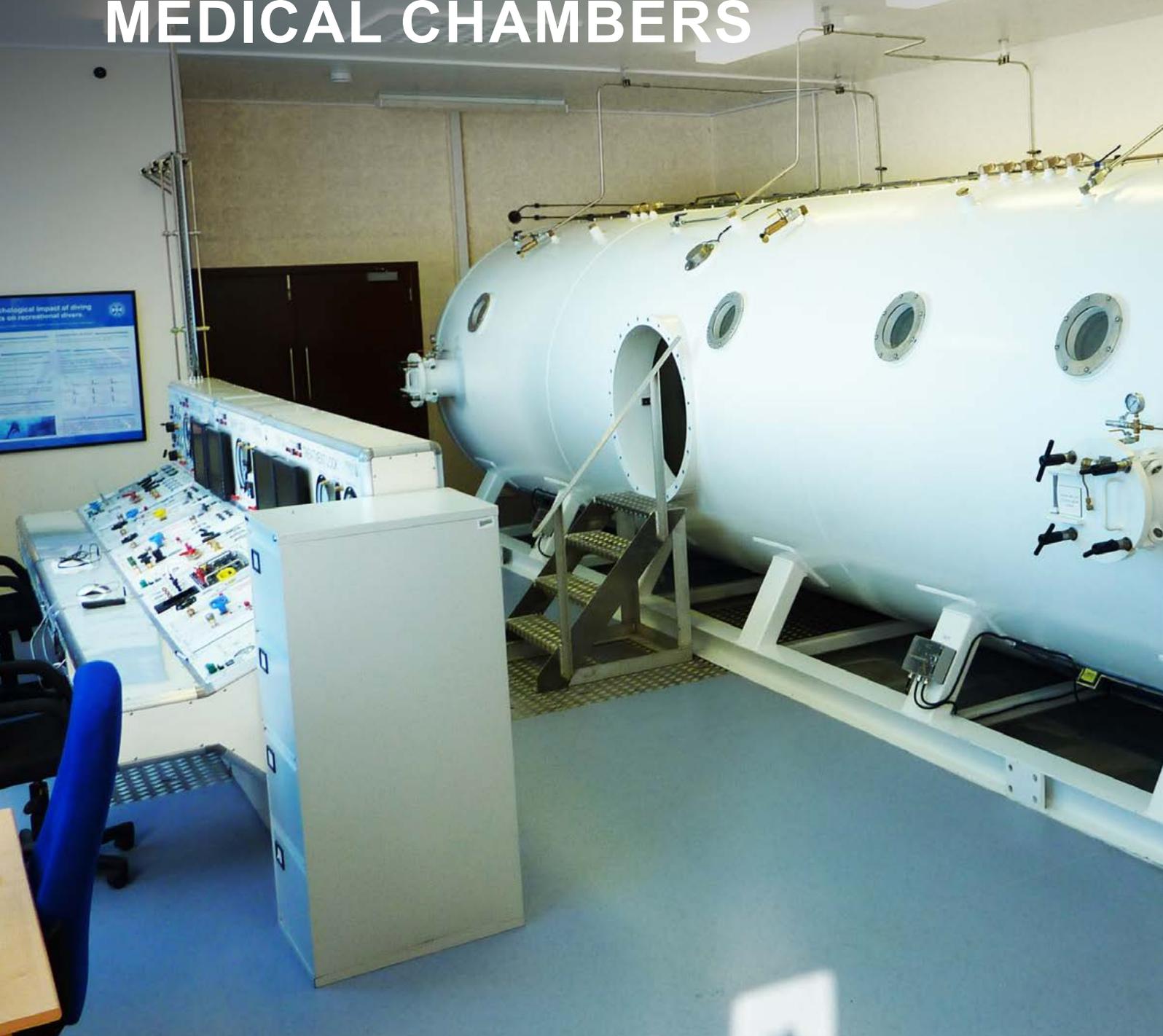


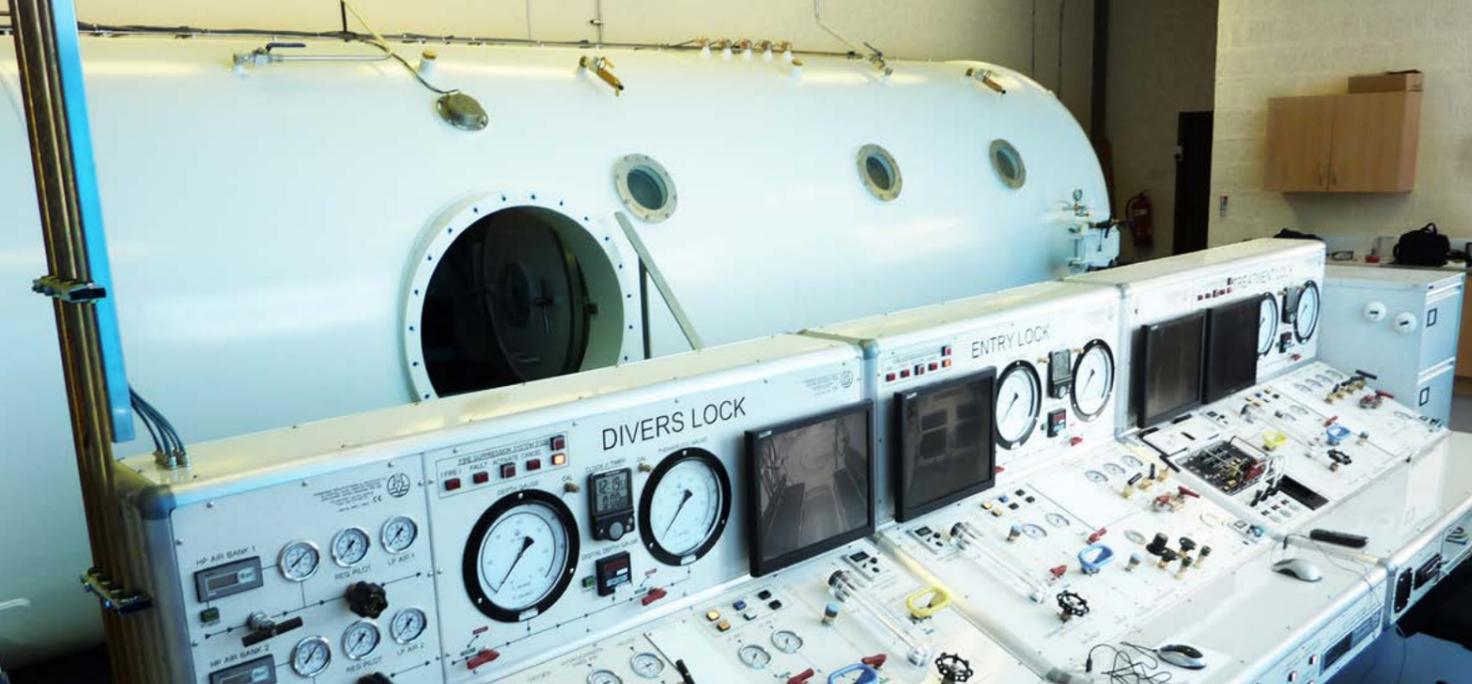
35 YEARS OF INDUSTRY EXPERIENCE

MEDICAL CHAMBERS



Submarine Manufacturing & Products Limited

Manufacturer of Commercial Diving, Medical Hyperbaric
Applications and Military Subsea & Emergency Rescue
Solutions.



Introduction

In many of the larger capacity hyperbaric chambers, the patients and treatment staff inside the hyperbaric chamber will normally breathe 100% pure oxygen through either a face oxygen mask or an oxygen hood. Some oxygen masks are designed to take the exhaust gas that the patients breathe out outside the chamber. The oxygen masks are normally attached to an exhaust gas manifold inside the chamber that allows the exhaust gas to be extracted outside of the hyperbaric chamber.

Throughout the hyperbaric treatment, patients inside the hyperbaric chamber breathe 100% pure oxygen in order to maximise the effectiveness of the hyperbaric treatment. They do have regular

“air breaks” so as to minimise the risk of oxygen toxicity. Breathing pure oxygen for prolonged periods at elevated partial pressure can be poisonous to the human body and result in cell damage and death, with effects most often seen in the central nervous system, lungs and eyes.

