



Automatic control board for medical gas
Conforming with:
EN 7396-1,
EN ISO 10524-2:2006
HTN 02-10 ; HTM 2020

DZ MEDICALE S.r.l.
Zocco di Erbusco (BS)
- I -

For medical gas
OXYGEN-O ₂
RESPIRABLE AIR -AIR
NITROUS OXIDE-N ₂ O
CARBON DIOXIDE-CO ₂
NITROGEN – N ₂ -800
HELIUM - He
XENO - Xe
ENTONOX (50%O ₂ + 50%N ₂ O ₂)



CE 0425



Device for medical gas to be installed and to be employed Lack of lubricating oil or grease



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 AVVERTENZA	Quando incontrate questo simbolo, prestate particolare attenzione a quanto scritto: si tratta di funzioni chiave per il prodotto.
 CONSULTAZIONE	Avvertimento legato alla sicurezza: leggere attentamente l'avvertimento .

**ATTENZIONE**

LEGGERE ATTENTAMENTE LE INFORMAZIONI CONTENUTE NEL PRESENTE MANUALE PRIMA DI UTILIZZARE O INSTALLARE IL COMPONENTE DESCRITTO

CONSERVARE SEMPRE QUESTO LIBRETTO DI USO NELLE VICINANZE DEL QUADRO DI CENTRALE

VERIFICARE SEMPRE CHE IL CONTENUTO DELLA CONFEZIONE/IMBALLO SIA CONFORME A QUANTO RICHIESTO IN FASE DI ORDINE. VERIFICARE INOLTRE CHE LA CONFEZIONE/IMBALLO SIA INTEGRA E NON MANOMESSA IN NESSUNA DELLE SUA PARTI

ATTENETEVI SEMPRE A QUANTO INDICATO DAL PRESENTE MANUALE CIRCA L'INSTALLAZIONE DEL DISPOSITIVO

INTERVENTI DI QUALSIASI NATURA O INSTALLAZIONI DEVONO ESSERE SEMPRE ESEGUITI DA PERSONALE QUALIFICATO ED AUTORIZZATO.

DZ MEDICALE RACCOMANDA ATTENZIONE E PRUDENZA NELL'UTILIZZO DEI GAS COMPRESSI. ALCUNI GAS INTERCETTATI POSSONO, IN PRESENZA DI SOSTANZE REAGENTI, GENERARE COMBUSTIONE, FIAMMA, ESPLOSIONE.

DZ MEDICALE RACCOMANDA ATTENZIONE E PRUDENZA NELL'UTILIZZO DEI GAS COMPRESSI. IN MODO PARTICOLARE E' SEMPRE NECESSARIO VERIFICARE CHE IL GAS PER IL QUALE IL QUADRO E' MARCATO E COSTRUITO CORRISPONDA A QUELLO NECESSARIO ALL'IMPIANTO DI DISTRIBUZIONE.

ERRORI NELLA DISTRIBUZIONE DEL GAS MEDICALE POSSONO CREARE GRAVISSIMI DANNI (PERDITA DELLA VITA) ALLA SALUTE DELLE PERSONE.

PRIMA DI AVVIARE IL QUADRO E DOPO OGNI INTERVENTO VERIFICARE CHE TUTTI I DISPOSITIVI CONNESSI AL QUADRO SIANO MARCATI E COSTRUITI PER LO STESSO GAS MEDICALE PER IL QUALE E' MARCATO E COSTRUITO IL QUADRO.

AVVERTENZE GENERALI

L'Operatore deve leggere con molta attenzione le informazioni riportate nel presente manuale, con particolare riguardo alle opportune precauzioni per la sicurezza elencate in seguito.

È indispensabile, inoltre, che l'Operatore segua le avvertenze di seguito elencate :

- Mantenere il quadro ad inversione elettropneumatica efficiente, eseguendo le verifiche periodiche previste e seguendo le istruzioni di pulizia;

- Do not remove altering the markings affixed by the manufacturer. Do not alter any circumstances regulators adjustments.



- **DO NOT OIL AND / OR GREASE ABSOLUTELY FITTINGS AND PARTS OF THE CONTROL BOARD**
NOT USE OIL, GREASE OR FUELS NEAR THE CONTROL BOARD IN THE PRESENCE OF OXYGEN OR NITROUS OXIDE MAY CAUSE BURNING OR PROMOTE THE EXPLOSION.

- Do not use flames near the apparatus.
- During the installation, manipulating the apparatus using the maximum cleanliness.
- Periodically check the presence of gas in cylinders, and if exhausted replace them according to the plan provided by the same reintegration.



