

tediselmedical

N270

INSTALLATION MANUAL



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N270

Installation manual

1. Manufacturer

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2. Security information

Important notes in these operating instructions are marked with graphic symbols and signal words.

2.1. Injury risk warnings

Signal words such as DANGER, WARNING or CAUTION describe the degree of risk of injury. The different triangular symbols visually emphasise the degree of danger.



WARNING

Refers to a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Refers to a potential hazard which, if not avoided, may result in minor or slight injury.



DANGER

Refers to an immediate danger which, if not avoided, will result in death or serious injury.



Risk of finger entrapment

2.2. Warnings of risk of damage

The signal word WARNING describes the degree of risk of material damage. The triangular symbol visually emphasises the degree of danger.



Damage to surfaces: warns of damage to surfaces due to unsuitable cleaning agents and disinfectants.



NOTICE

Refers to a potential hazard which, if not avoided, may cause damage to the equipment.

2.3. Additional symbols used in the safety instructions



Fire hazard



Explosion hazard: warns of ignition of explosive gas mixtures.



Dangerous voltage: warns about electric shocks that can cause serious injury or death.

2.4. Indication of additional information

NOTA

A NOTE provides additional information and useful tips for safe and efficient use of the device.

2.5. Proper use of oxygen.

2.5.1. Oxygen explosion



Oxygen becomes explosive when it comes into contact with oils, greases and lubricants.

Compressed oxygen presents an explosion hazard:

- Make sure that oxygen and gas outlets are free of oil, greasy materials and lubricants!
- Do not use cleaning agents containing oil, grease or lubricants.

2.5.2. fire hazard



DANGER: Escaping oxygen is combustible:

- Open fire, red-hot objects and open light are not allowed when working with oxygen!
- Don't smoke!

3. Risks

3.1. Gas explosion



Oxygen becomes explosive when it comes into contact with oils, greases and lubricants.

When in contact with oxygen in the air, medical gases may form an explosive or easily flammable gas mixture. The equipment is not suitable for use in environments containing flammable mixtures of anaesthetics with high concentrations of oxygen or nitrous oxide.

If such high concentrations of flammable mixtures of anaesthetics with oxygen or nitrous oxide occur in the environment of the device, there is a risk of ignition under certain conditions.

3.2. Risk of device malfunction



CAUTION: If a device is connected to the equipment and trips the protection mechanism of the corresponding circuit in the health care facility, other devices connected to the equipment will also be de-energised.

3.3. Fire risk



Plug-in connections for the supply of medical gases must not come into contact with oil, grease or flammable liquids.

3.4. Danger of electric shock



Signal cables (network, audio, video, etc.) must be electrically isolated from equipment and the ends of building connections to prevent contact with currents that can cause serious injury or death.

3.5. Risk of equipment falling into the anchorage



WARNING: If during the operation of anchoring the equipment to the mounting surface there is no element to support the equipment, it may fall on the person/s performing the installation of the equipment.

3.6. Risk of burns

During the gas connection operation, the operator may suffer burns due to the welding process, as well as damage to the equipment or other surrounding equipment.



WARNING: Personal injury and material damage may occur.

3.7. Fire risk

If the working atmosphere is not sufficiently ventilated, volatile substances (e.g. oxygen) may be concentrated in the working atmosphere, which can cause a fire in contact with the heat source used for welding.



FIRE HAZARD: Failure to comply with this point can cause serious damage.

3.8. Risk of electrical contact

During assembly of the equipment, it may come into contact with any live wiring in the installation, which may cause the metal parts of the equipment to become live and therefore reach the operator.



DANGEROUS VOLTAGE: Failure to comply with this point may result in personal injury.

4. Symbols used



Applicable part B



Earth (mass)



Equipotentiality



Protective earth (ground)



Connection point for neutral conductor



Nurse call button



Direct lighting

	Indirect lighting
	Operating instructions
	Health Product
	Waste electrical equipment
	CE symbol
	Product code
	Unique identification code
	Serial number
	Manufacturer
	Date of manufacture
	Reference to the instruction manual
	Damage to surfaces

		Fire hazard
		Danger of explosion
		Dangerous tension
	NOTICE	Notice
		Risk of finger entrapment
	WARNING	Warning
	CAUTION	Caution
	DANGER	Danger

5. Installation requirements

5.1. Anchoring on the mounting surface. Minimum requirements



DANGER: Failure to comply with this point may result in personal injury.

