



MEDOX MEDICAL OXYGEN

MEDICAL OXYGEN FOR THE MARINE AND ENERGY
MARKETS



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The Survitec logo, featuring a stylized white 'S' icon followed by the word 'survitec' in a lowercase, white, sans-serif font, all set against a solid orange background.

OXYGEN. VITAL TO LIFE.

THE SEAFARER'S RIGHT TO HEALTH PROTECTION AND MEDICAL CARE

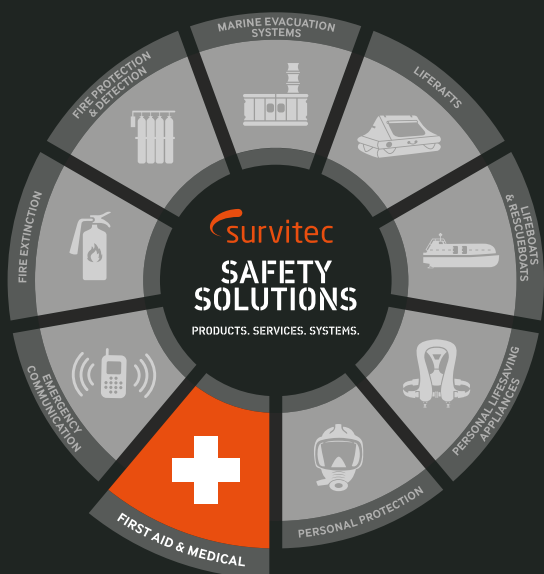
Crew and passengers are often isolated from the usual sources of medical care and assistance available to those on shore. In the event of an emergency, they are totally reliant on the medical equipment and devices on board and their proper functioning.

According to the Maritime Labour Convention 2006 (the MLC, 2006), adopted by the International Labour Organization (ILO), a seafarer, while working on board, has the right to health protection and medical care as comparable as possible to that which is generally available to workers. This is why MedOx medical oxygen is a registered medicine which is exactly the same as the medical oxygen gas which is supplied to hospitals and other medical facilities on shore. Medical oxygen is considered to be a prescription drug and is part of the medical outfitting on board of a vessel.

REQUIREMENTS ON BOARD

The exact medical oxygen requirements on board of a vessel depends on a number of criteria such as the number of crew members, type of cargo and vessel's sailing area (more or less than 200 nautical miles from shore) . For the determination of the quantity of medical oxygen that a vessel must carry on board, we refer to the applicable regulations. Which regulation needs to be followed, depends on the flag state of the vessel under which they sail. Some flag states do not have their own regulation and in most cases they follow the regulations of the World Health Organization (WHO Model List of Essential Medicines).

Ships with a dangerous cargo certificate must also comply with the regulations set out in Appendix 14 (List of Medicines and Equipment) of the Medical First Aid Guide (MFAG) of the International Maritime Dangerous Goods (IMDG) Code adopted by the International Maritime Organization. Also called the PTC which is the abbreviation for Poison Treatment Chest.



MEDICAL OXYGEN REGULATION



MedOx medical oxygen 100% v/v at 200 bar (2900Psi) is registered by the Dutch Ministry Of Health, Welfare and Sports (Health and Youth Care Inspectorate) and thereafter relabeled by Pharmacy Lagaay International B.V. for safe use within the marine & offshore industry worldwide.. Health care in The Netherlands is considered to be one of the best in the world, which ensures a high and reliable quality standard.

The product meets the highest quality standards. In the first place, the medical oxygen gas and gas cylinder must comply with the regulations of the Dutch Ministry of Health, Welfare and Sports and the European Pharmacopoeia (EP). Both legislations are complementary to each other and are very strict in order to guarantee the integrity of the oxygen gas and the quality of the gas cylinder.

In addition, after a thorough study of the various research reports, guidelines and standards issued by the: United States Pharmacopoeia (USP), British Pharmacopoeia (BP), European Medical Devices Regulation (MDR), International Organization for Standardization (ISO), European Industrial Gases Association (EIGA) and the Asian Industrial Gases Association (AIGA) the services are set up in such way that the product is globally accepted by all the responsible authorities and complies with the guidelines set by the World Health Organization (WHO), International Labour Organization (ILO), the International Maritime Organization (IMO) reflected in the Medical First Aid Guide for use in accidents Involving dangerous Goods (MFAG/IMDG) and the International Medical guide for ships (IMGS). And, of course, is in line with the various Flag State regulations. The main goal with this approach is to ensure the integrity of the medical oxygen gas as well as the quality standard of the gas cylinders on a global scale for safe use within the marine & offshore industry.