THE BRITISH CONTROL BOARD AND IS DESIGNED AND MANUFACTURED IN ORDER TO ELIMINATE ALL RISKS RELATED TO ITS USE. OTHERWISE, FAILURE TO FOLLOW THE INSTRUCTIONS CONTAINED IN THIS DOCUMENTATION IS THEREFORE HAVE FOR SERIOUS ACCIDENTS ..

Do not delay LEARNING KNOWLEDGE ITEMS IN THIS MANUAL WHEN YOU ARE ALREADY WORKING

IT'S VERY IMPORTANT REMEMBER THAT THE BS STANDARD CONTROL BOARD CAN NOT' WORK WITHOUT POWER. PAY ATTENTION THAT THE HEALTH STRUCTURE HAS BACK-UP GENERATOR ALWAYS ACTIVE AND READY TO INTERVENE IN CASE OF FALL LINE VOLTAGE

WARRANTY

The product warranty is 12 months from delivery. All products must be used according to the manufacturer's requirements. Do not tamper with any part of the product.

DZ MEDICAL disclaims any responsibility in case of manumission or errors due to non-professional personnel, and lack of maintenance, in case of use of non-original spare parts and / or interventions by non-qualified personnel. On the national territory, please contact dealers or installers, readily available by contacting the manufacturer

GENERAL INFORMATIONS

The company DZ MEDICALE S.R.L. It has extensive experience in the construction of medical gas products, including the BRITISH Standard control board which are the subject of the manual in question. And is the 'technological know-how, has arisen in years of research in close contact with the production and marketing, to represent the best guarantee that the DZ MEDICALE S.R.L. can offer.

This Manual is designed to provide the customer with all the necessary informations so that, in addition to an adequate use of the BS control board, is able to handle the same as independently and safely as possible. It includes informations on the technical aspects, the Operation, Maintenance, Spare Parts, and Security. **Before performing any work on the control board Operators and Qualified Technicians must carefully read the instructions contained in this manual and must know the security plans and hospitals procedures provided for maintenance.**

It's also recommended knowledge of the UNI EN ISO 7396-1 related to the distribution systems of medical gases.

The manufacturer hopes that even in the case of maintenance (ordinary and / or extraordinary) are always connected and feed three sources (this is easily accomplished using the place downstream entry point for the maintenance of the main sources).

In caso di dubbi sulla corretta interpretazione delle istruzioni, interpellare il Costruttore per ottenere i necessari chiarimenti.

In case of doubt about the correct interpretation of instructions, consult the Manufacturer to obtain the necessary clarification.

The Manual in question is for both the Operator and the technicians qualified for the maintenance of BS standard control board.

Generic operators must not perform operations reserved for Maintainers or to qualified Technicians.

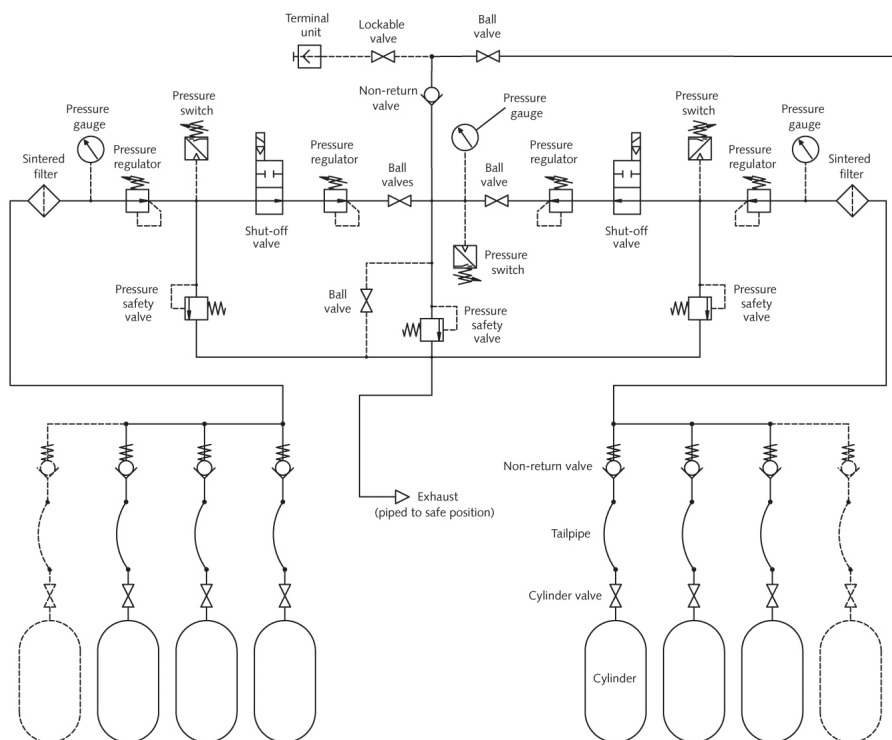
The manufacturer is not liable for damages resulting from failure to comply with this prohibition.

