

IHC HYTECH

Ramgatseweg 27
4941 VN Raamsdonksveer
The Netherlands

T +31 88 015 36 00

hytech@royalihc.com
www.ihchytech.com

IHC HYTECH **HYPERBARIC OXYGEN** **TREATMENT SYSTEMS**



September 2018 - All rights reserved. Reproduction in any form or by any means is not allowed, without prior permission in writing from IHC Merweide Holding BV.



**THE TECHNOLOGY
INNOVATOR.**



**THE TECHNOLOGY
INNOVATOR.**

INTRODUCTION



Hyperbaric oxygen treatment (HBO-T) involves the medicinal use of oxygen at levels higher than atmospheric pressure. This treatment enhances the body's natural healing processes. HBO-T can be used to treat conditions that benefit from increased tissue oxygen availability. As a result of its antibiotic properties it can also be used for treatment of infections. A growing number of indications are covered by health care insurance and 14 indications are officially recognised by the Undersea and Hyperbaric Medical Society (UHMS). Moreover, scientific research demonstrates the benefits of HBO-T for other conditions not yet covered. Therefore, the number of people utilising hyperbaric oxygen therapy continues to rise.

IHC Hytech has more than 30 years of experience in designing and manufacturing high quality professional diving and hyperbaric equipment. As such, IHC Hytech is the leading HBO-T chamber manufacturer. IHC Hytech is based in Raamsdonksveer, the Netherlands. We design and construct both standard systems and custom-built solutions and equipment to meet specific requirements. Our systems are efficient and flexible. They are being relied on by many hospitals, private clinics, navies, government organisations, salvage companies, and inshore and offshore diving contractors.

Our in-house design team ensures compliance with the latest technological developments, strictest safety protocols, environmental standards and the most stringent regulations for manufacturing medical equipment. Our systems are built in compliance with the applicable sections of the Medical Device Directive (MDD) 93/42/EEC, and the 2007/47/EC and EN 14931 (PHVO) directives. The pressure vessel of the HBO-T system is designed and manufactured according to the European Pressure Equipment Directive (PED) 2014/68/EU, and our hyperbaric firefighting system is built and designed according to EN16081. A third party approves the entire hyperbaric system after completion and we aim to surpass these European standards. The management system of IHC Hytech has been awarded with ISO 9001:2016 and ISO 13485:2012 certificates.

USP'S

- **EXTREMELY LONG PRESSURE VESSEL FATIGUE LIFE.**
- **PROVEN RELIABILITY EVEN WITH INTENSIVE DAILY USE.**
- **FULL RANGE OF CERTIFIED CHAMBERS, BOTH STANDARD OR CUSTOMISED TO INDIVIDUAL SPECIFICATIONS.**
- **HIGHLY SOPHISTICATED DUAL REGULATORS FOR VERY LOW BREATHING RESISTANCE.**
- **24/7 SERVICE DEPARTMENT WITH WORLDWIDE COVERAGE.**
- **LOW RUNNING COSTS, PREDICTIVE MULTI-YEAR MAINTENANCE AND HIGH EFFICIENCY.**
- **PRE-PROGRAMMED SESSION PROFILES AVAILABLE.**
- **ENTERTAINMENT AND COMMUNICATIONS SYSTEMS WITH INDIVIDUAL PATIENT CONTROLS.**
- **TURNKEY DELIVERY INCLUDING MACHINERY, INSTALLATION AND TRAINING ONSITE BY OUR OWN SPECIALISTS.**

STANDARDISED HBO-T CHAMBERS



IHC Hytech has developed a modular standardised range of HBO-T chambers, called HYOT. The standard capacity ranges from four to twenty persons per chamber. Our HYOT models have a proven track record, offer excellent value for money and delivery times are short. Moreover, the complete standard range is already prepared to comply with the applicable sections of the MDD. All HYOT models have a diameter of 2,200mm and are fitted with rectangular doors for easy access. The seats can be easily removed to accommodate wheelchairs or medical stretchers. Matching machinery with the specifications and capacities per model, can be included to deliver a turnkey and highly reliable integrated solution.

ALL HYOT CHAMBERS FEATURE:

- a sophisticated breathing system with low inhalation and exhalation resistance
- the option to use an oral/nasal mask or a free-flow hood at each seat
- luxury seats with foldable armrests and integrated headrests
- individual controls for each patient for communication, entertainment and overhead lighting
- an LCD touch screen to control the chamber from the inside
- a customisable interior and exterior design
- a fully automatic control system with manual override and standardised control panel.