Hardware for mounting the equipment is not included, the method of anchoring will depend on the surface.

	N270
Maximum weight [kg]:	35
Maximum torque [Nm]:	132

Maximum weight: Maximum weight per metre of equipment length.

Maximum torque: Only for DIN rail equipment. Maximum torque per metre of equipment length.

5.2. Training

Personnel performing the installation must be properly trained and qualified by the customer. Persons who:

1. have received the training and are duly registered (at those levels where legal provisions make such registration necessary).
2. have been instructed in the installation of this device by means of this instruction manual as a basis.
3. are able to assess the tasks they perform on the basis of their own professional experience and training in relevant safety standards and can recognise the potential hazards involved in the work.

6. Installation and connection

This section of the manual shows how to install and connect the N270 equipment. It should be borne in mind that these operations will require the removal of parts of the enclosure.

Before proceeding with the installation, the installation plans must be checked in order to locate the inputs arranged in the equipment to supply the different systems of the equipment, both for the distribution of medical gases and for the different electrical circuits, nurse call and voice and data.

There are two possibilities as to the location of these inputs, they can be located at the rear of the equipment ① as shown in figure 1 or they can enter from the sides ② as shown in figure 2.

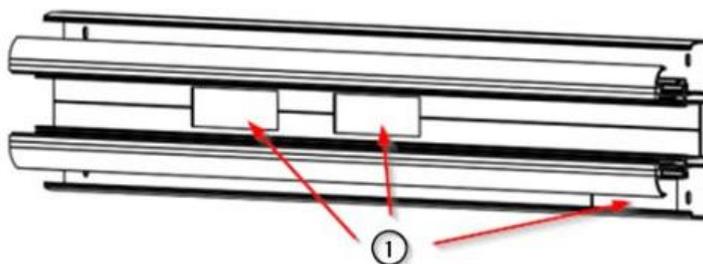


Fig. 1 Supply connections at the rear of the equipment

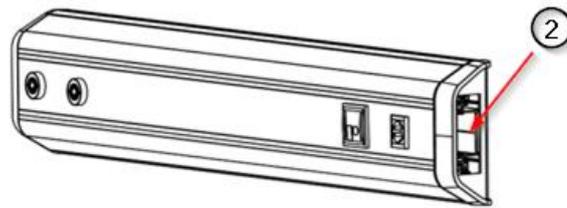


Fig. 2 Supply connections on the sides of the equipment

6.1. Removal and fitting of external covers

For the installation of the equipment there are two rows of anchorage points at the rear of the equipment. The number and distance of these anchor points will vary depending on the length of the device and is defined in the corresponding installation drawing supplied with the device. See Fig. 6.

6.1.1. Removal of diffusers

- Remove the light diffusers ① as shown in Fig. 3. Use a flat-bladed screwdriver with care not to scratch the paint on the side covers.

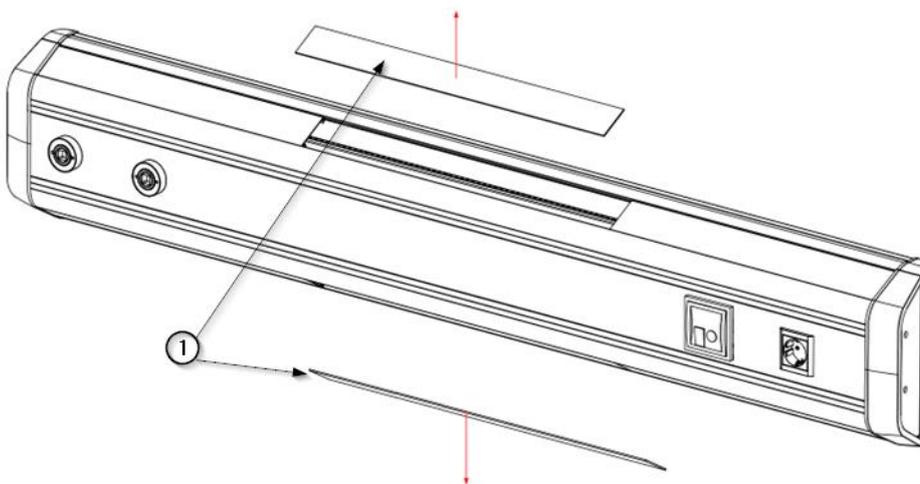


Fig.3 Removal of upper and lower diffusers

- Put the diffusers back on the equipment and press them into position until the clipping sound is heard.