The exhaled gas must be removed from the chamber to prevent the build up of oxygen which can prevent a serious fire risk. Treatment staff inside the chamber will also breathe pure oxygen to reduce their risk of decompression sickness. The hyperbaric chamber pressure is increased by opening valves allowing high pressure air to enter from storage cylinders, which are filled by an air compressor.

Our Hyperbaric Chambers

SMP Ltd have a long and established history of designing & manufacturing Hyperbaric Chambers for use in the Commercial Diving Industry. The expertise and knowledge gained from the Diving Industry has been transferred into a range of HBOT Chambers that are comfortable, simple to use and affordable. Our talented and experienced team has developed a range of modern, state-of-the-art hyperbaric chambers are capable of all medical Hyperbaric Oxygen Treatments (HBOT) and provide maximum comfort to patients and operators. Designed and manufactured at our premises in the UK, our hyperbaric oxygen chambers offer the latest technology and a sleek modern look that would fit into any hospital, medical centre or clinic worldwide.

Our standard medical chambers can be adapted to suit the number of patients and site configuration. Alternatively chambers can be manufactured to customer specifications and bespoke packages designed to provide multiple treatment configurations or particular aesthetic desires. SMP work hard to listen to our clients' requirements, devising an appropriate solution before delivering the finished article on time and within agreed budgetary guidelines. Our related products can provide a comprehensive range of medical assistance including oxygen therapy as well as treatment for sporting injuries, burns, open wounds and more.

Treat Various Ailments and Wounds

Hyperbaric Oxygen Therapy (HBOT) has had positive results dealing with these illnesses:

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| <ul style="list-style-type: none"> Abscesses (intra-abdominal and intracranial) Acute Necrotizing Fasciitis “Flesh Eating Bacteria” Acute and Chronic Osteomyelitis (Bone Infection) Air or Gas Embolism <ul style="list-style-type: none"> a. Decompression induced (divers) b. Latrogenic (bypass surgery, injected, etc.) Alzheimer’s Amyotrophic lateral sclerosis (ALS) Anoxic Brain Injury Autism Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (ADD/ADHD) Bell’s Palsy Blast Injury Biliary Atresia (after surgical correction) Buerger’s Disease Burns Brain Dysfunction following Bypass Surgery and Angioplasty Cancer Carbon Monoxide Poisoning Carbon Tetrachloride Poisoning Cerebral edema <ul style="list-style-type: none"> a. Toxic Encephalopathy b. Vascular Compromise c. Traumatic Cerebral Palsy Compartment Syndrome/Crush Injury/ Other Traumatic Ischemias Chronic Fatigue Chronic Inflammatory Disease Cirrhosis Cranial Nerve Syndromes <ul style="list-style-type: none"> a. Trigeminal Neuralgia b. Vestibular Disorders (Vertigo, Tinnitus, Meniere’s syndrome) c. Sudden Deafness d. Brain Stem Syndromes (ischemia, infarct) e. Retinal Artery Occlusion | <ul style="list-style-type: none"> f. Acoustic Trauma Crohn’s Disease Cyanide Poisoning Decompression Sickness (Bends) Diabetes Diabetic and Selected Wounds Diabetic Retinopathy Early Organic Brain Syndrome <ul style="list-style-type: none"> a. Small Vessel Disease b. Multiple Small Infarcts Exceptional Blood Loss (Anemia) Fetal Alcohol Syndrome Fibromyalgia Frostbite Gas Gangrene Glaucoma with Visual Field Loss Gulf War Syndrome Heart Disease Hydrogen Sulfide Poisoning Idiopathic Sudden Sensorineural Hearing Loss Ileus Immune Dysfunction Infections Intracranial Abscess Lepromatous Leprosy Lyme Disease Macular Degeneration Ménière’s Disease Meningitis Migraine Mitochondrial Disorders Multiple Sclerosis Myocardial Infarction Necrotizing Soft Tissue Infection Osteoradionecrosis and Radiation Tissue Damage Osteomyelitis (Refractory) Pancreatitis Parkinson’s Syndrome Peptic Ulcer Peripheral neuropathy <ul style="list-style-type: none"> a. Charcot Marie’s Tooth Disease b. Radiation Myelitis | <ul style="list-style-type: none"> Pneumosis Cystoides Intestinalis Post-Cardiotomy and Low Output Heart Failure Post-Polio Syndrome Potentiate Antibiotic Therapy Pseudomembranous Colitis Radiation Cystitis and Enteritis Radiation Necrosis Recovery from Plastic Surgery Reflex Sympathetic Dystrophy (RSD) Refractory Mycoses (fungal infections) Retinal Artery Occlusion Retinal Vein Thrombosis Retinitis Pigmentosa Reynaud’s Disease Rheumatoid Arthritis Scleroderma Severed Limbs Sickle Cell Crisis Skin Grafts and (Compromised) Flaps Slow Healing Wounds Smoke Inhalation Spinal Cord Injury Sports Injuries Stroke Stump Infections (following amputation) Surgery Recovery Sympathetic Reflex Dystrophy Thermal Burns Traumatic Brain Injury Ulcerative Colitis Vascular Disease Vegetative Coma (acute and prolonged) <ul style="list-style-type: none"> a. Closed Head Injury b. Hypoxic Encephalopathy (suffocation, drowning, strangulation, cardiac arrest, near hanging, near choking, lightning strikes, etc.) c. Acute d. Relapsing / Remitting e. Chronic Progressive Visual Impairments Wound Healing |
|--|--|--|