For every need regarding the use, maintenance or ordering spare parts, the Customer is pleased to contact an authorized service center (or directly from the manufacturer), specifying the identification data indicated on the product label.



The Instruction Manual should be stored in close proximity to BRITISH control board, in a special container and, above all, protected from liquids and any other substance that could make it illegible

BS STANDARD CONTROL BOARD DESCRIPTION



GENERAL ASPECTS

The electropneumatic control board is a product that complies with the applicable safety requirements, has been designed and tested to ensure its safety; in particular the products comply with the Legislative Decree No. 46 of 24 February 1997 (Implementation of Directive 93/42 / EEC concerning medical devices) .Each control board before being marked must be fully verified. This ensures quality and safety.

The scrupulous observance of the instructions in the installation and maintenance refers to DL.n ° 626 of 19 September 1994 and subsequent interpretations (regarding the improvement of safety and health of workers at work) the employer is obliged to ensure that work equipment is installed, operated and maintained in accordance with the manufacturer's instructions.

We therefore disclaim all liability for damage caused by non-compliance with the instructions given in this instruction manual.

Destination of use

This product is constructed by DZ MEDICALE SRL for use as decompression BS control board. It is applied in places of care (hospitals, nursing homes, clinics, etc.) with the purpose of feeding the distribution networks of medical gases: oxygen, nitrous oxide, air, carbon dioxide, nitrogen. It's used to reduce the pressure existing within the medical gas cylinders.

The pneumatic valves allow for the switchover in auto or manual mode between 2 power sources usually consist of cylinders or cylinder packs.

The control unit located on the control controller allows a first assessment of the state of the control board and allows to switch one or the other ramp.

Marking of automatic control board

The BS control board is marked according to current regulations. These markings shall identify clearly and unambiguously the type of product and in particular the characteristic parameters of the manipulated gas. Each product has the identification label with the data related to the company producing printed, the product ID, the number of production lot. The gas used is identified with a clear label on metal carpentry and also the leaflets of the valves have the color of the gas used by using the following code:

➤ WHITE:	OXYGEN
➤ BLU:	NITROUS OXIDE
➤ BLACK AND WHITE:	AIR
➤ BLACK:	NITROGEN
➤ GREY:	CARBON DIOXIDE
➤ BROWN :	HELIUM
➤ LIGHT BROWN:	XENO
➤ BLU - WHITE	ENTONOX

The product is CE marked. That mark is the product warranty, reliability and adherence to regulations. The inversion control board is a certified product from certified body 0425. it's important also take note of the serial number and the production lot; this information is important for a proper maintenance and management of the product.

Indications of discharge ramps, low pressure, line out of range pressures, lower third source, generic alarm signaling

Definition of available models

When you receive the product, check that this is one of the models listed below; In addition, check that the characteristics of the product received are adhering to the product actually requested the manufacturing company, and that it is appropriate for the type of gas for which the control board will be used. Below we list the codes of the main products.

<i>Standard BRITISH control board (DOUBLE POWER SOURCE)</i>	
CENT01E	Electropneumatic decompression unit 80m ³ /h oxygen BRITISH mod. with TGP reducers
CENT02E	Electropneumatic decompression unit 80m ³ /h respirable air BRITISH mod. with TGP reducers
CENT03E	Electropneumatic decompression unit 80m ³ /h nitrous oxide BRITISH mod. with TGP reducers
CENT04E	Electropneumatic decompression unit 80m ³ /h carbon dioxide BRITISH mod. with TGP reducers
CENT05E	Electropneumatic decompression unit 80m ³ /h nitrogen (N2-800) BRITISH mod. with TGP reducers
CENT06E	Electropneumatic decompression unit 80m ³ /h helium BRITISH mod. with TGP reducers
CENT07E	Electropneumatic decompression unit 80m ³ /h xeno BRITISH mod. with TGP reducers
CENT08E	Electropneumatic decompression unit 80m ³ /h entonox BRITISH mod. with TGP reducers

Technical description

The British control board is constructed with a stainless steel mounting plate with fittings for the support of the equipment.