6.1.2. Removal of top and bottom covers

- Remove the top covers ① and bottom covers ② as shown in figure 4 and leave them in a safe place.

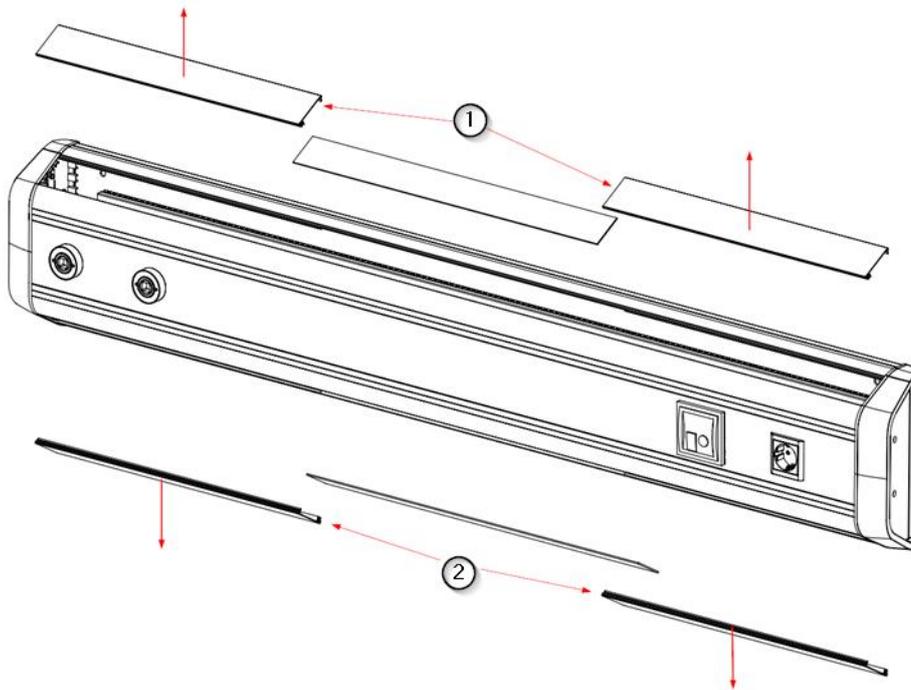


Fig.4 Removal of top and bottom coverings

- Place the top and bottom covers back on the equipment by bringing them into position and pressing them together until the clipping sound is heard.

6.1.3. Removal of central cover

- Remove the front cover (2) using the suction cup (1) as shown in figure 5 to reveal the pre-installed gas inlets on the device.

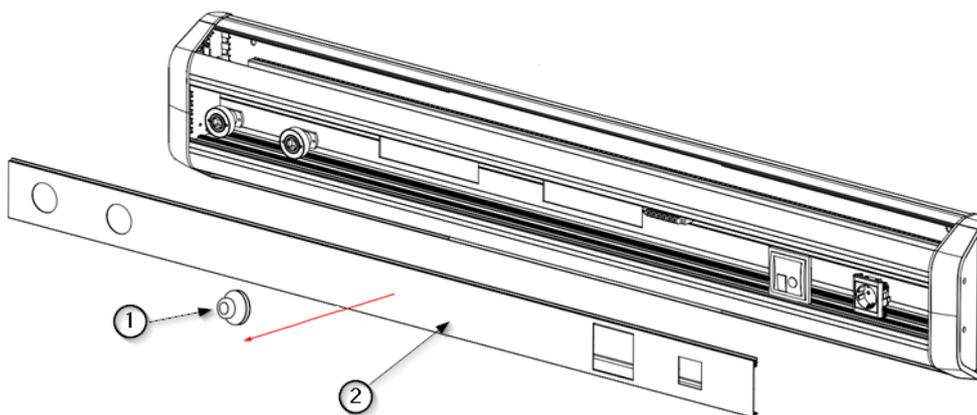


Fig.5 Removal of the central cover of the gas rail

- Place the central cover on the device and press it into position until the clipping sound is heard.