SMP install Hyperbaric Chamber and Control Desk in Orkney

SMP Ltd received an enquiry from a client based in Orkney regarding a hyperbaric medical chamber. They required a triple-lock hyperbaric chamber that could be used by multiple divers at a time in different pressures.

The scientific underwater facility required a hyperbaric chamber that would be able to provide medical attention to divers who needed it at their site in Orkney. Located close to the European Marine Energy Centre, this facility provides the scientific resources as well as the safety and medical support for divers.



The hyperbaric chamber required a fully featured control unit to allow for specialist use of the chamber. They needed the system to be able to support multiple users in confined levels of decompression.

SMP delivered a triple-lock hyperbaric medical chamber with a 2-man operating system to the client in Orkney. The triple-lock system featured an entry lock, a diver lock and a treatment lock.

This state-of-the-art system also included two high pressure air storage quads, a high pressure heliox storage quad, a high-pressure nitrox storage quad and a smaller high-pressure carbon-free air quad. It also included two high pressure compressors and a backup set of gas cylinders.

Submarine Manufacturing and Products Ltd are a leading supplier of hyperbaric and decompression chambers with clients across the globe using their systems. Having supplied single person chambers to 14-man chambers and more to various customers, they are known for their abilities to adapt to and accommodate to a client's requirements.



Hyperbaric Chamber delivered to hospital in Guernsey

The States of Guernsey's Committee for Health & Social Care was looking to purchase a containerised hyperbaric chamber to support commercial diving operations which were to take place in the Bailiwick of Guernsey. The chamber would be used by inshore/inland commercial divers, scallop, leisure and other divers. The system had to be compliant with the requirements of the UK's Health and Safety Executives (HSE) Commercial Diving Projects, Inland / Inshore Approved Code of Practice (ACoP) L104 and International Marine Contractors Association (IMCA) guidance D023 Rev.1 and within EN 14931 (Pressure Vessels for Human Occupancy).

The States of Guernsey's Committee for Health & Social Care (HSC) provides integrated health and social care to the people of Guernsey and Alderney, being the largest single employer in the islands with approximately 2,000 staff across the whole organisation. The chamber would be



located at the Princess Elizabeth Hospital, the only hospital on the island.

SMP built a decompression facility within the confines of a single 40ft ISO container. The container is divided into three specific sections, the first section being the reception and waiting area that has direct access to the entry lock of the chamber. This section has a CCTV camera and intercom system installed to monitor it, the system being connected into a TV monitor and communication unit close by.