The unit consists of the following parts:

- 2 Pressure reducing complete of filter with pore network 70 pm, a safety valve set at 12 bar.
- 2 High pressure gauge diameter 63 mm; 0/315 scale for Oxygen, Nitrogen, Air; Entonox; 0/160 scale Carbon dioxide, nitrous oxide and helium
- 2 high pressure gauges
- 2 intermediate pressure gauges
- 2 overpressure valves downstream of the primary gear units rated at 13 bar.
- 1 overpressure valve in the by-pass calibrated to 7 bar.
- 1 low pressure manometer.
- 2 II stage reducers downstream of the primary stage
- 3 Pressure low pressure. (Two cylinders and one for monitoring)
- 2 interception valves, high pressure side at the panel with threaded connections, high-pressure plug valve chromed brass with hand wheel.
- 2 interception valves, low pressure side,
- electrical control panel.
- 24 VAC power supply, 50 VA
- two downstream pneumatic valves of the first stage reducers
- threaded inlet attacks specific gas

for all the paintings produced by medical DZ you have:

TYPE GAS	Inlet pression P1	Outlet pression P2 for nominal flow	P2 of stabilisation	INLET CONNECTION	OUTPUT BRAZE COPPER TUBE D.16 mm.
Oxygen	200 bar	12 bar	5 bar	W21.7x14f"	
Respirable air	200 bar	12 bar	5 bar (8 bar x Air-800)	W30x14f2 W DX	
Nitrogen	200 bar	12 bar	8 bar	W21.7x14f" maschio SX	
Nitrous oxide	80 bar	12 bar	5 bar	G 3/8	
Carbon dioxide	80 bar	12 bar	5 bar	W27x2f"	
Helium	80 bar	12 bar	5 bar	W 24.5 F	
Xeno	80 bar	12 bar	5 bar	W 24.5 x 14m" DX	
ENTONOX	135 bar	12 bar	5 bar	G 3/8	

The internal losses to the unit are below 0.2 ml / min.

Closing pressure 8.5 bar.

The decompression unit is designed to be used at ambient temperatures typically between -20 ° and + 70 °.

The storage and the transport can take place at temperatures of -20 ° and + 70 °.

Physical size of the picture to: 550x574; 444 x 550; 740x590;

handling and storage transport

Transport must be made with care and if possible in its original packaging.

The BS unit must be transported in such a way as to avoid any damage to the parties:

Depending on the type of transport, it is necessary to protect the unit for all the bumps and possible stresses.

The BS control board can be raised by hand



*Damage to the control board caused during transport and Handling, are not covered by warranty.
 Repair or replacement of damaged parts are charged to the customer*

In case of long inactivity, the unit should be stored with caution on the site and to the Storage times:

- Store the unit in a confined space;
 - Protect the control board from shocks and stresses;
 - Protect the control board from humidity and wide temperature range;
- The storage temperature is -20 ° + 70 °.
- Prevent the control board come in contact with corrosive substances;
 - For any prolonged storage of the product is used in its original packaging.

INSTALLATION

BS standard control board installation

The installation of the panel must be performed by specialized personnel in the construction of plants for medical gases distribution. Should be followed in detail the signs of EN 7396-1.



Before installation must be performed some checks:

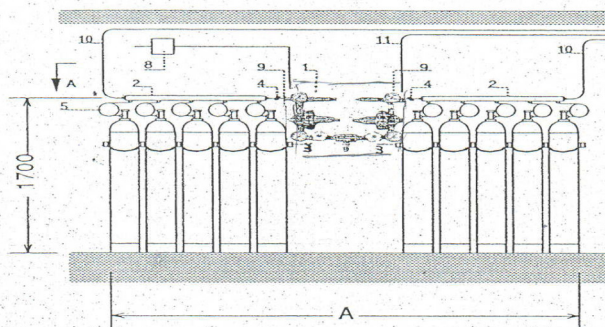
IMPORTANT! NO COMPONENTS MUST BE SOAKED: USE OF LUBRICANTS IS VERY DANGEROUS BECAUSE THEIR CONTACT WITH OXYGEN MAY CAUSED FIRE OR EXPLOSION

Site:

The control unit must be located possibly in a separate building from the cabin. The cabin will have to be built with perimeter walls in reinforced concrete, roof in lightweight material that can open in the event of bursting. Provide fresh air to not allow the accumulation of gases in the event of accidental leaks. The surface in doors and windows must be 1/5 of the perimeter surface. Follow the specifications of the system designer with respect to the location of the automatic control board