6.2. Installation on a masonry wall

- Locate the equipment anchor points ① indicated on the accompanying installation drawing (see Fig. 6).

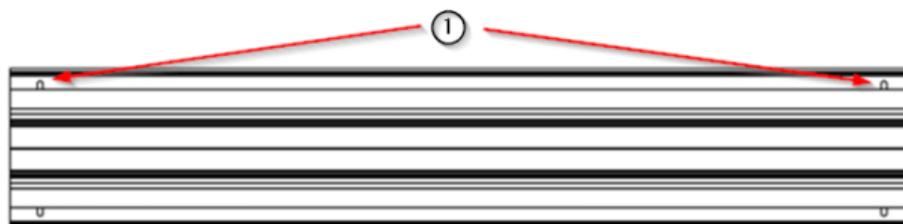


Fig.6 Anchor points of the N270 equipment

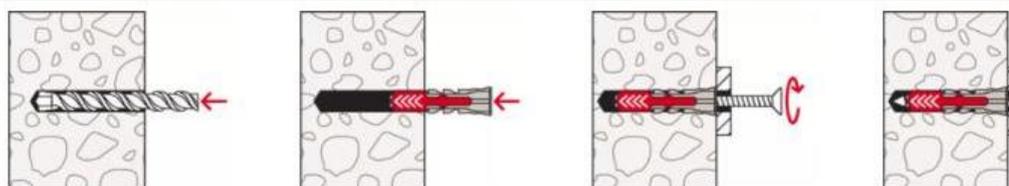


See installation drawing of the equipment.

- Fasten the device at the two upper anchor points ① as shown in figure 6 without tightening definitively, but only in order to secure the device to the mounting surface with the appropriate screws.
- Check that the equipment is level and in the correct position according to the installation drawing.
- Make the rest of the joints and do the final tightening of all of them once they are all in place.

The connecting elements to be used when installing N270 on a conventional masonry surface are as follows (see Fig. 7).

Position	Description
①	Screw DIN 571 for 8 mm socket, hexagon head, zinc plated
②	Wide washer DIN 9021 M6 zinc plated
③	Fischer DuoPower Bicomponent Cue



Loads										
DuoPower										
Highest recommended loads ¹⁾ for a single anchor.										
The given loads are valid for wood screws with the specified diameter.										
Type		5 x 25	6 x 30	6 x 50	8 x 40	8 x 65	10 x 50	10 x 80	12 x 60	14 x 70
Wood screw diameter	[mm]	4	5	5	6	6	8	8	10	12
Min. edge distance concrete	c_{min} [mm]	30	35	35	50	50	65	65	80	100
Recommended loads in the respective base material F... ²⁾										
Concrete	≥ C20/25	[kN]	0,40	0,95	1,65	1,10	2,30	2,15	4,20	5,30
Solid brick	≥ Mz 12	[kN]	0,30	0,50	0,55	0,62	0,69	1,20	1,45	1,35
Solid sand-lime brick	≥ KS 12	[kN]	0,50	1,00	1,60	1,25	2,25	2,20	3,85	4,50
Aerated concrete	≥ AAC 2 (G2)	[kN]	0,05	0,10	0,15	0,10	0,16	0,20	0,30	0,35
Aerated concrete	≥ AAC 4 (G4)	[kN]	0,25	0,38	0,55	0,42	0,60	0,60	1,10	1,45
Vertically perforated brick	≥ Hlz 12 ($\rho \geq 0,9 \text{ kg/dm}^3$)	[kN]	0,13	0,15	0,17	0,25	0,40	0,25	0,40	0,40
Perforated sand-lime brick	≥ KSL 12 ($\rho \geq 1,6 \text{ kg/dm}^3$)	[kN]	0,40	0,60	0,60	0,70	1,00	0,70	2,00	1,50
Gypsum block	($\rho \geq 0,9 \text{ kg/dm}^3$)	[kN]	0,10	0,18	0,37	0,25	0,50	0,35	0,65	0,50
Gypsum fibreboard	12.5 mm	[kN]	0,24	0,33	0,35	0,35	-	0,50	-	-
Gypsum plasterboard	12.5 mm	[kN]	0,12	0,15	0,15	0,15	-	0,15	-	-
Gypsum plasterboard	2 x 12.5 mm	[kN]	0,13	0,15	0,24	0,20	0,32	0,30	-	-
Mattone Forato Typ F8		[kN]	0,30	0,30	-	0,25	-	0,25	-	-
Tramezza Doppio UNI 19		[kN]	0,15	0,15	0,23	0,15	0,30	0,20	0,52	0,35
Sepa Parpaing		[kN]	0,30	0,45	0,25 ³⁾	0,45	0,45 ³⁾	0,45	0,45 ³⁾	0,60 ³⁾