THE STANDARDISED IHC HYTECH HYOT CHAMBER RANGE

HYOT 2200-04-2 RD	(4 occupants in the main chamber + 2 in the entrance lock)
HYOT 2200-06-2 RD	(6 occupants in the main chamber + 2 in the entrance lock)
HYOT 2200-08-2 RD	(8 occupants in the main chamber + 2 in the entrance lock)
HYOT 2200-10-2 RD	(10 occupants in the main chamber + 2 in the entrance lock)
HYOT 2200-12-2 RD	(12 occupants in the main chamber + 2 in the entrance lock)
HYOT 2200-14-2 RD	(14 occupants in the main chamber + 2 in the entrance lock)
HYOT 2200-16-2 RD	(16 occupants in the main chamber + 2 in the entrance lock)
HYOT 2200-20-2 RD	(20 occupants in the main chamber + 2 in the entrance lock)

SAFETY

Safety is key and for that reason in our chambers we only use materials that meet the highest industrial standards. Tungum alloy tubing which is suitable for oxygen/breathable air. You will not find flexible oxygen and air supply hoses in any of our systems. All electrical cabling is made of halogen-free material, which is non-toxic in the event of a fire. The seats are fire-retardant and composed of antibacterial materials. Our HYOT chambers are equipped with a hyperbaric firefighting system, built according to EN16081, and fitted with an advanced fire detection system using UV sensors.

IHC Hytech delivers complete systems, including a control console, air compressors and air buffers. All of these meet the latest industry standards. Special care has been taken to ensure the reliability and ease of operation of the system, and service level agreements are provided to ensure maximum support to customers.

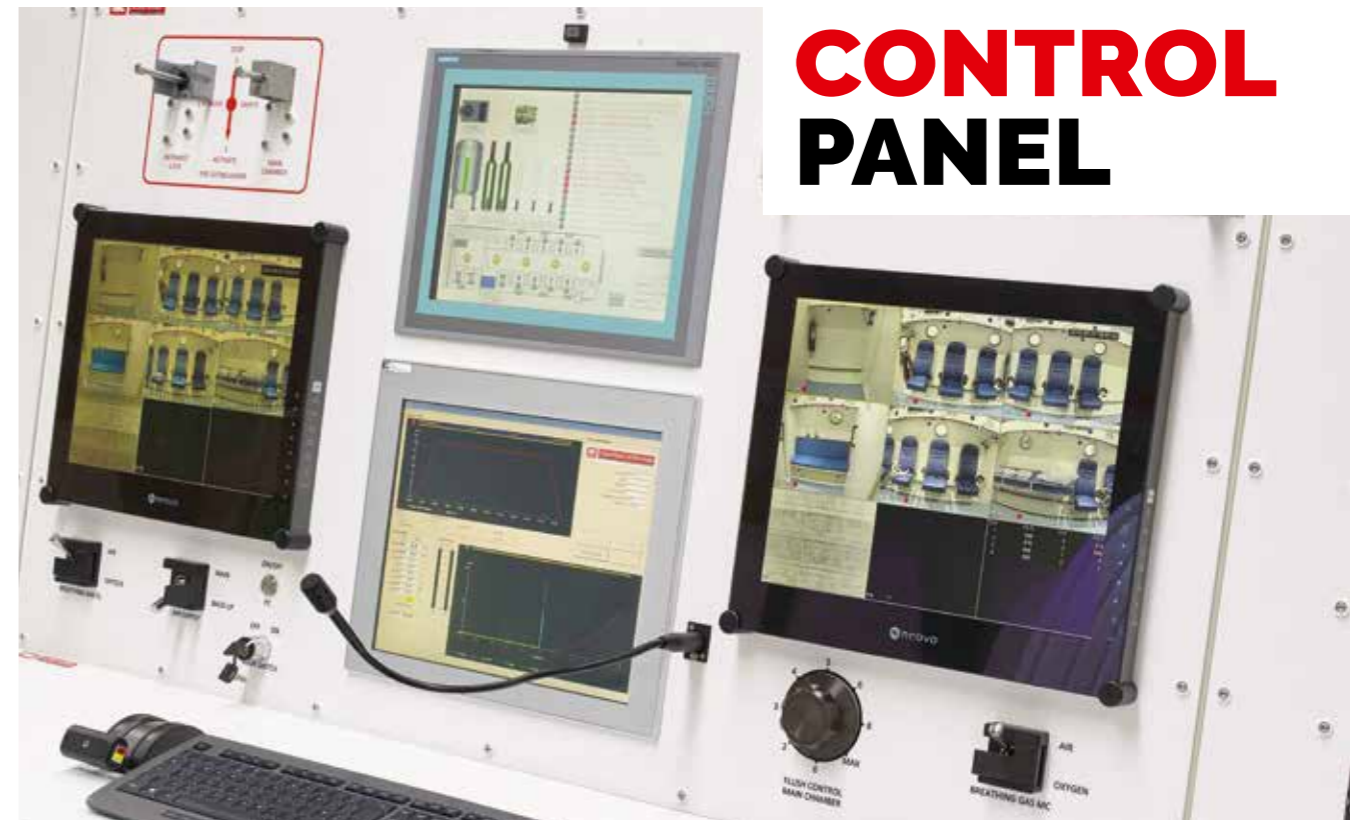
CUSTOMISED SOLUTIONS



In addition to our standard range, we also design and manufacture HBO-T chambers to meet specific requirements, such as triple-lock, double chamber set-ups, large diameter or rectangular solutions for optimal hospital integration and patient flow.

