2.Customer information			
Customer name		Date of birth	(*required)
Correspondence Add			
Contact No.		Zip code	
Remarks			
3.Store Information			
Promoter name		Contact information	
Store Add.			

Product name	Oxygen Concentrator		
Specification/mode			
Manufacturer			
Product No.			
Purchase date	(*required)		
Invoice No.			
Address			
Stamp of sales store			
Service Records	Items	Repaired by	
Remarks	Please show this card at warranty!		