¹⁾ Required safety factors are considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

³⁾ Load determination on plastered wall.

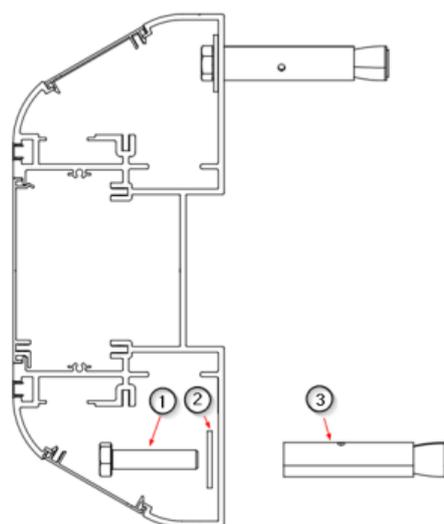


Fig.7 Fixing the equipment on a conventional masonry wall

6.3. Mounting on plasterboard panels.

- Locate the equipment anchor points ① indicated on the accompanying installation drawing as shown in Figure 6.



See installation drawing of the equipment.

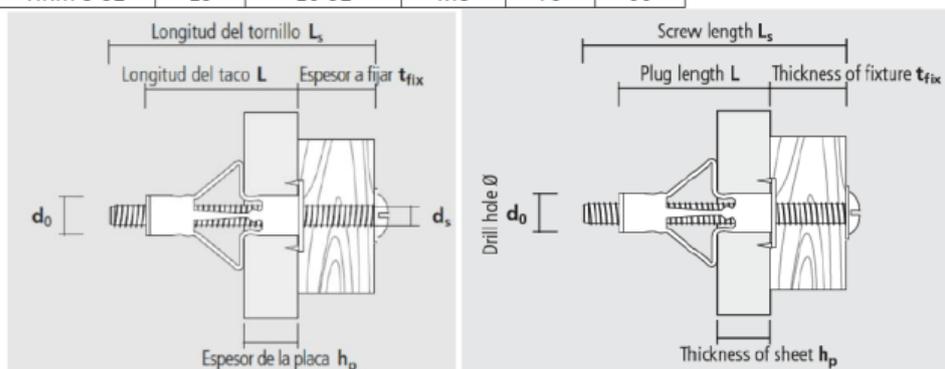
- Fasten the device at the two upper anchor points ① as shown in figure 5 without tightening definitively, but only in order to secure the device to the mounting surface with the appropriate screws.

- Check that the equipment is level and in the correct position according to the installation drawing.
- Make the rest of the joints and do the final tightening of all of them once they are all in place.

The recommended fasteners when installing N270 on a conventional masonry surface are as follows (see Fig. 8).

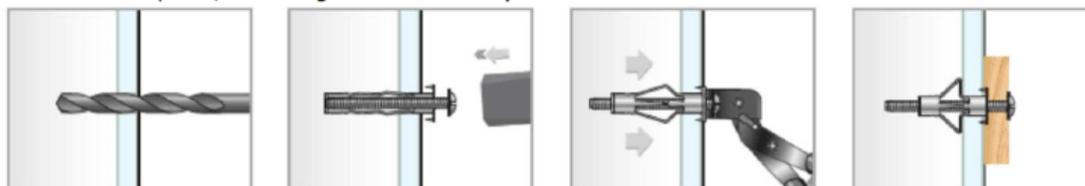
Position	Description
①	Metal expansion plug for gypsum plasterboard (incl. screw)
②	Wide washer M6 zinc plated

