Hard-Shell Hyperbaric Oxygen Chamber (2.0 ATA) User manual IRS-HBOT-01

Please read this manual carefully before use.

Contents

1. Product Description

1.1 Product Name

Oxygen chamber - a manned pressure vessel that uses breathable gases such as air, oxygen or mixed gases as the pressure medium, and is used for treatment and adaptive training of personnel in the chamber

1.2 Specifications and models

Product name: Hard-Shell Hyperbaric Oxygen Chamber (2.0 ATA)

Product code: IRS-HBOT-01

1.3 Product Features

The oxygen chamber performs microbaric oxygen therapy, placing the patient's body in a microbaric environment. Under the action of microbaric pressure, oxygen is input into the respiratory and microcirculatory systems, reaching various organs of the human body, and improving arterial blood oxygen partial pressure and oxygen saturation. level to promote human metabolism, eliminate fatigue, improve body resistance, help beauty, prevent the occurrence of geriatric diseases, and improve sub-health status.

1.4 Scope of application and contraindications

Indications: Stress relief, anti-fatigue, hangover relief, and skin rejuvenation for women. Auxiliary physical therapy for insomnia, headache, irritability, anxiety and other sub-health symptoms. Auxiliary physical therapy for cardiovascular and cerebrovascular diseases, high blood pressure, depression, cerebral palsy, gout, etc. Plateau activities, before student exams, athlete training and competitions, pilot training, troops improving individual combat capabilities, etc. are in special environments or have special uses. Frail, middle-aged and elderly people, people with high or high income, people with cardiovascular and cerebrovascular diseases

Contraindications:

Multiple rib fractures, severe and extensive chest wall contusions and open chest wall trauma without treatment

● Untreated tension pneumothorax and spontaneous pneumothorax

● Patients with severe obstructive emphysema

● Acute respiratory infection that has not yet been controlled

● Active pulmonary tuberculosis, with cavities forming, or those who are still coughing up blood

● Those who have just had teeth extracted such as upper collar molars or canines

● Patients with suppurative otitis media

● Patients with non-congestive glaucoma

● Patients with retinal detachment

● Cancer patients with internal bleeding or uncontrolled bleeding disorders who have not received treatment:

● Patients with acute sinusitis;

● Patients with epilepsy;

● Those with high fever and body temperature that have not been controlled:

● Those with blood pressure above 21.33/13.33KPa (160/100mmHg):

● Mental disorders; Women's menstrual period and pregnancy (especially within 6 months);

● Persons with positive oxygen allergy test; patients with bullae and pulmonary cysts:

● Those with Eustachian tube obstruction and tympanic membrane retraction:

● Those with extreme systemic failure.

2. Security Summary

2.1 Safety Precautions

In order to ensure patient safety, please strictly abide by the following safety precautions when using this product.

Attention

1.Users should use this product in accordance with the provisions of this manual. The manufacturer is not responsible for any damages caused by violation of the provisions of this manual.

2.Individuals and families who use the product with the supporting oxygen chamber machine for treatment should follow the guidance of professional doctors.

3.This product cannot be used for life support or life extension. Patients who are unable to express discomfort or recognize alarm signals require additional monitoring.

4.People with oxygen poisoning or oxygen allergies are prohibited from using this equipment.

5.Oxygen chamber system operation and maintenance personnel must be effectively trained.

6.Personnel entering the chamber are strictly prohibited from bringing in fire, such as lighters, matches, electric toys, and electrical products, and smoking is absolutely prohibited.

7.Personnel entering the chamber are strictly prohibited from wearing clothing that can generate static sparks, such as synthetic chemical fiber fabrics, etc. They should wear cotton or anti-static clothing.

8.Personnel entering the chamber are not allowed to put on or take off clothes or comb their hair in the chamber, and facial masks and hair gel are prohibited.

9.Patients with contraindications to hyperbaric oxygen are strictly prohibited from entering the chamber for treatment.

10.It is strictly prohibited to bring flammable, combustible and explosive materials into the chamber (such as grease, alcohol, gasoline, ether).

11.If cracks such as silver streaks are found on the observation window, it should be replaced in time, otherwise the use of the oxygen chamber is strictly prohibited.

12. Please use safe and qualified socket and the wiring board with safe electricity certification.

3. Principle

3.1 Structural principles

1.A cylindrical pressure-resistant shell, which is composite material pressure vessel.