The second section contains the twin lock decompression chamber as well as the chamber life support control panel, air conditioning, workbench, sink and storage. The third area contains the critical life support equipment. This consists of the high pressure compressor with breathing air filtration, HP air banks, LP compressor, receiver, filtration, main electrical distribution, external chamber air conditioning system, fire suppression system, HP charger panel and the provision for connecting HE/O2 or nitrox cylinder. The room also has electrical strip lighting and power points for general hand tools, spares and the workbench.

A fourth area has been added onto the side of the container which houses 2 independent banks. These banks consist of 2 cylinders in each, adding a capacity of 12,960 ltrs of oxygen storage per bank. The banks have been independently manifolded to high pressure to low pressure regulators, fitted with pressure transducers for a digital signal of high-pressure contents at the chamber control panel.

The system has been built with design approval and witness testing by Lloyds Register of Shipping. Associated documentation is compliant with IMCA D018 and D023 and CE Certified to the relevant Codes and Regulations. The system has also been built in accordance with SMP's Quality System ISO 9001 and more importantly EN ISO 13485 which is specifically aimed at the Medical Devices Quality Management Standards.



SMP TC-2 Range

2 Bar Single Lock Hyperbaric Oxygen Therapy Chambers

- SMP TC6-2 Medical Chamber (6 Person Chamber)
- SMP TC8-2 Medical Chamber (8 Person Chamber)
- SMP TC10-2 Medical Chamber (10 Person Chamber)
- SMP TC12-2 Medical Chamber (12 Person Chamber)
- SMP TC14-2 Medical Chamber (14 Person Chamber)
- SMP TC16-2 Medical Chamber (16 Person Chamber)
- SMP TC18-2 Medical Chamber (18 Person Chamber)

SMP TC-5 Range

5 Bar Twin Lock Hyperbaric Oxygen Therapy Chambers

- SMP TC6-5 Medical Chamber (6 Person Chamber)
- SMP TC8-5 Medical Chamber (8 Person Chamber)
- SMP TC10-5 Medical Chamber (10 Person Chamber)
- SMP TC12-5 Medical Chamber (12 Person Chamber)
- SMP TC14-5 Medical Chamber (14 Person Chamber)
- SMP TC16-5 Medical Chamber (16 Person Chamber)
- SMP TC18-5 Medical Chamber (18 Person Chamber)

Our chambers can be made to fit your requirements

Safe and Compliant

SMP has provided expert services to clients worldwide for over 35 years. We are fully accredited, and our team has also gained numerous awards in the manufacture and export of specialist goods. Manufactured to high quality our hyperbaric oxygen chambers (HBO) provide maximum comfort to operators and patients.

Designed in compliance with the requirements of PD5500 Cat 1, BS EN 13445 and ASME PVHO. Design approvals and constructed under survey by Lloyds Register. Supported by essential safety requirements of PED 2014/68/EU and CE certified to the Medical Device Directive 93/42/EEC. As well as recognised international standards chambers can be designed and manufactured to customer specifications and individual requirements.

Partner of Choice

- No matter how difficult the challenge or how long the process, we work very closely with the client to enable them to achieve their goals.
- SMP offer customers a quality service and products. For this we are indebted to the skills and dedication of our workforce. Without them we would not be in the position we are today.
- We deliver our results through continued innovation and communication.
- Our experience and resources cover a variety of industries that we operate in today.
- We would like to emphasise that we offer a complete service that we feel is special within our marketplace.
- Due to industry and client demands, SMP has developed its operations to suit the marketplace offering mechanical, hydraulic and electrical designs and manufacture.
- As an international Company we understand the requirement for interpretation.

Control Panel and Gas Systems



Our chambers are partnered with a state of the art control panel for monitoring and maintaining a stable environment within the chamber. The control panel can be attached onto the side of the chamber or can be manufactured as a freestanding unit.



We can manufacture a range of systems to work alongside the chamber including compressors, gas cylinders, PSA plant, and more.

We work closely with our clients to manufacture a system that will meet their requirements.

Chamber Equipment



BIBs/Masks



Chairs



Benches/Beds



Medical Locks



Fire Safety



CCTV



Communications



Entertainment



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Designed and Manufactured
in the UK