Operations for control board installation

- Make sure that the symbol on the control board both for the same gas system to which it is connected and be sure that the pressure data and flow rate are those required by the system specifications



- Fix the unit to the wall with expansion plugs. To this end the control board is provided with 4 holes. We recommend using stainless steel screws class 10.9 M10 with adequate length to the mounting wall. For high-flow control use steel screws of 10.9 M12 resistance with adequate length to the mounting wall.
- Connect the inversion control board through fitting and through flexible pigtail to high pressure ramp. Connect then, through high pressure tube the evacuation valve to the ramp. The evacuated gas shall be carried out of the building as prescribed by law. Use seals compatible to gas used, and check there are no leaks using appropriate search losses.
- Carry out the welding connection to connection detached. The welding must be low cadmium content as specified in EN 7396-1.
- The electrical connection must be done by a qualified electrical plant engineer, following the directions of the wiring diagram inside the framework.

The central HTM22 is equipped with an electronic control unit which manages their operation. This central control unit is in fact the controller and manage the entire system, and without the correct connection and the correct power supply of the control unit, the panel is not capable of delivering properly, nor to report the operational alarms in an appropriate manner.

To minimize the risk of non-compliant installations, DZ MEDICALE has taken charge of the entire electrical installation, leaving only load the installer:

- Low voltage power supply with 24V AC 40VA power supply (provided appropriate male-female connector supplied)*
- Connection of high pressure switch cable of O of the third source (provided special male-female connector supplied)*

The power supply and connection points are indicated in the proximity of the electronic control unit, located on the control unit containment carpentry.

OPERATION

CLERKS

The personnel that operate on the BRITISH control board must have (or acquire through adequate training) the requirements below, and be also aware of this manual and all information related to safety:

- **general and Technical Culture at level sufficient to understand the content of the Manual;**
- **Knowledge of the main hygienic standards, safety and technology;**

PUT IN ACTION

Before use the unit is necessary to make a check to determined that the installation was successful.

- Slowly open the valves upstream of the unit; an brutal opening could generate shock waves also strong and harmful
- Check that the tank pressure is indicated on the high pressure gauge stabilization activated
- Check with a look bubbles leakage between the control board and the pigtails.
- Check that the output pressure gauge is indicated by BP that declared under this manual
- DO NOT change the calibration performed by the manufacturer of any device

The unit is scheduled to give a continuous operation without the possibility of interruption. It is calculated so that a ramp and its pressure reducer can:

- **Content of the existence of the users, for the values of pressures and flow rates calculated.**
- **Have autonomy commensurate with consumption and frequency of supplies.**
- **An automatic device (electro-pneumatic valve) allows the inclusion of the other ramp to exhaustion of that service.**

CAUTION: Do not feed the control board with input pressures higher than those provided.

At the end of the electrical connections and gas, it is obligatory to carry out various exchange simulations and third source closing to verify that the installation complies with ISO 7396-1 dictates, and that the unit can guarantee reliability and security of supply.

MAINTENANCE

CONTROL OF LEAKS FROM THE PANEL

- Check the electropneumatica unit with appropriate frequency, to make sure there are no leaks, using cercabolle compatible with the gas being used.
- Check the pressure seal. Checks should be made by qualified personnel.
 - Check with bubblefinder specific gas non-flammable product if there is no loss in the various points of the unit: for all the joints, reducers, valves, valves and output connection.
 - Check carefully whether, to zero flow, leaks overpressure valve reducer .If you notice, it means that there is dirt inside the pressure reducer and this event can affect the correct functioning of the unit. In this case it is appropriate to provide promptly an intervention on the control board for a maintenance of the extraordinary kind. This operation must be performed by authorized manufacturer.
 - If there are no bubbles it means that the unit does not lose.

CHECKING EFFICIENCY PNEUMATIC

Check periodically, preferably every day, the efficiency of the valves. To do this is to ensure that there is switching of the valves via the switching keys on the control unit. This operation, always carried out at zero flow rate and with the third source and with emergency power supply point for the active maintenance and connected to the distribution network, you are obtained by acting on the electronic control unit. If there is no switch you must immediately notify the specialized assistance. It is recommended that the formal management of this operation.