2.Main components: chamber, chamber hatch, automatic pressure relief valve (safety valve)*2, screw-type manual pressure relief valve *1, push-type manual pressure relief valve (emergency pressure relief valve)*1, pressure gauge*1, pipeline interface, chamber control panel, chamber mattress、chamber pillow.

3.2 Working Principle

3.The oxygen chamber is airtight and pressure-resistant. By inputting oxygen and air into the chamber, a slightly high-pressure environment is formed in the chamber. Patients receive oxygen therapy in the chamber, which provides effective and sufficient oxygen to the hypoxic body and increases the oxygen storage in the tissues.

4. Structure

4.1 Structure and composition

Appearance drawing of this machine

No.	Name	No.	Name	No.	Name
1	Hatch	5	Handle	9	Rail decorative cover
2	Push-type manual pressure relief valve (emergency pressure relief valve)	6	Emergency button	10	Chamber air circulator
3	Pressure gauge	7	Intercom	11	Chamber mattress
4	Screw-type manual pressure relief valve	8	Internal display	12	Chamber pillow

5.Specifications and technical performance

No.	Items	Technical Parameters
1	Chamber size	Outer size：2310*910*910mm (L*W*H) Inner size：2250*850*850mm (L*W*H)
2	Chamber weight	180kg
3	Chamber noise	≤ 60dB(A)
4	Pressure	≤ 100Kpa
5	Pessurize and depressurize control method	Automatic control, manual control
6	Size of hatch	830*680mm (L*W)

6. Product installation

6.1 Open box

The wooden box should be opened from directly above the packaging box, the foam should be taken out, and the chamber should be lifted out.

6.2 Check

The chamber and accessories should be inspected for transportation damage, and then the accessories and accompanying documents should be counted according to the packing list.

6.3 Safety Precautions

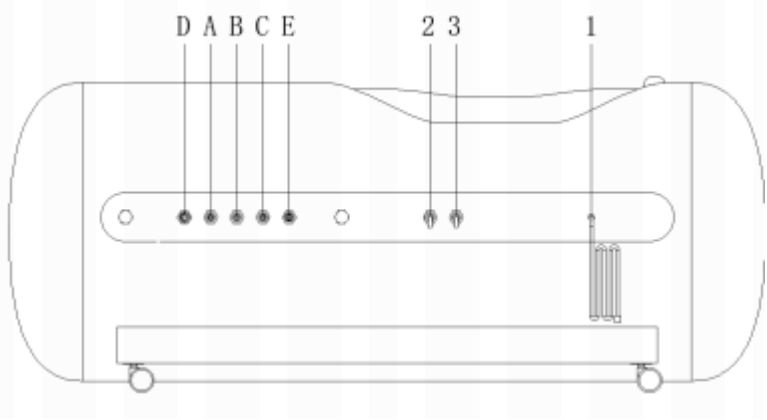
(1)During unpacking and inspection, it was found that the chamber was damaged and should not be used to ensure safety.

(2) Before each opening of the oxygen chamber, be sure to repeatedly check whether all systems and equipment of the oxygen chamber are in good condition. The air chamber must be in good condition before it can be opened for use. It is strictly forbidden to open the oxygen chamber with malfunctions.

(3) Check whether the manual pressure increase and decrease valve on the oxygen chamber is closed.

(4)Check whether the clothing and belongings of those entering the chamber meet the requirements. It is strictly prohibited to bring inflammable and explosive and other dangerous goods, as well as mobile phones, watches and other items into the chamber, and explain the precautions for entering the chamber and the method of oxygen inhalation.

6.4 Connection



A: Chamber pressure monitoring interface (Compatible with oxygen concentrator A)

B: Chamber hatch pressurize interface (Compatible with oxygen concentrator B)

C: Oxygen input interface (Compatible with oxygen concentrator C)

D: Chamber air back flow interface (Compatible with oxygen concentrator D)

E: Air input interface (Compatible with oxygen concentrator E)

1: Oxygen Concentrator connection harness (corresponding to oxygen concentrator socket)

2: Air conditioner water inlet

3: Air conditioner water outlet

7. Product use

7.1 Entering the chamber

① Before starting the machine, connect the oxygen chamber and the corresponding interfaces of the Oxygen Concentrator machine as shown in the figure

② Connect the Oxygen Concentrator to the power supply, turn on the power switch, and the display will light up

③ Set the parameters according to the user manual;

④ Make sure the screw-type manual pressure relief valve is closed and the emergency stop button is pulled out;

⑤ Before the user enters the chamber, make sure the oxygen interface is installed and the oxygen tube or oxygen mask is connected;

⑥ After entering the chamber, the user wears the oxygen device and closes the chamber hatch.

