



Oxygen Concentrator

User Manual



Please read the instruction carefully before
use the machine.

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1.Product Overview

Welcome to choose our medical oxygen concentrator !

Our series medical oxygen concentrator adopts AC 220V/AC110V power supply, uses air as raw material and high-quality molecular sieve as adsorbent, and adopts the principle of pressure swing adsorption (PSA) to directly separate oxygen from nitrogen at normal temperature, oxygen of high purity is thereby produced.

In order to ensure the safety and effectiveness of medical oxygen concentrator, please read this manual carefully before using the machine, so as to have a comprehensive understanding and knowledge of the product performance as well as correct operation and maintenance methods. Please strictly observe relevant safety precautions during installation, use and maintenance.

1.1 Functions of oxygen

By supplying oxygen to patients, the machine can help the treatment of cardiovascular and cerebrovascular diseases, respiratory diseases, chronic obstructive pneumonia etc. and the rehabilitation of anoxic patients.

Oxygen absorption can improve physical oxygen supply condition and achieve the purpose of oxygenating care. It is suitable for the middle-aged and elderly, people with poor physical fitness, pregnant women, students and other people who suffer different degrees of physiological hypoxia. It can also eliminate fatigue and restore somatic function after heavy physical or mental exertion.

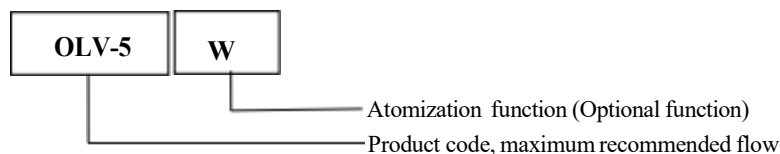
1.2 Scope of application

It is applicable for oxygen generation in medical institutions and family etc. for the use of anoxic patients.

1.3 Product features

- 1) Plastic casing, novel design, simple operation, stable operation, easy maintenance.
- 2) Generate oxygen adopting physical methods, with air as raw material, without the use of additives, only needing power supply, with low cost.
- 3) Adopt pressure swing adsorption (PSA) technology of efficient molecular sieve, with simple process flow and low energy consumption.

1.4 Specification & model



2. Safety Overview

2.1 Safety precautions



Safety Precautions

Warning

1. This product can not be used for life support or life sustaining. Patients who can not express discomfort or can not hear or see alarm signals require additional care.

2. Oxygen therapy may be harmful under certain conditions. Patients shall correctly control oxygen flow and oxygen absorption time under the guidance of physician.

3. Excessive use of high-purity oxygen has toxic and side effect on human body.

4. People suffering severe carbon monoxide poisoning shall not use this product.

5. To prevent power failure or possible failure of oxygen concentrator, when the patients in urgent need of oxygen and the critically ill patients absorb oxygen using this product, other standby oxygen supply devices (e.g.: oxygen cylinder, oxygen bag, etc.) must be provided.

6. If the medical oxygen concentrator can not work properly, or if you feel uncomfortable, please stop using immediately and consult physician or supplier to solve the problems.

7. Oxygen is a kind of combustion supporting gas, thus the oxygen concentrator can not be used in places with open flame or the danger of flammability, smoking or open flame is prohibited near people who absorb oxygen.

8. Power supply must comply with electrical safety regulations.

9. Please turn off the power and unplug the power cord before the cleaning and maintenance of medical oxygen concentrator.

10. People without authorization of the company shall not open the cover for maintenance.

11. When the altitude, ambient temperature, and relative humidity of the use environment exceed the requirements of the use environment specified in this manual, it may cause a decrease in oxygen concentration and shutdown, which will affect the quality of the user's treatment.

12. Oxygen makes fires more likely to occur and spread. If the oxygen concentrator is turned on but not in use, do not leave the nasal cannula or mask on the bed sheet or chair cushion; oxygen will make the material flammable. When not in use, turn off the oxygen concentrator to prevent local ambient oxygen concentration from increasing.

13. The product is suggest to use in areas with stable power grid. For continuously using this product under unstable power grid, an UPS is recommended.

2.2 Electromagnetic environment guidance



Attention

Electromagnetic Environment Guidance

1. This product is suitable for use in places including hospitals, family and other buildings connected with power supply of civilian low-voltage network.
2. Radio frequency energy used by this product is for internal operation only. Therefore, its radio frequency emission is very low, without impact on other electrical equipment nearby.
3. Due to the impact of radio transmitting devices or other sources of electrical noise in health care establishments, serious interference caused by too close distance or large transmitting power may cause interruption of this product.
4. If this happens, check the use places to find out the source of interference, and take the following measures to eliminate interference: 1) Turn off nearby devices before starting the machine; 2) Change the direction or location of interfering devices; 3) Increase the distance between interfering devices and this product.

