

MAXimus

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CE

Cryotherapy Chamber AMAZING MX-4

Cryotherapy chamber that provides full cryotherapy. MX-4 is a closed, roofed chamber with an anteroom in which there is a temperature not higher than -60°C . In the main treatment chamber the temperature reaches between -120°C and -160°C .

The chamber is in many aspects an innovative solution introducing new standards in cryogenic chambers.

The planking is made of specially selected wood that has been carefully prepared and protected. The doors and windows were made with the use of special kind of glass, wood and light, durable plastic. Wall and floor insulation was made with the use of waterproof and heat insulating materials. The whole chamber has an impressive finish: multi-color illuminated polymethyl methacrylate panels (color can be individually chosen by the investor), special fluorescent lamps, aluminum and materials which imitate mirrors. The elaborate design and care for the details gives a stunning effect.

Design

In our solution we included one of the vital aspects of the new PHILOSOPHY - that the medical product, which the cryotherapy chamber is in fact, should alleviate the stress. Therefore we have decided to use a revolutionary form, such high quality materials as: glass, aluminum, high quality plastic, mirror imitations and special lighting which, in our opinion, makes the patient interested in the therapy and the device itself. Thus the patient feels relaxed before the treatment. The patient's well feeling before and after the treatment is a crucial marketing factor – the patient is sure to return and continue the cryogenic therapy. Therefore we extended beyond the functionality of the cryotherapy chamber itself but we gained a much higher cryotherapy standard.

The treatment temperature is reached through a liquid nitrogen fueled heat exchanger system. The oxygen level inside the main chamber is controlled by the oxygen content sensor. The whole process is controlled by the control device which constantly checks the temperature inside the treatment chamber and maintains the work of cryogenic valves by regulating the amounts of liquid nitrogen that go inside the chamber.

The door is made of tempered glass, the door open outside and increase the safety level of the chamber. All the elements of the cryotherapy chamber, due to high moisture and low temperature level, are corrosion-proof. The chamber's load bearing structure is made of specially selected, seasoned and dried wood, impregnated with approved wood preservatives.

We have used such materials which make it impossible for the patient to get over-cooled or frostbite. We have completely eliminated those metal

elements which in extremely low temperature could pose a frostbite threat to the patient.

In order to view the patient better and to let more light inside the chamber we used many glass surfaces. Such a solution increases the patient's comfort and facilitates his/her observation by the staff during the treatment.

The cryotherapy chamber runs on liquid nitrogen which flows into the chamber from an external tank (located outside the building). It is possible to rent such a cryogenic tank by signing a separate contract with an appropriate company on the market. Such companies deal with technical gases distribution, including liquid nitrogen which is used as the refrigerant in our cryotherapy chamber, and with making the pipework that connects the cryogenic tank with the cryotherapy chamber.

Cryotherapy chamber has the following systems:

Feed system

The feed system is located in the accumulation chamber from which the cold air is transported in the main treatment chamber. All the elements are located in the technological part of the chamber. The electromagnetic valves regulate the refrigerant flow with electrical impulses sent from the control device to the feed system.

Drying system

The drying system comprises a heater with a drier fan used to dry the cryotherapy chamber after a series of treatments.

Control system

The control system comprises a control box, control device, display, temperature gauge, oxygen content sensor.



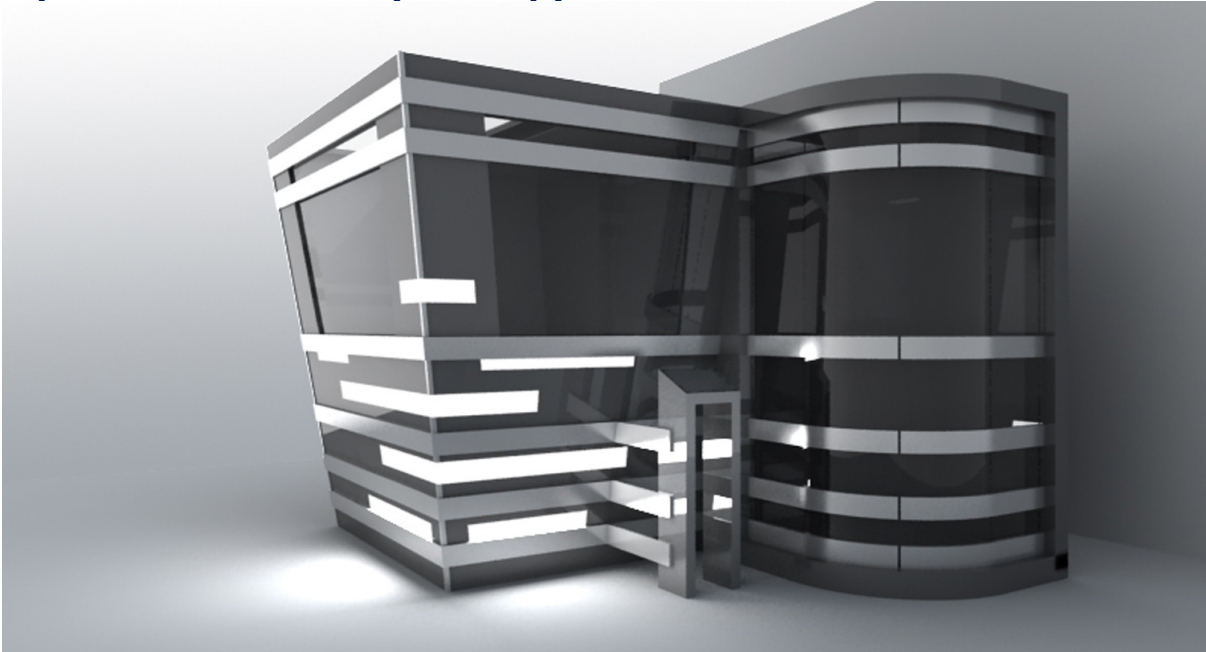
The economical factor of using the cryotherapy chamber

While using the cryotherapy chamber the investor has to take the economical factor into consideration i.e. the costs of running the cryotherapy chamber – namely the cost of refrigerant use (liquid nitrogen) and the cost of power consumption. While designing our chamber we have taken into consideration all the possible solutions which could provide the most economical way of running our device. Using many layers of insulation allowed minimizing its thickness and thus reduced the use of the refrigerant needed to cool down the chamber.