7.2 Pressurization

① Use the "+" or "-" of the pressure adjustment button displayed on the control screen to set the pressure for this time. Use the "+" or "-" of the time adjustment button to set the time of use; a person outside the chamber clicks the switch button of the oxygen concentrator or a user clicks the start button inside the chamber to start;

② It is recommended to adjust ear pressure as soon as possible after entering the chamber to prevent or alleviate ear discomfort. Balance exercises usually take 10-15 minutes;

③ Ear pressure balance adjustment actions include: swallowing, moving the jaw, and yawning;

④ Take a deep breath first, then close your mouth, pinch your nose, and inflate hard;

⑤ If the earache is severe and cannot be improved, please inform the personnel outside the chamber, or press the pause button yourself, and wait until the earache subsides before continuing to pressurize: The use time of microbaric oxygen is generally distributed as follows: pressurize for 5-10 minutes, and then stabilize the pressure No less than

45 minutes, depressurization for 5-10 minutes. Temperature changes in the chamber: The temperature in the chamber rises by about 3~4 C during pressurization and drops slightly during depressurization. Precautions for depressurization: Do not hold your breath when decompressing and maintain normal breathing to avoid dangers such as barotrauma;

⑥ Lie down and relax, and perform pressure-regulating actions for more than 10 minutes, such as swallowing saliva, taking deep breaths, chewing, closing your mouth and pinching your nose and blowing air, etc., until the ear discomfort caused by increased blood pressure disappears;

⑦ 1-3 minutes after starting up, the oxygen concentrator starts to produce oxygen, and gas will come out of the oxygen headset;

⑧ During the pressure increase and decrease stages, you can talk to the chamber users through the intercom system to relieve tension;

⑨ If the earache is severe and cannot be improved, please use the intercom device to inform people outside the chamber, or the user can click the pause button on the display screen in the chamber (the pause button starts to flash). After the earache and discomfort symptoms are relieved, click the pause button again. This operation is repeated until the chamber reaches the set pressure and is maintained in the chamber;

⑩ Determine the treatment plan and pressurization rate according to different cases. In normal cases, the pressurization rate should be controlled within the range of 0.010--0.025MPa/min. Check whether the personnel in the chamber feel any obvious discomfort during the pressurization process. If there is no obvious discomfort, they can continue to pressurize according to the predetermined plan. If the user is obviously unwell during the relocation, the pressurization should be stopped and the pressurization should be continued after returning to normal. If the user cannot return to normal, the user should decompress and exit the chamber. During the pressurization process, you may experience ear pain due to the squeezing pressure on the eardrum, which is normal.

We recommend that you try swallowing or chewing gum to adjust to the pressure change. This feeling will disappear when the pressure stabilizes. If the ear pressure cannot be tolerated, such as when the pressure rises to 2.5 PSI, either shut down the compressor immediately, or slowly unscrew the air release valve and reduce the pressurization speed. When it starts to feel more comfortable, tighten the air release valve. The air is deflated again until the set chamber pressure is reached. When a treatment session is over, turn off

the machine and unscrew the exhaust valve to depressurize the chamber. The pressure will slowly drop from the set pressure to 0.
This depressurization process should take more than 5 minutes. If the depressurization is too fast, you may You may feel pain and pressure in your ears, and you may be at risk of depressurization sickness. When the pressure gauge shows O PSI, the hatch can be opened and the chamber can be left.

⑪ If the ambient temperature is high and air conditioning is required, the air conditioning system should be set up in the system in advance;

7.3 Chamber inner pressure stabilization

① When the chamber is pressurized to the set pressure value, it will be stabilized at this pressure value and become a stable pressure state. At this time, notify the crew in the chamber to prepare for oxygen;

② When oxygen inhalation is completed, the oxygen source should be turned off in time.

7.4 Depressurization

① Inform the crew in the chamber to prepare for depressurization.

② Carry out pressure reduction according to the prescribed pressure reduction plan;

③ During the depressurization process, pay attention to the conditions of the people in the chamber. If there is any discomfort, the depressurization speed can be reduced.