2.3 Environmental protection description



Attention

Environmental Protection Description

Disposal of waste and residues shall comply with the legal provisions of

3. Operating Principle

Oxygen concentration process flow of Olive series medical oxygen concentrator is shown in Fig. 1:

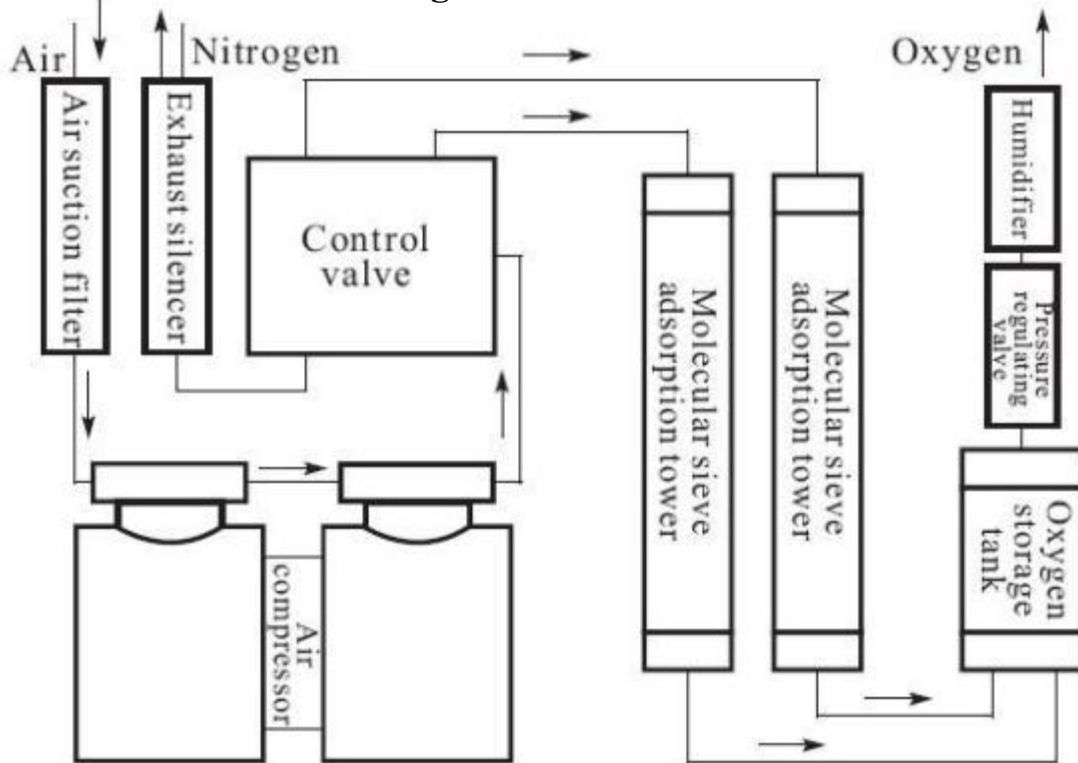


Fig. 1 Flow chart of medical oxygen generation

Our series medical oxygen concentrator uses molecular sieve as adsorbent, adopts the principle of pressure swing adsorption (PSA), sends the air after filtration into the molecular sieve adsorption tower for the cyclic process of pressurized adsorption and decompressed desorption, oxygen of high purity is thereby produced.

4. Structural Features

Our medical oxygen concentrator mainly consists of principal machine, flow meter and humidifier bottle, as shown Fig. 2.



Fig. 2 Outline drawing of Olive series medical oxygen concentrator

5. Technical Indicators

The requirement of this medical oxygen concentrator for electric shock protection measures is Class II , the requirement for electric shock protection degree is type B.

5.1 Operating environment (oxygen concentration status indicator)

Ambient temperature: 10°C ~ 40 °C

Relative humidity: 30% ~ 75%

Atmospheric pressure: 860hPa ~ 1060hPa

Power supply: AC 220V±22V 50Hz ±1Hz ;

AC 110V±11V 60Hz ±1Hz

There shall be no corrosive gas or strong magnetic field in surrounding environment

5.2 Air requirements

Impurities in raw material air: $\leq 0.3 \text{ mg} / \text{cm}^3$

Oil content in air: $\leq 0.01 \text{ ppm}$

5.3 Product functions

Timing function: show the total working time through display screen

Time setting: set oxygen absorption time as required

Automatic shutdown: automatic shutdown after reaching preset oxygen generation time

Power failure alarm function

Low voltage alarm function

Low oxygen concentration alarm function

Circulating pressure failure alarm function

Air compressor short circuit alarm function

Atomization treatment function (only models with atomization function)

5.4 Technical indicators

1) Physical and chemical indicators of oxygen:

Oxygen concentration: $\geq 90\%$ (V/V)

Water content: $\leq 0.07\text{g}/\text{m}^3$

Carbon dioxide content: $\leq 0.01\%$ (V/V)

Carbon monoxide content: meet the requirements of table 1 in GB 8982—2009

Gaseous acid and alkali content: meet the requirements of table 1 in GB 8982—2009

Content of ozone and other gaseous oxides: meet the requirements of table 1 in GB 8982—2009 Odor: odorless