A very important solution applied in our chamber is the treatment chamber cooling system which allows less refrigerant to be used.

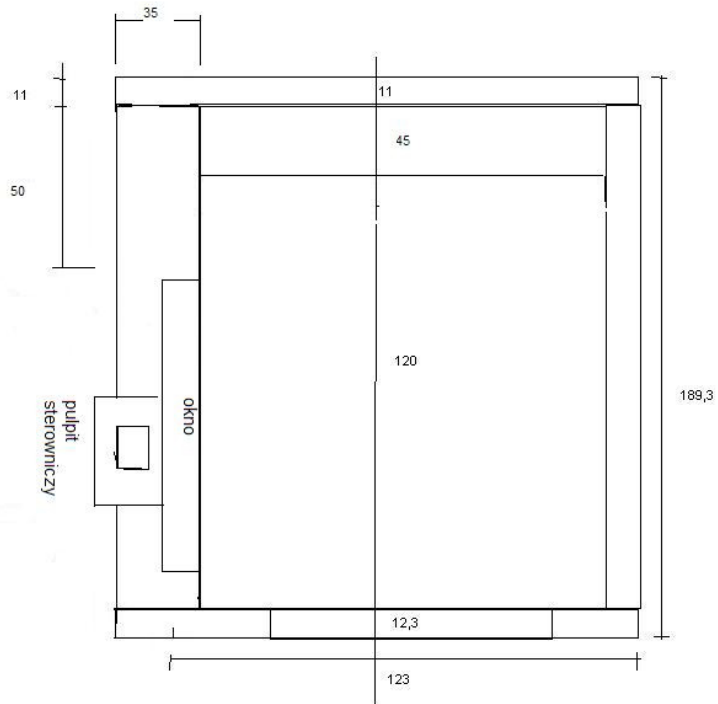
The treatment cycle comprises going of the patient inside the chamber, therapeutic cycle, cryostimulation and stepping out of the chamber after the treatment. During going in and out of the chamber, with the use of our solution, the cold is accumulated thus making it less dispersed through the open door of the main treatment chamber. This solution allows less refrigerant to be used (the loss of cold air applies only to the area inside the treatment chamber).

4 person AMAZING cryotherapy chamber



2 person AMAZING cryotherapy chamber

Top view



By comparing the price of our AMAZING cryotherapy chamber with its advantages, features and the fact that it can be used also by the disabled makes MX-4 the most economical cryotherapy chamber in terms of expenditure and medical effectiveness.

Cryotherapy chamber – specifications

Nominal operating conditions

- Relative humidity:..... < 85 %
- Operating mode: continuous use
- Power supply:230 V, 50 Hz
- Power consumption.....2,4Kw
- Refrigerant: liquid nitrogen

Working environment

- Number of patients inside: 4
- Treatment chamber operating temperatures range: – 110 ° C to – 150 ° C
- Anteroom temperature during the treatment:ca – 60 ° C
- Treatment timeup to 3min

Operating parameters

- Oxygen concentration inside the chamber..... 22 % +/- 2%
- Refrigerant use
- Refrigerant use inside the chamber.....ca 3kg per a patient

Room requirements:

1. Minimum measurements of the room:
 - Height: 2,6 m (4 person chamber)
 - Width: 4,5 m (4 person chamber)
 - Length: 4,5 m (4 person chamber)
 - Height: 2,6 m (2 person chamber)
 - Width: 2 m (2 person chamber)
 - Length: 2,5 m (2 person chamber)
2. Natural and mechanical ventilation systems in good working order
3. A closed room. Main door 90cm, height 200cm
4. On the day of starting the installation of the cryotherapy chamber the room has to be finished and ready to use (walls and ceiling painted, floor leveled and covered with non-slip linoleum, good lighting, central heating)
5. Air conditioning and air dryer in good working order

6. Situating the cryotherapy chamber in the room has to be consulted with the Producer and backed with technical documentation
7. Minimal roof load capacity 600kg/1m²
8. Making a Ø 200mm opening in one of the external walls of the room
9. There should not be any swimming pools, hydromassage rooms or any other facilities which raise the humidity level in the vicinity of the cryotherapy chamber room
10. The branch feeder powering the cryotherapy chamber has to be equipped with a residual current device $\Delta I=30\text{mA}$
11. The cryotherapy chamber needs a permanent power supply with a 3x2mm² wire.
12. Making the pipework between the cryotherapy chamber and the cryogenic gas tank.
13. The room has to meet the ZOZ [HMO(health maintenance organization)] standards of design and should be at least ventilated (air conditioning suggested)
14. The room needs to have a paging alarm system
15. The room needs to comply with EU standards concerning the level of electromagnetic radiation.

Suggestions

1. Changing room near the cryotherapy room
2. A gym near the cryotherapy room
3. A blood pressure monitor for the patients
4. Appoint only trained and qualified staff to operate the cryotherapy chamber
5. Use only CE marked cryotherapy chamber suits
6. First aid kit in (or in the vicinity of) the cryotherapy chamber room