REF	do [mm]	h _p min-max [mm]	Rosca-thread	Ls [mm]	L [mm]
HRM 4-20	8	3-18	M4	52	46
HRM 4-24	8	18-24	M4	58	52
HRM 4-38	8	32-38	M4	72	66
HRM 5-16	11	3-16	M5	58	52
HRM 5-32	11	14-32	M5	71	65
HRM 5-45	11	32-45	M5	88	80
HRM 6-16	13	3-16	M6	58	52
HRM 6-32	13	14-32	M6	71	65
HRM 6-45	13	32-45	M6	88	80
HRM 8-16	13	3-16	M8	61	53
HRM 8-32	13	16-32	M8	73	66



PROCEDIMIENTO DE INSTALACIÓN / INSTALLATION PROCEDURE

Instalación con pinza / *Mounting with installation pliers*



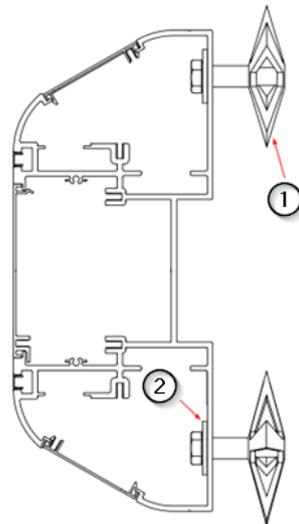


Fig.8 Fixing the equipment to a plasterboard wall

6.4. Electrical and voice/data connection:

- Remove the top and bottom covers. Electrical, voice and data connections are visible.



See point 6.1 of this manual

The electrical, voice and data circuits enter the equipment through a window ① whose dimension and location are detailed in the installation plan of the equipment. The electrical circuits terminate in a common terminal block ②, except for voice, data, whose connection is direct to the corresponding mechanism ③. See figure 9.

The equipment must be installed by qualified personnel taking into account national regulations.



To avoid the risk of electric shock, the equipment must be connected to a protective earth.

Failure to do so may result in personal injury.

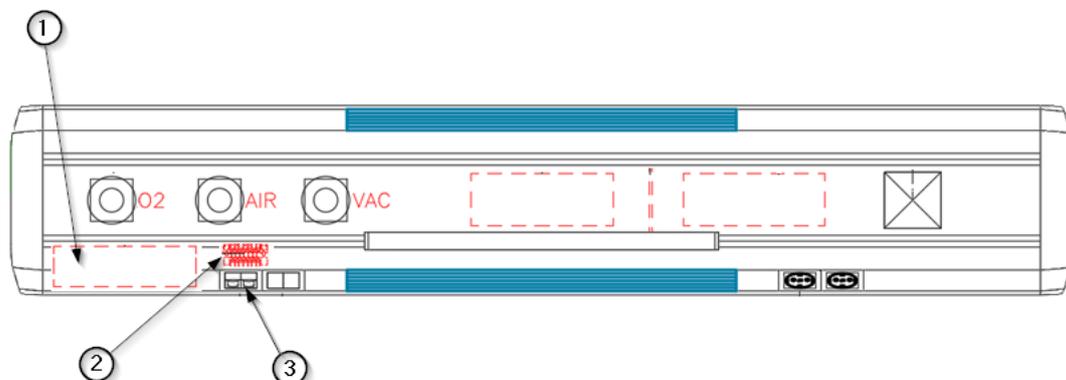


Fig.9 Detail of the electrical connection points at N270



See installation drawing of the equipment.

6.5. Gas connection:

The medical gas circuits enter the equipment through a window whose dimensions and location are detailed in the installation plan of the equipment. The connection of the medical gas circuits shall be carried out in accordance with the applicable standards, UNE EN ISO 7396-1_2016 and UNE EN ISO 7396-2_2007 by qualified personnel.

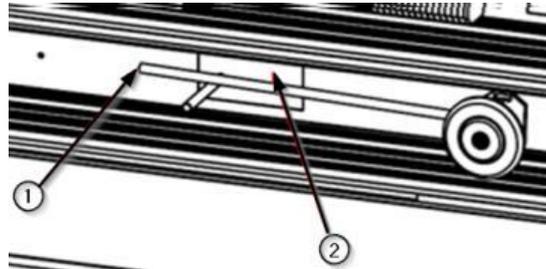


Fig.10 Medical gas and vacuum supply inlet

- Remove the central gas cap.