7.5 Monitoring during operation

① During the operation of the air chamber, personnel should pay close attention to the pressure in the chamber and master the time requirements and rates of pressurization and depressurization;

② You must always pay attention to the status of the people in the chamber through the see-through window or intercom, and pay close attention to the reactions of the people in the chamber;

7.6 End of session

① After the personnel exit the chamber after ending of session, remove the oxygen breathing mask. The oxygen breathing mask can be used multiple times by one person;

② Check whether all systems in the oxygen chamber are intact and fault- free, deal with any problems in a timely manner, and turn off the power switches and valves of all instruments;

③ Clean the interior and exterior of the chamber and use ultraviolet light for internal disinfection as required. The oxygen supply and exhaust joints should be disinfected regularly.

8. Regular inspection content

8.1 Inspection and maintenance

When cleaning, you should first cut off the power of the chamber and oxygen concentrator, then use a soft towel dipped in a small amount of neutral household detergent to wipe all parts of the casing, and finally dry it with a towel. When wiping, be careful not to let liquid seep into the gaps. Regularly clean the inside and outside of the chamber, and use ultraviolet lamps for internal disinfection as required.

Disinfect supply and exhaust line joints regularly.

9. Troubleshooting

9.1 Notes on troubleshooting

When performing troubleshooting, please observe the following precautions:

> **Attention**
>
> If the problem cannot be successfully solved by following the suggestions in this chapter, do not attempt to repair or remove the cover yourself

9.2 Trouble analysis and troubleshooting

If you encounter a problem during use, please read this chapter carefully and you may simply solve the problem yourself.

Table 7 Fault analysis and troubleshooting example table

Fault phenomenon	Check Item	Solution
After turning on the machine, the inner pressure of chamber can not pressurize.	1.The manual pressure relief valve is not closed. 2.The hatch seal is leaking and cannot be closed. 3.There is air leakage at the joints of the chamber. Chamber hatch pressurizing time expires	1. Close the manual pressure relief valve. 2. Check and adjust whether the sealing strip is in good condition or contact the supplier. 3.Contact the supplier. 4. Turn off the oxygen concentrator and restart it.
Louder noise during running	Pls check the machine is placed in a balance position	Put the machine in a balance position
Nasal oxygen tube/oxygen mask no oxygen	The joint is loose or the oxygen tube is bent	Insert the interface and straighten the oxygen tube

When the inner pressure meet the setting pressure, the automatic release pressure valves do not work normally	Electronic control failure or damage	Contact the manufacturer for repair
Other faults	Contact the dealer or manufacturer, and do not let non-professionals perform repairs.	

10. Transportation and Storage

10.1 Transportation and storage precautions

Attention

1. During transportation or handling, the machine should be kept vertically and is not allowed to be inverted or lying horizontally.

2. When the storage temperature is lower than 10℃ , the machine should be placed in a normal working environment for 8 hours before use.

3. The machine that has been out of service for a long time should be powered on and checked before use to confirm that all functions are normal before it can be put into use.

10.2 Storage and transportation environmental requirements

Ambient temperature: -20℃~ +50℃ ;
Relative humidity: 30%~93%;
Atmospheric pressure: 500hPa ~ 1060hPa.

10.3 Transport

The logo on the packaging box of this machine complies with the requirements of GB/T 191-2008 "Pictorial Markings for Packaging, Storage and Transportation". The packaging box is lined with shock-proof foam. The complete packaging of the machine is allowed to be transported by common means of transportation. During transportation, violent force should be avoided. Collision and direct exposure to rain or snow.

10.4 Storage

This machine should be stored in a well-ventilated room away from strong sunlight and corrosive gases.

11. Production date and expiration date

11.1 Production Date

The production date of this machine can be found on the nameplate behind the main unit.

11.2 Period of use

10 years

11.3 The service life of this machine is related to the environment, usage and maintenance methods. Please use and maintain it according to the usage environment, usage and maintenance methods required in the manual.

Attention

The service life of this machine is 10 years. The manufacturer will not be responsible for the risks caused by continued use beyond the product life span.

12. Packing list

The packing list of this machine is shown in Table 1.

Packing list

Name / Model	Mattress Pillow	Intercom	Oxygen Mask	Headset Tube	User Manual
IRS-HBOT-01	1set	1set	5pcs	1pc	1pc

Designs and specifications are subject to change without notice

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