The product also conforms with the Pressure Equipment Directive (PED) (2014/68/EU) which applies to the design, manufacture and conformity assessment of stationary pressure equipment with a maximum allowable pressure greater than 0,5 bar. This directive entered into force on 20 July 2016 and aims to guarantee free movement of the products in its scope - while ensuring a high level of safety. These PED guidelines are not legally binding – instead, they help to ensure that the directive is applied consistently. Unless otherwise indicated, they represent the unanimous opinion of the Working Group Pressure composed of representatives of the national authorities of the EU Member States.

MEDICAL OXYGEN DOCUMENTATION

In order to substantiate and guarantee the quality, all our individual MedOx medical oxygen cylinders are supplied with the following documents:



GAS ANALYSIS CERTIFICATE (also known as batch certificate)

The Gas Analysis Certificate shows the exact values of the gas composition of each batch and can only be provided if the oxygen gas has been produced as a registered medicine. A certificate of conformity is insufficient in our opinion, because this only indicates the minimum values with which the oxygen gas must comply with.



PACKAGE LEAFLET

The Package Leaflet provides information to the user on the safe use of the gas cylinder, the administration of the oxygen gas, possible side effects and instructions and guidelines for the safe storage of the gas cylinders.



CYLINDER MANUFACTURING & TEST CERTIFICATE

The Cylinder Manufacturing & Test Certificate shows which production and materials standard has been used in the fabrication of the gas cylinder and that the manufactured gas cylinders have been randomly inspected for irregularities and that they have successfully passed the pressure test.



MEDOX SUPPLY CERTIFICATE

The MedOx Supply Certificate states the filling date of the supplied medical oxygen cylinder(s), the most recent hydrostatic test or production date of the cylinder, the batch number(s) of the medical oxygen gas and expiry dates of the medical oxygen gas filling. In addition, the production and end-of-life date of the delivered high pressure regulators are mentioned on the certificate.

Please ensure that you have these documents available in the event of an inspection by Port State Control (PSC), Flag State Control (FSC) or any other inspectorate authority.

MEDOX MEDICAL OXYGEN CYLINDERS - FEATURES IN FOCUS



RESIDUAL PRESSURE VALVE (RPV)

All cylinders are equipped with a Residual Pressure Valve. The Residual Pressure Valve (RPV) retains a small positive pressure (1-5 Bar) in a gas cylinder even if the valve is inadvertently left open. Therefore preventing the possibility of back contamination and maintaining a high gas quality. The use of a Residual Pressure Valve also reduces the risk of moisture ingress into the cylinder. Moisture ingress can cause corrosion and stress corrosion cracking (SCC), which can lead to cylinder failure through leakage or burst.



PRE-FILLED TO REDUCE RISK

A pre-filled cylinder - with a valid hydrostatic pressure test - will always be supplied to maintain the quality of the gas cylinders and the medical oxygen gas. This prevents impurity of the medical oxygen gas and the possible risk of bacterial contamination inside gas cylinders. It also eliminates the maintenance interval, every 5 or 10 years (depending on Flag State requirements), for the required hydrostatic test. In order to guarantee the quality and integrity of the gas and therefore preventing possible health and safety risks, it is prohibited by the customer to refill the medical oxygen cylinder.



