

tediselmedical

ADONIS

INSTALLATION MANUAL



tediselmedical.com

CE 0197

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ADONIS

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. Supplementary 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 one 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.

		Adonis 1000	Adonis 1500	Adonis 1700
Maximum weight [kg]:		17	22.5	25
Maximum torque [Nm]:		637	637	637

Maximum weight: Maximum weight depending on the length of the equipment.

Maximum torque: The torque generated by a load of 150 kg coupled to the tubular structure of the equipment. Not including the torque generated by trays, drawers and other accessories, which must be taken into account when installing them.



It is of vital importance to ensure the capacity of the wall and anchorages to support the weight of the above-mentioned device and an additional load of 150 kg.

In case the wall is made of plasterboard, it is essential to implement an internal reinforcement structure to ensure the proper distribution and support of the indicated weight.

This requirement is not only essential for the correct installation and operation of the Adonis, but also to prevent any risk associated with the structural integrity of the installation site.

5.2. Training

The 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 Adonis units. It should be borne in mind that to carry out these operations it will be necessary to remove 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.



See equipment installation drawing

Only the inlets for the supply of medical gases ① can be located at the rear of the device, as they come in a predetermined location by the structure of the Adonis as shown in figure 1. The supply for the electrical and voice and data part of the device shall be to the left and/or right of the central rib ②.

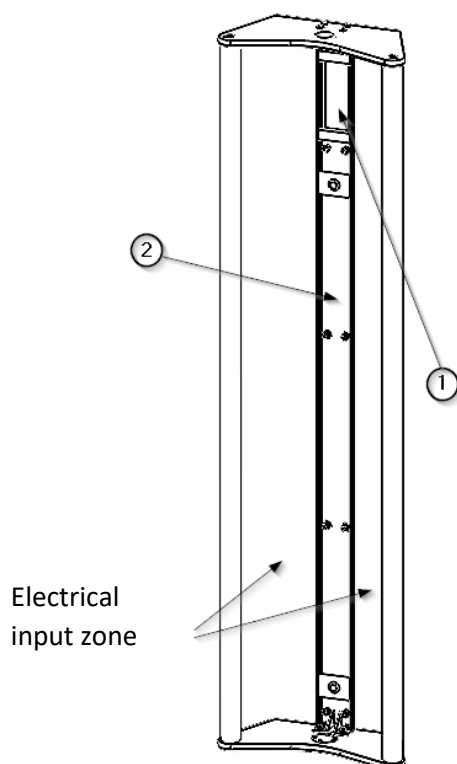


Fig. 1 Supply inputs in the Adonis structure.

Figure 1 shows the ADONIS system without the aluminium chassis in order to observe the inputs located on the structural part.

6.1. Assembly

The first step in the installation of Adonis equipment is to locate the anchorage points and the various medical gas, electrical and voice and data supply inputs.



See equipment installation drawing

- Remove centre cover ① and side covers ② with the help of the suction cup ③ as shown in Figure 2.
- The electrical and gas inlets are exposed. See figure 1.
- The anchorage points of the equipment are visible. See picture on the right in figure 2.
- Secure the device at the two upper anchor points using a screw ④ and a wide washer ⑤ at each anchor point as shown in figure 2 without tightening definitively, only in order to secure the device to the mounting surface with the appropriate hardware. The hardware to be used depends on the mounting surface and is detailed in the following sections of this chapter.



See points 6.1.1 and 6.1.2 of this manual.

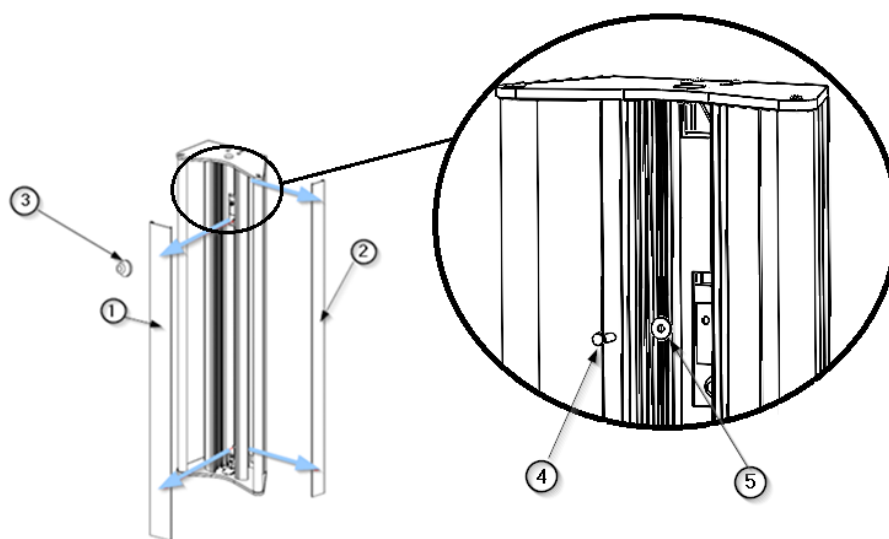


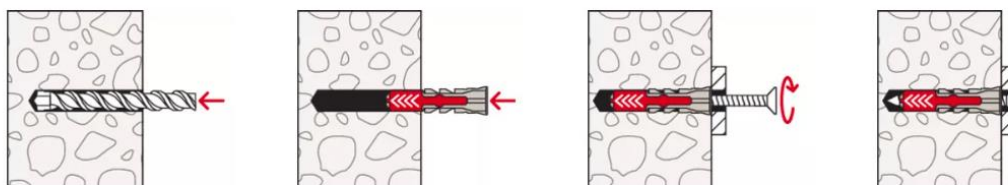
Fig. 2 Removal of the central cover. Position of the anchorages.