Particle size of solids: $\leq 10\mu\text{m}$

Content of solids: $\leq 0.5\text{ mg}/\text{m}^3$

2) Technical indicators of product:

The maximum recommended flow (when oxygen concentration $\geq 90\%$):

3L/min (models OLV-3 and OLV-3W); 5L/min (models OLV-5 and OLV-5W)

Flow range when outlet nominal pressure is 7 kPa (oxygen concentration $\geq 90\%$):

0~3L/min (models OLV-3 and OLV-3W); 0~5 L/min (models OLV-5 and OLV-5W)

At the recommended maximum flow, flow change when the back pressure of 7 kPa is applied: $< 0.5\text{L}/\text{min}$

Flow range when outlet nominal pressure is 0 (oxygen concentration $\geq 90\%$): 0~3L/min (models OLV-3 and OLV-3W); 0~5 L/min (models OLV-5 and OLV-5W)

Operating noise of the machine: $\leq 40\text{dB}$ (A)

Timer error: not more than 3%

Output pressure: 20kPa ~ 60kPa

Release pressure of air compressor safety valve: 200kPa ~ 300 kPa

Oxygen concentration measurement: 0~95%, error $\leq \pm 3\%$

Operating mode: continuous operation

Atomization quantity: $\geq 0.15\text{mL}/\text{min}$ (only models with atomization function)

Input power: 330VA $\pm 15\%$ (models OLV-3 and OLV-3W); 500VA $\pm 15\%$ (models OLV-5 and OLV-5W)

Power supply: 220V-230V 50HZ/60HZ

Total weight: 19kg (models OLV-3 and OLV-3W); 22kg (models OLV-5 and OLV-5W)

External dimensions: 490×270×560 (mm) L × W × H

6. Product Installation

6.1 Unpacking inspection

Open the carton box from top of the packing box, and then open the plastic bag, pull up the medical oxygen concentrator by grasping the front and back handles of medical oxygen concentrator. Carefully check whether there is any transport damage to the medical oxygen concentrator, and then check the accessories and relevant documents according to the packing list.

6.2 Installation precautions



Installation Precautions

Attention

1. Medical oxygen concentrator shall be installed in indoor ventilating places without dust, corrosive, toxic or harmful gases or smoke. Avoid direct sunlight, and the distance from walls and other objects shall be greater than 10cm.
2. Medical oxygen concentrator shall not be installed in places with open flame, fire source, danger of flammability or explosion, humidity, too high or too low temperature. Besides, it shall not be used in a closed room (space).
3. No sundries, water or oil containers shall be placed on top of medical oxygen concentrator.
4. Medical oxygen concentrator shall not be placed on soft surfaces (e.g. bed, couch) that may cause tilting or sinking, avoid shutdown or oxygen concentration decrease caused by too high temperature due to blockage of air inlet or outlet.
5. Medical oxygen concentrator shall be placed smoothly, otherwise it will increase the noise during operation.
6. If grid voltage is instable and exceeds the range of $220 \pm 22V$, please install voltage stabilizer before use.
7. Be sure to install battery before use, otherwise it will lose some alarm functions.
8. Please use safe and qualified socket and the wiring board with safe electricity certification.

7. Product Use

7.1 Use precautions



Attention

Use Precautions

1. During use, ensure unobstructed exhaust at the bottom of medical oxygen concentrator, otherwise it may cause internal overheating.
2. When the output oxygen is less than the maximum recommended flow, oxygen concentration reaches 90%. When the flow exceeds the maximum recommended flow, oxygen concentration will reduce with the increase of flow.
3. Medical oxygen concentrator will reach the specified performance after started for 10 minutes.
4. There will be intermittent exhaust sound (every 6 seconds around) during operation of medical oxygen concentrator, which is normal.
5. No oil, grease or other similar substances shall be used on or near medical oxygen concentrator, and no lubricant other than those recommended by the manufacturer shall be used.
6. During use, timely add water when water level of humidifier bottle is below the minimum level. suggest use our company humidifier bottle .
7. During atomization treatment, please do not use medical oxygen concentrator for oxygen absorption.
8. Medical oxygen concentrator shall not be started frequently, it shall be restarted after stopped for 5 minutes.
9. When the indicated oxygen concentration is abnormal, stop using, and contact the dealer or manufacturer for inspection and maintenance.
10. Molecular sieve will become aging due to use time and environment etc., causing unrecoverable decrease of oxygen generation amount. In case of this phenomenon, please contact the dealer or manufacturer to replace the molecular sieve.
11. For long-term stopping of medical oxygen concentrator, be sure to unplug the power cord.
12. Oxygen tube and nebulizer kits are one-time use parts, users buy according to their needs.

7.2 Operation

Control panel of medical oxygen concentrator is shown in Fig. 3.



Fig. 3 Control panel



Fig. 4 Display when starting



Fig. 5 Display when starting

1) Add water to humidifier bottle: Pull out the silicone rubber tube from the bottle, take out the bottle. Add proper amount of pure water to the bottle, the water level shall be between the maximum (MAX) and minimum (MIN) water lines, and then tighten the bottle cap, put into the transparent cover and insert the silicone rubber tube.