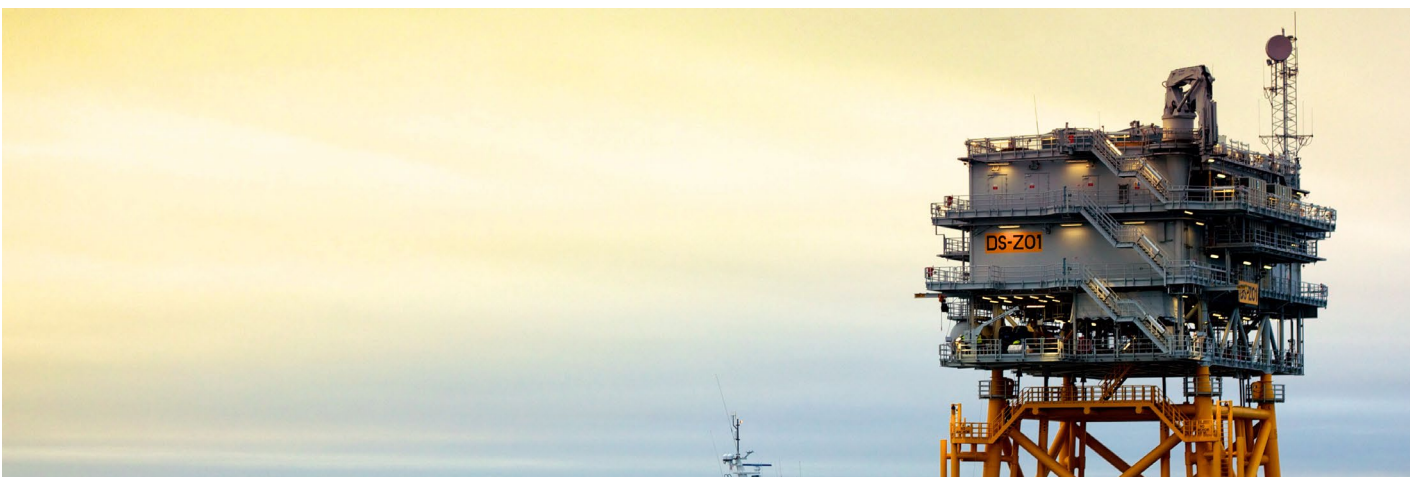
PIN INDEX SAFETY SYSTEM (PISS) VALVE CONNECTION

For safety reasons we strongly recommend to use cylinders with a pin index valve outlet. The Pin Index Safety System is specifically intended for use with medical gases and is designed to ensure the correct gas is filled into the correct cylinder, and that the cylinder will only connect to the correct (medical) equipment. The positions of the holes on the cylinder valve correspond with the pins fitted to the yoke attached to the equipment. The pin positions for each medical gas are unique.



MEDICAL OXYGEN GAS LIFE SPAN

The life span of the medical oxygen gas is at least 30 months with a maximum of 36 months. The MedOx oxygen cylinders will be clearly marked with the expiry date of the medical oxygen gas inside the cylinder. The expiry date can also be checked via the provided MedOx Supply Certificate.



CYLINDER VALVE OUTLET CONNECTIONS

Different regions of the world have established their own standards, e.g. British Standard (BS), German Standard (DIN), Japanese Standard (JIS), French (AFNOR) and so on. All different cylinder valve outlet standards separate gases based upon pressure and chemical property. Standardisation of cylinder valve outlet connections is important to ensure product safety and integrity.

There are three basic groups of valve outlet connections:

1. Connections for general, industrial compressed gases (mostly threaded connections).
2. Connections for ultra-high integrity gases.
3. Pin-Indexed connections for medical gases.

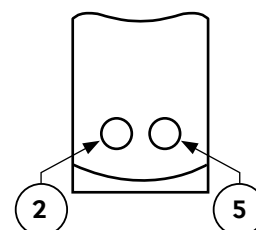
For our MedOx medical gases we strongly recommend the use of the Pin Index Safety System. The Pin Index Safety System is designed to minimize the ability to inadvertently connect a cylinder to a system that may not be compatible with the gas or cylinder pressure, or that may contain a gas that would be unsafe.

Cylinders with a different standard valve outlet connection are available upon request.

ISO Standard Cylinder Valve



The Pin Index Safety System (PISS) is a precise configuration of pins and holes that facilitate the connection between a specific medical gas cylinder and the delivery system (regulator) of these gases. Each Pin Index Safety System has six possible pin placement sites, depending on the gas within the cylinder. Pin Index Safety System is specifically intended for use with medical gases.



ISO 407:2004
Pin-Indexed Yoke, Pins 2-5
(Equivalent to CGA 870)



For our MedOx medical gases we strongly recommend the use of the Pin Index Safety System.

