

Decompression chambers Hyperbaric oxygen treatment chamber



Decompression chambers – Hyperbaric oxygen treatment chamber



Introduction

IHC Hytech aims to manufacture high-quality hyperbaric oxygen chambers (HBO) that provide maximum comfort to patients and operators. They are manufactured to customer specifications – diameters vary from 1,700 to 3,000mm and the length can be adapted to suit the number of patients and/or the size of the building.

IHC Hytech HBO chambers fulfill the requirements of annex IV of the Council Directive 93/42/EEC, concerning medical devices. They can either be equipped with rectangular entrance doors or with a full-sized circular door equal to the diameter of the main chamber.

The full-sized door allows for easy access for intensive care patients on full-sized hospital beds. It is provided with a safety interlock system that prevents the opening of the door while the chamber is pressurised. The luxury seats for patients are easily removed from the chamber in order to allow for the use of full-sized hospital beds. The interior and exterior colours of the chamber can be chosen by the customer. Hospital beds, wheelchairs and medical stretchers can be raised and lowered safely and easily.

Each patient is provided with the following equipment:

- individual seat with foldable armrests and integrated headrest
- optional footrest for maximum comfort
- attendant alert system
- entertainment system consisting of: headset with audio connection; video channel connection; volume controls; channel selection switch for the audio system; individual light output control.

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IHC Hytech HBO chambers are provided with a sophisticated oxygen breathing system, allowing the patients to breath comfortably, with a low inhalation and exhalation resistance (3.0 mbar). The oxygen (therapeutic gas) is supplied to patients by means of an oral nasal mask or an oxygen free-flow hood system, whereby the flow to each patient can be adjusted separately. The connections of the oxygen, entertainment and patient-monitoring systems are installed in the overhead panel.

The HBO chamber is provided inside the main chamber with a patient vacuum suction system and storage container. Connection points are also available for the supply of oxygen and/or air to medical equipment such as patient ventilators. The chamber is also equipped with an emergency powered communication system.

IHC Hytech HBO chambers are provided with the latest in chamber computer-control technology. The control system is integrated in an ergonomically designed control stand. IHC Hytech also offers a manual chamber-control system without the computer interface, which includes:

- patient video monitors connected to colour cameras installed in the HBO chamber
- chamber communication system with back-up
- entertainment system
- oxygen analyser/CO₂ analyser
- pressurisation and de-pressurisation controls for both chamber compartments
- chamber flushing control valve
- PC with monitor showing all relevant chamber data
- mechanical pressure gauges for both compartments
- gas selection valves
- controls for firefighting system.

Specifications

The chambers are equipped with:

- fire suppression system (sprinkler)
- portable fire extinguishers
- chamber acclimatisation unit (for cooling, heating and dehumidification).

The following equipment is optional:

- patient critical-care monitoring equipment
- video screens for patient entertainment
- hyperbaric toilet/wash basin with hot and cold water.



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IHC Hytech uses a reliable industrial PLC for the computer steering systems of both chamber compartments. A selection of pre-programmed therapy profiles are included in the software and the operator can also make up or enter other suitable profiles. The PLC controls the pneumatic valves that control pressurisation and de-pressurisation of the chamber but it is always possible (at any time) to override the computer and take over manual control of the system.

The computer and monitor installed in the control panel operate as a feedback system for the PLC and display the following parameters:

- actual pressure against time
- lapsed time/pressure and time/pressure to go
- pressure increase/decrease of both compartments/speed of pressurisation
- chamber pressures in both compartments (MSW/ bar)
- temperature
- relative humidity
- oxygen percentage as well as partial pressure.

It is always possible to change the pressure or time profile during a treatment session as well as entering relevant comments and patient data for future use.



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