POSSIBLE MALFUNCTION

MALFUNCTION	POSSIBLE CAUSES	REMEDIES
Lack of tightness of connections	Worn seal	Replace the locking seal in the bottom of the nut on the cylinders or between pigtail and control board
	Union nuts not locked	Lock the nuts
Comeback in the pressure of a reducer	Lack of sealing between seat and plug of the reducer	Immediately contact an authorized service center
Lack of exchange between sources	Comeback in the pressure of one of the reducers	Immediately contact an authorized service center

CLEAN

Clean the unit regularly, weekly recommended intervals, with a cotton cloth and neutral detergent. Do not use solvents or abrasive or flammable. Cleaning should be done after each use with water or detergents,
DO NOT USE SOLVENTS.

Checks for maintenance

Each unit is designed and constructed so as to ensure a long period of use without the need of maintenance. Should there be such a need, it is acting in accordance must entrust to qualified personnel only and technicians with the instructions provided by the manufacturer. Only use original spare parts. **MAKE THE WORK IF YOU ARE IN POSSESSION OF AUTHORIZATION BY THE MANUFACTURER.**

At intervals not longer than 6 months, it is appropriate to replace the seals and the panel filters (send to the manufacturer or contact the Company in charge of maintenance).

At intervals no longer than three years must send the unit to the manufacturer for a thorough general overhaul. If you experience any anomaly both in that operation with zero flow, promptly contact manufacturer.

Failure and tampering situations

For single fault condition is the condition in which the control board is not efficient when such an event is not caused by tampering, subtractions or introduction of materials or supplies not provided by the manufacturer;

In order to ensure maximum safety even in conditions of non-operation caused by events of any kind it is necessary that the installer operates the security situations covered by the evaluating EN7396-1 of equipping the unit with overpressure valves to be installed at the output downstream .

It is considered by the DZ a dangerous condition in the case where the inlet pressure of the unit is translocated integrally downstream of the panel itself; the introduction of overpressure valves ensures a protection of the system even in conditions of tampering or accidental failure.

In conditions of tampering, subtractions or introduction of the flow rate is 320 Ncm / h materials or components not covered by the manufacturer in nitrogen, with pressure immediately downstream of D.M. of about 13 bars.



SAFETY RULES FOR MEDICAL CONTROL BOARD

- Do not put in contact with the unit oils or fats to avoid explosion and fire.
- Only skilled personnel qualified and trained to install and use the control boards.
- Do not hang any objects on the panel as clothing. Always use your product and only for the specific gas and the operating pressure for which it was built.

Never disassemble the parts of this when it is in use, or before you download all the gas present. If you need this maintenance operation, this operation must be performed by trained and authorized by the Medical DZ.

- Do not smoke and do not expose to any source of heat.
- Avoid shock: could cause significant damage.
- Do not tamper in any way the safety valves and reducers.
- After continuous use, with maximum flow in humid conditions, it is possible that the reducers present externally of water or condensate ice to excessive cooling of reducer's body. This physical phenomenon linked to the expanding gas, involves any prudential measures; This event does not occur unless the system is not properly dimensioned; in this case it is advisable to temporarily interrupt the supply by closing the valve, after verification of user nothing and efficiency of the third source and tap, if necessary, the reducer's body only if protected with gloves. The unit is not damaged and can be used after some minutes of rest. If this precaution is not complied with the flow performance and functionality you can not be guaranteed.

- **INSTRUCTIONS FOR USE OXYGEN**

Remember that pure oxygen burns violently in contact with any flammable materials or gases. Do not use oxygen to blow dust or objects.

DO NOT GREASE EQUIPMENT FOR OXYGEN.

- Do not grease the cylinder valves, nor any distribution part, remembering that the oils and fats may burn in the presence of oxygen.
- Make sure that the room where the unit is installed, is free from all that is not necessary for the proper functioning; in particular, avoid leaving combustible or flammable materials such as rags, cartons, residues, etc.
- You avoid shocks to the cylinders, which during the movement operations must wear the cap valve cover.
- In case of emergency or fire, open the bleeder valve if are installed, placed close to the door.
- Cylinders must be anchored to the wall with separators and special chains.

Demolition

At the time of demolition is necessary to separate the plastic parts, which must be sent to separate collection in compliance with local regulations. As regards the metal mass of the unit is sufficient the division between the iron parts and those in other metals or alloys, for a correct sending to recycling by melting.

life of product

The useful life of the product is fixed at 10 years from the date of manufacture. After this time, consult the manufacturer in order to assess whether the product is still able to provide the services for which it is designed. The installation of the control board must be in the position indicated by the plant project and also should be in accordance with EN 7396-1