MEDOX MEDICAL OXYGEN CYLINDERS - APPROVALS

The MedOx medical oxygen cylinders comply with the ISO 9809-1:2019 standard. This standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes, examination and testing at time of manufacture for refillable seamless steel gas cylinders (with water capacities up to and including 450L).

In addition, the cylinders meet the ISO 32:1977 standard for the marking and identification of gas cylinders for medical use. The marking to identify the contents of the cylinder is based on specific colour codes which correlate with the different medical gases and medical gas mixtures. In accordance with the ISO 32:1977 standard, the cylinder with medical oxygen 100% v/v must have a white shoulder and a white body.



Medical Oxygen

Nominal pressure	Capacity	Valve type	Cylinder material
200 bar (2900 Psi)	2L	Pin Index	Steel
200 bar (2900 Psi)	5L	Pin Index	Steel
200 bar (2900 Psi)	10L	Pin Index	Steel
200 bar (2900 Psi)	40L	Pin Index	Steel



SURVITEC PRODUCT OFFERING

Designed specifically with our customers' commercial use in mind, we have a portfolio of medical oxygen products which are compatible with the MedOx medical oxygen cylinders, to suit varying needs.

MEDICAL OXYGEN SYSTEMS

The MedOx Oxygen cylinder can be used as part of Survitec's Medical Oxygen System IMO

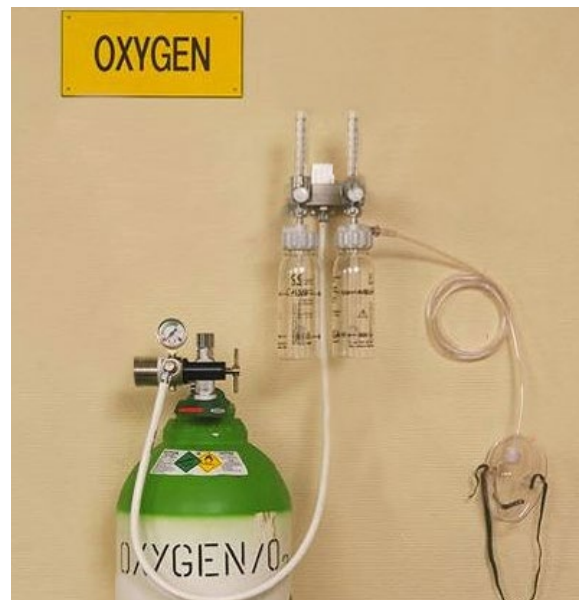
Survitec's Medical Oxygen Systems meet the latest IMO IMDG/MFAG regulations for shipboard use to supply Oxygen to two persons at the same time. Three alternative solutions are available, bedside, outside and Norwegian which meet the IMDG/FMAG amendment, some flag states require the cylinder to be installed outside the hospital and some require the safety valve outlet from the regulator to be lead to open air by piping.

In the IMO Bedside solution, the oxygen cylinder is placed between two beds, mounted against the bulkhead with the cylinder rack. The regulator with a fixed flow of 50L/min, is mounted on top of the cylinder and the rail is mounted on the bulkhead. The double oxygen outlet is fixed to the rail and the hose is connected to the regulator. Two flow meters, with quick connections, are placed in the double oxygen outlet, which enables the oxygen flow to be regulated between 0-12L/min. A humidifier is connected to each flow meter and this has a disposable oxygen therapy mask attached to it.

The IMO Outside solution, has the oxygen cylinder placed in the cylinder rack and can either be mounted directly on the bulkhead or in a cabinet. The gas is piped through to the ship's hospital and the internal equipment is as described above. Whereas the IMO Norwegian solution has the cylinder fitted as described by the IMO Bedside solution, however the regulator is built to fit a pipe onto the safety valve of the regulator, which needs to be led to open air, the internal equipment is as described above.