Furthermore, we can deliver all related machinery and equipment. We are able to provide turnkey solutions and are always willing to give additional support such as optimising the layout of a facility, requirements for false floors or pits, and assistance with load assessment and space availability. In this way, we become an extension of your organisation to ensure that the end product is utilised in the most effective way.

CONTROL PANEL



Our HYOT systems are supplied with state-of-the-art computer controlled technology. Integrated into an ergonomically designed stand, the control panel has all the controls and displays required to operate the system and monitor the patients during a therapy session. The panel consists of:

- a sophisticated individual communication system
- entertainment system (audio and/or video)
- camera observation system with HDD recorder
- graphic data logger
- visual and audible warning system
- emergency communication
- PC panel and HMI monitor
- analogue depth gauges
- flush control
- controls for the breathing system
- mains and backup power supply switch
- firefighting activation
- operator presence confirmation (OPC) button
- supply selector for the mains and backup air supplies
- profile controllers for manual, semi-automatic or computer-controlled operations.

PLC COMPUTER PROGRAM

We use an industrial type programmable logic controller (PLC) for the computerised control systems of both chamber compartments. A selection of pre-programmed therapy profiles are included in the software, and the operator can also create or load customised profiles. The PLC controls the pneumatic valves that regulate the pressurisation and depressurisation of the chamber. At any time during a treatment session, the pressure or time profile can be changed, and relevant comments and patient data can be entered for future use. It is also possible to override the computer at any time and assume manual control of the system.

HEATING, COOLING AND AIR SUPPLY SYSTEMS



We can deliver the following equipment to complete the system:

- a low-pressure compressor with refrigerant air dryer, supply vessels and filtration systems to produce breathing air according to EN12021 as a primary source of the air supply
- a high pressure compressor with high pressure backup air cylinders, producing breathing air in accordance with EN12021 as a secondary source of the air supply
- hot and cold water machines to supply the integrated heat exchangers, when no hot or cold water supply is available from the hospital.

ADDITIONAL EQUIPMENT



SIARE NEPTUNE HYPERBARIC MULTI-PARAMETRIC MONITOR

The Neptune vital signs monitor can be used in hyperbaric chambers in depths ranging from nine to 60 meters, and displays the following essential parameters: ECG/RESP, HR, SPO2, NIBP, 2 TEMPS, arrhythmia monitoring and ST. Also, outside the hyperbaric chamber, two IBP and ETCO2 parameters can be monitored. The monitor is equipped with extensive functions, such as audible and visible alarms, trends and events.

MASKS AND HOODS

IHC Hytech can deliver a range of oxygen masks and hoods. Our masks cover noses and mouths, and are suitable for various respiratory applications. The oxygen treatment hood has been designed for use in clinical hyperbaric chambers and is comfortable for the patient to wear. The hood is made of clear medical-grade vinyl with an optical-quality, extra-large viewing window on the front. It is simple to use and clean, since it is welded to the neck ring. This also reduces the risk of bacteria becoming trapped between the neck ring and the hood.

OTHER OPTIONAL FEATURES:

- video entertainment system with HDMI/DVD
- HyPad hyperbaric tablets
- patient stretcher system with trolley
- vacuum system with connection points
- additional air and oxygen supply connections
- additional 12 VDC sockets.



The pressurised environment of a HBO-T chamber places special demands on certain medical equipment. We can supply systems that are specifically designed for use in hyperbaric chambers.

SIARETRON 1000 IPER HYPERBARIC VENTILATOR

The Siaretron 1000 IPER is an advanced intensive care ventilator for use in hyperbaric chambers up to a depth of 60 metres. It is suitable for ventilation of adult, paediatric and neonatal patients. It is equipped with a flow and pressure trigger, and provides the most advanced volume-controlled ventilation modalities.

SERVICES



Every product that we produce and sell is supported by an extensive quality control and after-sales provision. We offer a 24/7 service and can respond immediately to minimise the delay to your operation if any problem occurs.

Our services include:

- maintenance and (re) certification of your system on site
- multi-year service programs providing optimal transparency on material and labor costs
- supply of spare parts and consumables from stock
- refurbishment and maintenance of existing systems
- upholding correct functioning of your system
- customised Service Level Agreements
- extended operator training courses onsite or at IHC Hytech
- customised training courses for the medical staff, protocol- and start up support.

THE NETHERLANDS

- APELDOORN
- HARDINXVELD - GIESSENDAM
- ALPHEN AAN DEN RIJN
- SLIEDRECHT
- DELFT
- ROTTERDAM
- KRIMPEN AAN DEN IJSSEL
- KINDERDIJK
- GOES
- RAAMSDONKSVEER