2) Power on: plug in the power cord, press the "Power switch", the "Power" indicator will be on. Medical oxygen concentrator enters into the ready-to-start state, which means that the medical oxygen concentrator enters into the ready-to-start state

3) Continuous/timed oxygen generation: Press the "Oxygen generation/timing button", oxygen concentrator will be started and enters into "Continuous" oxygen generation working state. The LCD displays the total use time and other contents of

oxygen concentrator, as shown in Fig. 5. After medical oxygen concentrator is started, press the "Oxygen generation/timing button" again, medical oxygen concentrator will enter into timed oxygen generation state, and the timing is 30 minutes (see Fig. 6), for each press of "Oxygen generation/timing button", preset time will be increased by 30 minutes (maximum preset time is 120 minutes); users can preset the time for oxygen generation as required. After a timing of 120 minutes, press the "Oxygen generation/timing button" again, oxygen concentrator without atomization function will stop oxygen generation, while oxygen concentrator with atomization function will enter into atomization mode, press the "Oxygen generation/timing button" again, it will stop oxygen generation.

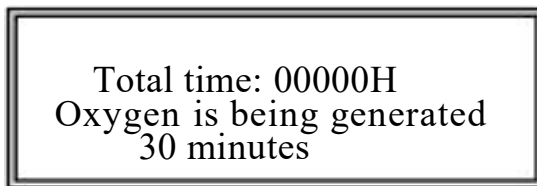


Fig. 6 Display of timed oxygen generation

- 4) **Adjust flow:** Open the transparent cover, slowly rotate the flow control knob to the desired flow rate (the reading shall be subject to the center of the black float) in the direction marked on the "Flow control knob". Meanwhile, there are bubbles in water in humidifier bottle, there shall be oxygen output from "Oxygen outlet".
- 5) **Start oxygen absorption:** Insert oxygen tube in the "Oxygen outlet" of humidifier bottle, close the transparent cover, after confirming that there is oxygen output from oxygen tube nose, wear the oxygen tube (see oxygen tube operating instructions for wearing methods of oxygen tube) to start oxygen absorption.
- 6) **Automatic shutdown:** After reaching the preset oxygen generation time, oxygen concentrator will automatically shut down. The display of LCD is shown in Fig. 7.

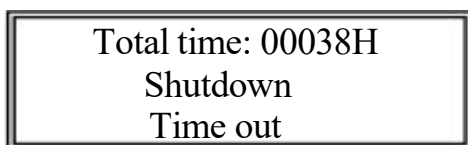


Fig. 7 Shutdown display

- 7) **Shut down immediately:** During operation of medical oxygen concentrator, press the "Power switch" on top cover, medical oxygen concentrator will shut down immediately.
- 8) **Atomization function:** (atomization models only)
 - ① Before using the atomizer, please refer to *Operating Instruction Manual for Atomizer*.
 - ② Open the transparent cover of oxygen concentrator, unscrew the plug from the atomization mouth, insert the air inlet pipe of the atomizer in the atomization mouth.

③ After medical oxygen concentrator is started, press the "Oxygen generation/timing button" for 5 times, oxygen concentrator with atomization function will enter into atomization mode.

④ After atomization is finished, pull out the air inlet pipe of atomizer, tighten the atomization plug.

⑤ For long-term stopping of medical oxygen concentrator, be sure to unplug the power cord.

7.3 Alarm functions

After medical oxygen concentrator is started and generates oxygen for 10 minutes, during normal operation, "Power", "Oxygen concentration" and "Fault" indicators are green.

In case of faults listed in Table 1, medical oxygen concentrator will send audible/visual alarm. Alarm functions are shown in Table 1.

Table 1 Alarm functions

Alarm item	Cause	Alarm sound	Color of indicators	Display of LCD
Power failure alarm	Power supply voltage interruption	Yes	Fault indicator Red	N/A
Low voltage alarm	Power supply voltage is less than 180V±10V	Yes	Fault indicator Red	Low voltage
Oxygen concentration alarm	$65\%(\pm 3\%) \leq \text{Oxygen concentration} < 82\%(\pm 3\%)$	Yes	Oxygen concentration indicator Yellow	N/A
	Failure Oxygen concentration $\leq 65\%(\pm 3\%)$	Yes	Oxygen concentration indicator Red	Low concentration
High pressure alarm	Circulating system pressure is high	Yes	Fault indicator Red	Shutdown High pressure
Low pressure alarm	Circulating system pressure is low	Yes	Fault indicator Red	Low pressure
Air compressor failure alarm	Short circuit of compressor	Yes	Fault indicator Red	Shutdown Air compressor failure

1) Power failure alarm

When grid voltage is suddenly interrupted (power failure), medical oxygen concentrator will stop working and send alarm sound, fault indicator will be red, please use after power on.