FEATURES

- ALL EQUIPMENT IS SUPPLIED IN ONE BOX READY FOR EASY INSTALLATION
- INSTALLATION CAN BE COMPLETED WITHOUT ANY TROUBLE DURING A VOYAGE AND CAN EASILY BE PERFORMED BY THE CREW
- ALL EQUIPMENT IS AVAILABLE THROUGH OUR EXTENSIVE NETWORK
- FUTURE SERVICE IS SUPPORTED BY OUR SERVICE ORGANISATION INCLUDING REPLACEMENT OF COMPONENTS
- COMPATIBLE WITH MEDOX MEDICAL OXYGEN CYLINDERS



Above: Medical Oxygen Systems are now offered with a MedOx cylinder (when ordered in addition to the system) opposed to the above.

Ordering Information

PRODUCTS	
Product Number	Product Name
653295	Norwegian Medical Oxygen System IMO *
610253	Outside Medical Oxygen System IMO*
610261	Bedside Medical Oxygen System IMO*

*Excludes Oxygen cylinder

Approvals

IMO/MFAG. Norwegian System meets I MDG/MFAG approvals



MEDOX PORTABLE RESUSITATOR SET

The MEDOX® Oxygen Resuscitator fulfils your needs on board your vessels to manually provide medical oxygen as required by the medical first aid guide. It is supplied as standard with a 2L medical oxygen cylinder compressed under 200 bars (2900 psi) with a Pin Index outlet connection as per the ISO standard for medical gases. Although additional outlet connections are available upon request, they are not recommended.

The MedOx Portable Resuscitator Set can be supplied with a cylinder capacity of 5L compressed under 200 bars with a Pin Index outlet connection or without a cylinder as required.

FEATURES

- NUMEROUS SIZES OF GUEDEL AIRWAYS
- MANUAL VENTILATOR WITH DIFFERENT SIZES OF OXYGEN MASKS
- COMPLETE KIT WITH BAG
- EASY TO USE AND REQUIRES NO SPECIALIST TRAINING



Ordering Information

PRODUCTS

Medical Oxygen Cylinder Options

MedOx Portable Resuscitator Set, 2L, 200 bar, Pin Index (ISO)

MedOx Portable Resuscitator Set, 5L, 200 bar, Pin Index (ISO)

For further information on how to order, please contact your account manager or info@survitecgroup.com

MedOx Portable Resuscitator Set, 2L, 200 bar, Pin Index (ISO) Set

1	MedOx Medical Oxygen Cylinder, 2L, 200 bar, Pin Index
1	HP Reduced with Gauge and Flow Regulator 0-25l/min, Pin Index
1	Guedel Airway, Size 1, 7cm, white, Child
1	Guedel Airway, size 2, 8cm, green, Adult
1	Guedel Airway, size 3, 9cm, orange, Adult
1	Guedel Airway, size 4, 10cm, red, adult
1	Suction Catheter Size Ch12
2	Oxygen Mask, Non-Rebreathing Adult, with tube 2,1m
1	Oxygen Mask, Non-Rebreathing Child, with tube 2,1m
1	Res-Q-Vac Hand Suction Unit
1	Resuscitation Balloon, White, complete set
1	MedOx Bag for Oxygen Set 2L, blue
1	Instruction Leaflet for use Oxygen Set

LOGISTICS OF MEDICAL OXYGEN CYLINDERS

Compressed gas cylinders are considered to be dangerous goods (UN 1072) and therefore extra guidelines are in force for shipping them. Nevertheless, with the help of our partners, the medical oxygen cylinders are available worldwide (with the exception of a few countries).

Deliveries within The Netherlands take place directly on board or to an agent of your choice. For shipments within Europe it is preferred to send the cylinders to the agent of your choice, but on request a delivery alongside the vessel (if reachable from the quay) is also possible. A shipment outside Europe will always be delivered to an (airport) terminal (DAT) and the agent on site will be provided with the necessary documents - so they can take care of receiving and clearing the goods in a timely manner.

The costs related to the delivery are always quoted in advance.

COVID-19

When an outbreak occurs on board it is important to follow the operational guidelines for managing COVID-19 cases and outbreak on board ships published by the WHO.

Due to the nature of the virus we strongly recommend increasing the Medical Oxygen supplies on board to help patients with severe acute respiratory infections before medical evacuation is possible.



HOW TO ORDER

For further information or to place an order, please contact us via your account manager or at info@survitecgroup.com



GET IN TOUCH

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