See point 6.1 of this manual

- Identify each of the gas circuits ① before welding and the corresponding one coming into the equipment through the intended inlet ②.



See installation drawing of the equipment.

The gas circuits shall be connected in the inlet area of the installation pipes ② and the installation plan shall be checked before starting the operation.

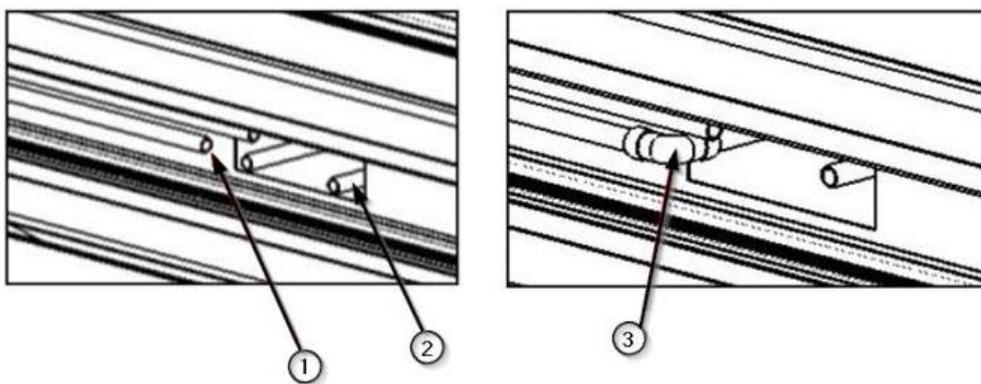


Fig.11 Cutting of pipes and fitting of copper fittings

- Cut off the pipe ① from the equipment piping and the pipe ② corresponding to the gas circuit in question coming from the installation.
- Place the copper fitting (elbow) ③ in position joining the two pipes.
- Solder the 3 components as shown in the picture on the right in figure 11.

- Replace the central protective cap for the medical gas line rail as described in chapter 6.1 of this manual.

7. Installation checks

When making adjustments to the equipment, it is necessary:

- verify that the relevant medical gas shut-off valves are properly closed and ensure that the system cannot be reopened.
- verify that the system is electrically disconnected and take measures to ensure that the system cannot be reconnected.



CAUTION: Failure to comply with this point will result in serious damage.

7.1. Mechanical test

It must be checked that each of the anchorage points is properly fixed to the mounting surface and that there is no displacement of the equipment.



WARNING: Personal injury may result from dropping the equipment.

7.2. Electrical circuit tests.

Power must be supplied to each of the circuits provided and a test must be carried out to check that all the mechanisms provided in the circuit in question, and only these, are supplied with voltage.

- Check continuity of protective earth wiring.



DANGEROUS VOLTAGE: To avoid risk of electric shock, equipment must be connected to a protective earth. Failure to do so may result in personal injury.

7.3. Gas circuit test.

The equipment must be tested according to the current standards, EN ISO 7396-1_2016 and EN ISO 7396-2_2007 by qualified personnel.

The medical gas piping system shall be checked:

- Watertightness
- Integrity
- No crossovers between circuits.
- Good functioning of the gas intakes

These tests shall be carried out at operating pressure.



CAUTION: Danger of impact of a metallic element due to faulty disconnection, can cause serious personal injury.

7.4. Check envelope.

Check that each of the enclosure elements that have been removed to carry out the installation operations described in this manual are properly fixed and secured in their intended position.

- Checking of openings, closings, foldings, displacements.



WARNING: The use of gloves is recommended as minor personal injury may occur.

8. Regulations

8.1. Team ranking

According to the new **MDD** regulation **93/42/EEC** on medical devices, this product family is classified as:

- Class IIb, by Annex II, excluding section 4, regulation 11.
- Protection level IP20 according to IEC 60529

Equipment intended for continuous operation.

8.2. Reference standards

The device complies with the safety requirements of the following standards and directives:

ISO11197: Medical supply units

IEC 60601-1: Medical electrical equipment. General requirements for basic safety and essential performance.

IEC 60601-1-2: Medical electrical equipment. Part 1-2. General requirements for basic safety and essential performance. Collateral standard. Electromagnetic disturbances.