2) Low voltage alarm

When grid voltage is less than $150V \pm 10V$, medical oxygen concentrator will stop working and send alarm sound; fault indicator will be red; LCD displays "Low voltage", it is recommended to install voltage stabilizer.

3) Oxygen concentration alarm

After medical oxygen concentrator is started and generates oxygen for 10 minutes, under the circumstance that the output oxygen flow is not greater than the maximum recommended flow:

When oxygen concentration is $82\%(\pm 3\%)$ or more, the oxygen concentration indicator is green. Medical oxygen concentrator works properly.

When oxygen concentration is within $65\%(\pm 3\%) \sim 82\%(\pm 3\%)$, the oxygen concentration indicator is yellow and sends alarm sound, contact the dealer immediately, users can temporarily use the machine, and please ensure that there is standby oxygen.

When oxygen concentration is below $65\%(\pm 3\%)$, the oxygen concentration indicator is red and sends alarm sound, LCD displays "Low concentration". Please shut down immediately. Use standby oxygen and contact the dealer for inspection or repair.

4) High/low pressure alarm

When circulating system pressure is high, medical oxygen concentrator shuts down and sends alarm sound; fault indicator is red, the LCD displays "High pressure".

When circulating system pressure is low, medical oxygen concentrator sends alarm sound; fault indicator is red, the LCD displays "Low pressure".

In case of high pressure or low pressure alarm, please use standby oxygen and contact the dealer for inspection or repair.

5) Air compressor failure alarm

In case of short circuit of air compressor circuit, medical oxygen concentrator shuts down and sends alarm sound; fault indicator is red; the LCD displays "Air compressor failure", medical oxygen concentrator stops running.

Please use standby oxygen and contact the dealer for inspection or repair.

6) Check whether the alarm system works

When it is necessary to check whether the alarm system works, unplug the power cord when medical oxygen concentrator works normally, if the fault indicator becomes red and sends alarm sound, then the alarm system is normal, otherwise the alarm system can not work normally, contact the dealer for inspection or repair.

7.4 How the operator check machine is normal :

The operator can check whether the oxygen concentrator is operating normally by the following methods:

- 1) 10 minutes after the oxygen concentrator is turned on, the power indicator, oxygen concentration indicator, and fault indicator should be green.
 - 2) In the state of oxygen generation, block the oxygen outlet of the oxygen concentrator by hand, and the flowmeter should be able to return to the "0" position.
- If the above two points are met, it means that the oxygen concentrator is operating normally. Otherwise, the oxygen concentrator is not operating normally, you should contact the dealer for inspection or repair

8. Maintenance

8.1 Maintenance considerations



Maintenance Considerations

Attention

1. Only the dealers authorized by the manufacturer or the qualified personnel after special training can conduct preventive maintenance or performance adjustment for medical oxygen concentrator.
2. In case of medical oxygen concentrator failure, contact the dealer or manufacturer for repair. Do not disassemble for repair by yourself.
3. Clean the humidifier bottle every day. Add pure water to humidifier bottle and the water level shall be between the maximum and minimum water levels.
4. Regularly clean air suction filtering foam and filtering cotton according to requirements. Clean in advance in case of too much dust. oxygen concentrator shall not be started before filtering cotton and foam are installed.
5. Power cord is provided according to the power of oxygen concentrator, please do not replace arbitrarily.

8.2 Cleaning of humidifier bottle

To clean, first pull out the silicone rubber tube from humidifier bottle, take out the humidifier bottle. Humidifier bottle is generally cleaned with clean water, in case of any water scale, rinse with clean water after descaling. During cleaning, pay attention to cleaning the small air inlet hole at the bottom of the core tube in the bottle, so as to keep oxygen unobstructed.

After cleaning, sterilize (soak in disinfectant containing available chlorine of 500mg/L) and rinse with pure water. Add proper amount of pure water to the bottle, the water level shall be between the maximum (MAX) and minimum (MIN) water lines, and then tighten the bottle cap, put into the transparent cover and insert the silicone rubber tube.

8.3 Cleaning of atomizer (atomization models only)

After using the atomizer, pour out all residual liquid from atomizing cup, rinse with clean water.

After cleaning, sterilize (soak in disinfectant containing available chlorine of 500mg/L) and rinse with pure water.

8.4 Cleaning of primary air suction filter (filtering sponge) and secondary filter

Timely cleaning and replacement of primary air suction filter and secondary filter are very important for protecting air compressor and molecular sieve, and extending the service life of medical oxygen concentrator, please timely clean and replace according to requirements.

Primary air suction filter shall be cleaned once a week. During cleaning, draw out filtering sponge and rinse with clean water, it can be used after natural drying.

Secondary air suction filter shall be cleaned once every half month. During cleaning, unscrew the filter clockwise, take out the filter and rinse with clean water, after natural drying, install it to the original place and tighten counterclockwise.

8.5 Cleaning of medical oxygen concentrator

When turning off the power of medical oxygen concentrator, use a soft towel dipped with a small amount of neutral household cleaner to wipe the casing, and then use a dry towel to dry up. When wiping, pay attention to preventing liquid infiltrating into casing slot.

