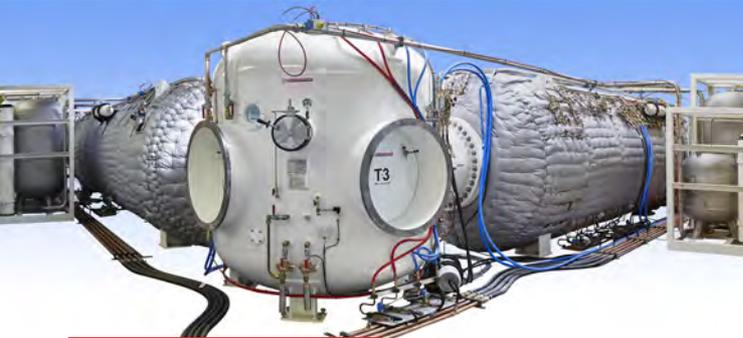


# Hyperbaric tunnelling systems



Tunnel project in Hong Kong

In 2015 IHC Hytech delivered an innovative Onshore Saturation System Living Chamber Complex project. This just happens to be one of the largest saturation systems in the tunnel construction industry.

This complex was built for the prestigious tunnel project Tuen Mun - Chek Lap Kok in Hong Kong. The 4.2 km long tunnel connects the airport to the northern Tuen Mun. The tunnel project has the world's largest tunnel boring machine (TBM). The 17.6 m diameter machine was supplied by German manufacturer Herrenknecht.

IHC Hytech's saturation system consists of several inter-connected pressure chambers manufactured following strict safety standards. For comfort, the system is equipped with multiple sleeping quarters and a wet room. The control panel uses the latest technology, including a touch screen for operation. Two machinery containers are housing the systems life-support equipment.

The pressure rating for this project is approximately 7 bar (70 meters). The onshore saturation living chambers, as well as the medical chamber however are designed for a 20 bar (200 meters) pressure rating to cope with deeper projects that the end user may embark on.



## Royal IHC

IHC Hytech is part of Royal IHC. IHC enables its customers to execute complex projects from sea level to ocean floor in the most challenging of maritime environments. We are a reliable supplier of innovative and efficient equipment, vessels and services for the offshore, dredging and wet mining markets.

With a history steeped in Dutch shipbuilding since the mid-17th Century, we have in-depth knowledge and expertise of engineering and manufacturing high-performance integrated vessels and equipment, and providing sustainable services. With our commitment to technological innovation we strive to continuously meet the specific needs of each customer in a rapidly evolving world.

Royal IHC. The technology innovator.



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# IHC Hytech Hyperbaric tunnelling systems



**We keep you breathing**



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# Hyperbaric tunnelling systems



Complete package



Quality products



Service

For more than two decades, IHC Hytech has been actively involved in the design and manufacture of certified decompression/hyperbaric chambers systems, which are installed in tunnel boring machines (TBMs). Not only does IHC Hytech specialise in delivering, for example, man lock chambers (for transfer under pressure), which are integrated in the pressure shield of TBMs, but it is also capable of supplying: complete turnkey packages with man transfer shuttles; decompression chambers; medical chambers; and hyperbaric living habitats, including all auxiliary equipment. In addition to this, IHC Hytech provides life-cycle support for all the systems it supplies.

## MTS and SDC

The MTS (Main Transfer Shuttle) is used for the transport of personnel between the TBM (Tunnel Boring Machine) and the SDC (Special Decompression Chamber). A SDC can consist of a two compartment decompression chamber with a control panel in a separate container (Control room).

## System integration and packaging

The control panels, decompression chambers, compressors, cooling systems and all other components needed to operate the system are built, if required, into containers to facilitate easier transportation to the tunnelling site, effortless on-site handling, better protection of materials/equipment and comprehensive organisation of the remote control for all hyperbaric intervention activities. The interconnections will be delivered and, if requested, installed by IHC Hytech experts. The integration of all components can also be facilitated by IHC Hytech's engineers at all times.

## Flexibility to customise

Tunnelling systems have various dimensions and specifications depending on the project requirements. This also influences the design of the decompression chamber/hyperbaric systems needed for intervention activities. It is essential that the equipment supplier cooperates closely with the contractor, operator and TBM supplier.

IHC Hytech will ensure maximum flexibility and collaboration in order to design and develop the requested custom-built system together with the customer. Working in this way ensures our customers receive an optimised system design/delivery and suitable solutions that answer all the needs of any tunnelling project.

## Quality guaranteed

IHC Hytech designs and supplies almost all subcomponents for its finished products in-house, which allows for complete internal QA control. This is a guarantee for delivering state-of-the-art high-quality equipment within the mandatory regulations and deadlines every tunnelling project is subject to.

In order to safeguard the planning of any project, a team of experienced project managers and engineers will ensure the logistical and production processes run smoothly and to the exact specifications of each assignment.

## Certification and regulations

With regard to various national regulations and customer specifications, all IHC Hytech equipment is built in compliance with the requirements of renowned international certification authorities, such as LR, DNV GL, ASME, TÜV. Surveyor inspections during essential stages of the design and manufacturing process are a normal procedure for IHC Hytech tunnelling projects.

## Services & Life-cycle support

Customers receive comprehensive user-friendly manuals on how to operate and maintain the IHC Hytech systems when they are delivered. In-house or on-site training can also be provided for operators. It is able to provide customers with complete life-cycle support, including the supply of spares and routine maintenance.

In short, IHC Hytech is the ideal partner to design, manufacture and install the complete decompression/hyperbaric system to allow the caisson work on your TBM to be executed in the most cost-effective and safest way possible.