8.6 Replacement of battery

When the power failure alarm sound of medical oxygen generated is reduced significantly (users can check it by disconnecting the power supply of medical oxygen concentrator), it is necessary to replace the battery. Battery specifications: 9V alkali battery. To replace, open the battery compartment cover in the transparent cover, remove the old battery, insert new battery according to the marked polarity.

9. Troubleshooting

In case of any problems during use, before sending the machine for repair, please read this section carefully, you may simply solve the problems by yourself. If the problems can not be solved according to the examples in

Table 2, please send the medical oxygen concentrator for repair. Do not attempt to repair or remove the casing of medical oxygen concentrator by yourself.

Table 2 Failure analysis and troubleshooting examples

Fault symptom	Check item	Measures
There is no display on LCD when starting or running, medical oxygen concentrator sends alarm sound.	<ol style="list-style-type: none"> 1. Power failure? 2. Power cord is loose? 	<ol style="list-style-type: none"> 1. Use the machine after power on. 2. Check and insert the power cord properly.
Concentration indicator becomes yellow or red.	<ol style="list-style-type: none"> 1. Oxygen flow is too large? 2. Molecular sieve becomes aging after long-term use? 	<ol style="list-style-type: none"> 1. Adjust the oxygen flow. 2. Replace molecular sieve.
	Note: Replacement of molecular sieve shall be conducted by professionals.	
Medical oxygen concentrator works normally, but no oxygen is outputted from oxygen tube.	<ol style="list-style-type: none"> 1. Whether the oxygen tube is inserted properly? 2. Whether the humidifier bottle cap is tightened? 	<ol style="list-style-type: none"> 1. Insert the oxygen tube properly. 2. Tighten the humidifier bottle cap.
Medical oxygen concentrator works normally, but the flow can not be adjusted to the maximum value, bubbles in humidifier bottle are small.	<ol style="list-style-type: none"> 1. Air suction filter is clogged with dust? 2. Oxygen tube is bent? 	<ol style="list-style-type: none"> 1. Clean or replace filter. 2. Unbend the oxygen tube.
Operating noise is large.	Whether medical oxygen concentrator is placed smoothly?	Place the medical oxygen concentrator smoothly.
Alarm fault indicator is red.	Low voltage	It is recommended to install voltage stabilizer.
Alarm fault indicator is red.	Circulating pressure is low.	<ol style="list-style-type: none"> 1. Clean or replace filter. 2. If such situation continues, please contact the manufacturer.
Alarm fault indicator is red.	Circulating pressure is high.	Immediately stop using the machine, please contact the manufacturer.

Alarm fault indicator is red.	Air compressor failure	Immediately stop using the machine, please contact the manufacturer.
There is no alarm sound during power off, alarm indicator is not on.	Are the batteries dead?	Replace battery.
Other faults	Contact the manufacturer	

10. Transportation and Storage

10.1 Transportation and storage precautions



Attention

Transportation and Storage Precautions

1. Before transportation or storage, pour out the water from humidifier bottle.
2. During transportation and handling, medical oxygen concentrator shall be kept upright, prohibit inversion or horizontal placing.
3. When the storage temperature is below 10 °C, place the medical oxygen concentrator in normal working environment for 8 hours before use.
4. Medical oxygen concentrator that has been stopped for long time shall be powered on for inspection before use again, and confirm that all functions are normal before use again.

10.2 Requirements for storage and transportation environment

Ambient temperature -20 °C ~ 50 °C;

Atmospheric pressure 500hPa~1060hPa

Relative humidity ≤ 95%;

10.3 Transportation

Medical oxygen concentrator packed completely shall be protected from violent collision and direct contact with rain or snow during transportation.

10.4 Storage

Medical oxygen concentrator shall be stored in indoor well-ventilated places without strong sunlight and corrosive gases.

11. After-Sale Services

11.1 Warranty period

In case of quality problems caused by non-human factors within one week since the date of sale, our company will be responsible for guaranteed repairing, changing and refunding; under normal use and storage conditions, the warranty period of this product is two years or 5,000 hours (whichever is earlier), the warranty period of compressor is three years. In case of any quality problems within warranty period, our company will repair for free; In case of any quality problems after the warranty period, our company will charge repair cost. If the users can not provide invoices, the warranty period shall be regarded as one month since the ex-factory date of the company.

11.2 Warranty scope:

The following circumstances shall not be within the free warranty of the company:

- 1) Damage due to improper operation of users or use under abnormal conditions;
- 2) Damage or deformation of machine (including components and parts) due to collision or falling;
- 3) Damage due to disassembly, repair or modification by users;
- 4) Damage caused by natural disasters;
- 5) Wearing parts and consumables: atomizer, filtering foam, filtering cotton etc.;

11.3 Notice :

- 1) oxygen concentrator can only be repaired by the company authorized by the company, and user cannot be disassembled privately
- 2) No modification to the oxygen concentrator.

12. Accessories



Attention

Accessory Considerations

1. Do not use parts and accessories not recognized by the manufacturer, in order to avoid adverse effects on safety and product performance.
2. Medical oxygen concentrator shall use dedicated humidifier bottle, for replacement, please contact the dealer or manufacturer to purchase.
3. The presented oxygen tube is a disposable sterilization product, just for one person. Users can purchase qualified products with Medical Device Registration Certificate by referring to the model and specification of the presented sample.

13. Packing List

Table 3 Packing list of medical oxygen concentrator

No.	Name	Specification & Model	Unit	Qty	Remarks
1	Principle machine Of medical oxygen concentrator	OLV-3 <input type="checkbox"/> OLV-3W <input type="checkbox"/> OLV-5 <input type="checkbox"/> OLV-5W <input type="checkbox"/>	Set	1	
2	Power cord	0.75m m ² ×3	pc	1	
3	Nasal cannula		pc	2	
4	Nebulizer	Mouth-contained	Set	1	Only atomization models
5	Spare connecting tube of humidifier cup		pc	1	
6	Spare first air suction filter		pc	1	
7	Spare secondary air suction filter		pc	3	
8	User manual		pc	1	
9	Warranty card		pc	1	

14. Annexed Table and Figure

14.1 Meaning description of graphics, symbols and abbreviations

Table 4 Meaning description of graphics, symbols and abbreviations

Graphics, symbols and abbreviations	Location	Name	Meaning description
	Relevant location	Warning sign	If ignoring this information and using improperly, it may cause personal injury.
	Relevant location	Attention sign	If ignoring this information and using improperly, it may cause injury or loss.
	Nameplate	B-type equipment	It indicates that the medical oxygen concentrator is Type B equipment.
	Control valve knob	Adjusting direction	It indicates the direction to adjust the flow.
220V50Hz/ 110V60Hz	Back lower part of oxygen concentrator	Power supply	It indicates that the medical oxygen concentrator uses single-phase AC power supply 220 V, 50 Hz, or 110V,60Hz.
L/min O ₂	Oxygen flow meter	Oxygen flow	Oxygen flow, indicating flow unit: L / min

14.2 Electric control chart

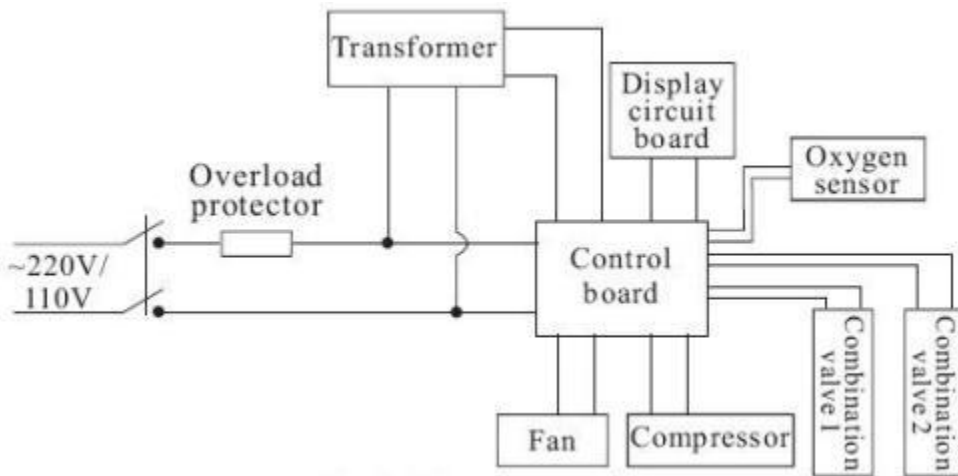


Fig. 7 Electric control chart

Note: if circuit diagram and necessary information are needed due to repair, please contact the manufacturer.

14.3 Oxygen concentration and flow diagram

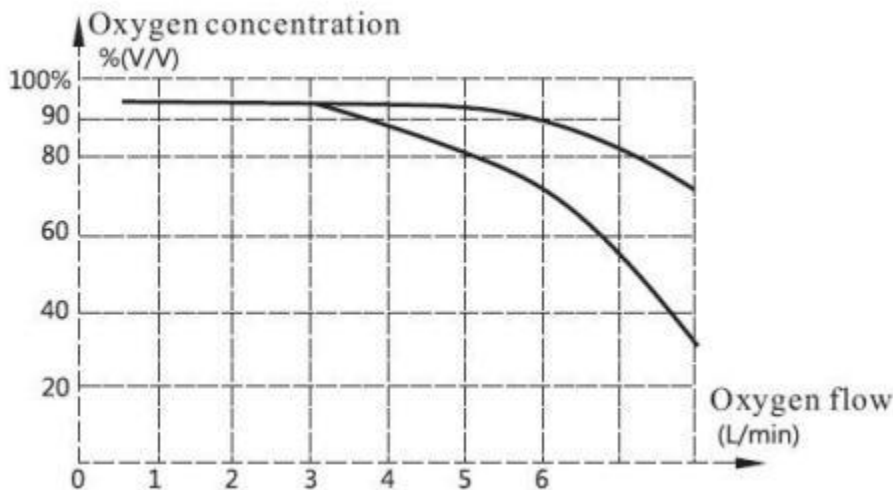


Fig. 8 Functional diagram of oxygen concentration and flow when the outlet nominal pressure is 0

15. Important information regarding Electro Magnetic Compatibility (EMC)

This electrical medical equipment needs special precautions regarding EMC and put into service according to the EMC information provided in the user manual; The equipment conforms to this IEC 60601-1-2:2014 standard for both immunity and emissions. Nevertheless, special precautions need to be observed:

The equipment with following ESSENTIAL PERFORMANCE is intended used in Home healthcare environment

Essential Performance:

1. The solenoid valve and each indicator light should work normally five minutes after the medical oxygen concentrator is turned on. Oxygen should be output, and alarm function should be available in case of failure.

a) When the output oxygen concentration is lower than 82% (volume fraction), there should be an audible and visual alarm.

b) When the compressor, solenoid valve or pipeline breaks down in the system, it shall make an audible and visual alarm.

c) When the network power is interrupted and the equipment cannot work normally, it shall make a red-light alarm.

2. Temperature rise of medical oxygen concentrator: Under normal working conditions, the maximum temperature of the plastic housing is $\leq 48^{\circ}\text{C}$, and the gas temperature at the oxygen outlet of the oxygen concentrator is $\leq 41^{\circ}\text{C}$.

➤ WARNING: Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally”.

➤ The use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

➤ WARNING: Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the product, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.”

➤ WARNING: If the use location is near (e.g. less than 1.5 km from) AM, FM or TV broadcast antennas, before using this equipment, it should be observed to verify that it is operating normally to assure that the equipment remains safe with regard to electromagnetic disturbances throughout the expected service life.

EMI Compliance Table (Table 1)

Table 1 - Emission

Phenomenon	Compliance	Electromagnetic environment
RF emissions	CISPR 11 Group 1, Class B	Professional healthcare facility and Home healthcare environment
Harmonic distortion	IEC 61000-3-2 Class A	Professional healthcare facility and Home healthcare environment
Voltage fluctuations and flicker	IEC 61000-3-3 Compliance	Professional healthcare facility and Home healthcare environment

EMS Compliance Table (Table 2-4)

Table 2 - Enclosure Port

Phenomenon	Basic EMC standard	Immunity test levels
		Professional healthcare facility and Home healthcare environment
Electrostatic Discharge	IEC 61000-4-2	±8 kV contact ±2kV, ±4kV, ±8kV, ±15kV air
Radiated RF EM field	IEC 61000-4-3	10V/m 80MHz-2.7GHz 80%AM at 1kHz
Proximity fields from RF wireless communications equipment	IEC 61000-4-3	Refer to table 3
Rated power frequency magnetic fields	IEC 61000-4-8	30A/m 50Hz or 60Hz

Table 3 – Proximity fields from RF wireless communications equipment

Test frequency (MHz)	Band (MHz)	Immunity test levels
		Professional healthcare facility and Home healthcare environment
385	380-390	Pulse modulation 18Hz, 27V/m
450	430-470	FM, ± 5 kHz deviation, 1kHz sine, 28V/m
710	704-787	Pulse modulation 217Hz, 9V/m
745		
780		
810	800-960	Pulse modulation 18Hz, 28V/m
870		
930		
1720	1700-1990	Pulse modulation 18Hz, 28V/m
1845		
1970		
2450	2400-2570	Pulse modulation 217Hz, 28V/m
5240	5100-5800	Pulse modulation 217Hz, 9V/m
5500		
5785		

Table 4 – Input a.c. power Port

Phenomenon	Basic EMC standard	Immunity test levels
		Professional healthcare facility and Home healthcare environment
Electrical fast transients/burst	IEC 61000-4-4	± 2 kV 100kHz repetition frequency
Surges Line-to-line	IEC 61000-4-5	± 0.5 kV, ± 1 kV
Conducted disturbances induced by RF fields	IEC 61000-4-6	3V, 0.15MHz-80MHz 6V in ISM bands and amateur radio bands between 0.15 MHz and 80MHz
		80%AM at 1kHz
Voltage dips	IEC 61000-4-11	0% UT; 0.5 cycle At 0° , 45° , 90° , 135° , 180° , 225° , 270° and 315°
		0% UT; 1 cycle and 70% UT; 25/30 cycles Single phase: at 0°
Voltage interruptions	IEC 61000-4-11	0% UT; 250/300 cycles



Manufacturer:

Zhengzhou Olive Electronic Technology Co.,Ltd

11th Floor , Block B, Building 18 Henan International
University Science Park (East District), 450001 Zhengzhou,
Henan PEOPLE' S REPUBLIC OF CHINA
Tel: 86 371 86097307

Eu. Rep.:

MedPath GmbH



Mies-van-der-Rohe-Strasse 8, 80807 München, GERMANY