- 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.

6.1.1. Installation on a masonry wall

The connecting elements to be used when installing Adonis on a conventional masonry surface are as follows (see Fig. 3).

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.

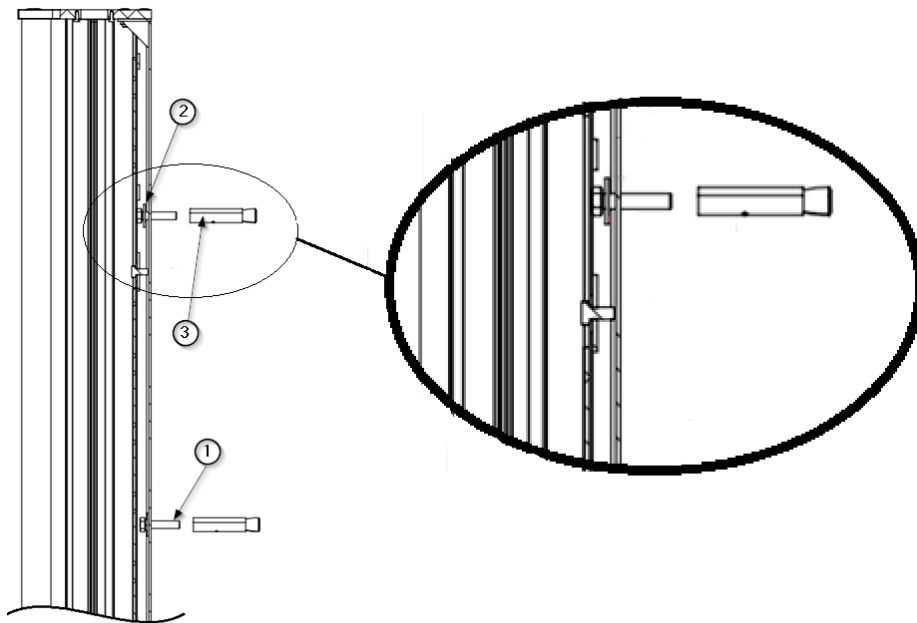


Fig. 3 Anchoring of Adonis on conventional masonry surface



It is essential to verify that the wall and anchorages are capable of supporting the weight of the device, plus an additional load of 150 kg. This verification is crucial to ensure the safety and proper operation of the Adonis.

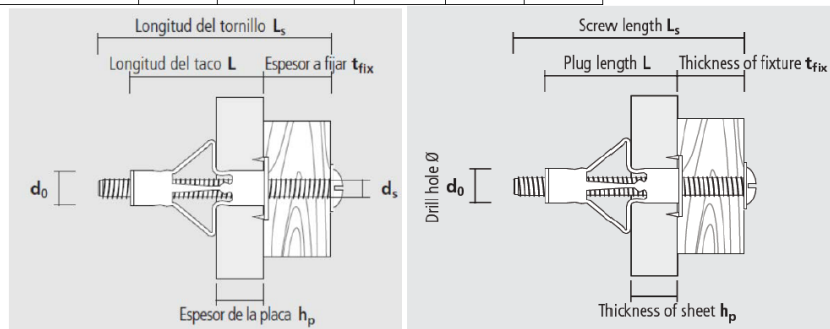
A professional assessment is recommended to confirm the suitability of the wall and anchors before proceeding with the installation.

6.1.2. Mounting on plasterboard panels

If the wall is made of plasterboard, it is essential to install an internal bracing structure to ensure proper distribution and support of the specified weight. Such a reinforcement structure can be built using solid or compact timber or steel. In the case of steel, it is recommended to use UPN tubes or profiles with a minimum thickness of 0.6 mm.

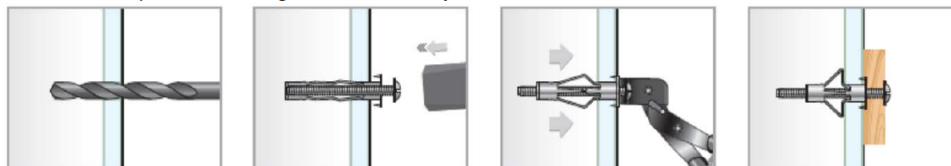
Below is a table with the recommended connection elements when we have an internal structure made of wood:

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*



It is crucial to ensure that the diameter of the pre-drilled hole is respected before installing the dowel, as well as the use of zinc-plated DIN 9021 M6 wide washers to guarantee a proper fixing.

With regard to internal steel reinforcements, a table is attached detailing the recommended fasteners to be used:

TORNILLO HEXAGONAL AUTOROSCANTE DIN-7504K | MÉTRICO

Inoxidable A2 - AISI 304
Clase 70

<ul style="list-style-type: none"> d Diámetro tornillo dc Diámetro brida dp Diámetro punta k Altura de la cabeza c Espesor brida s Distancia entre caras (llave) l Longitud seleccionada (sin cabeza) 	
--	--

Cotas en milímetros (mm)

	3,5	3,9	4,2	4,8	5,5	6,3			
d	8,3	8,3	8,8	10,5	11	13,2			
dc	3,45	3,45	4,25	4,45	5,45	6,45			
k	2,8	3,1	3,6	4,1	4,8	5,8			
dp	0,6	0,6	0,9	0,9	1	1			
c	5,5	5,5	7	8	8	10			
s									



It is essential to verify that the wall and anchorages are capable of supporting the weight of the device, plus an additional load of 150 kg. This verification is crucial to ensure the safety and proper operation of the Adonis.

A professional assessment is recommended to confirm the suitability of the wall and anchors before proceeding with the installation.

6.2. Electrical and voice/data connection:

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 5.



See equipment installation drawing

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.

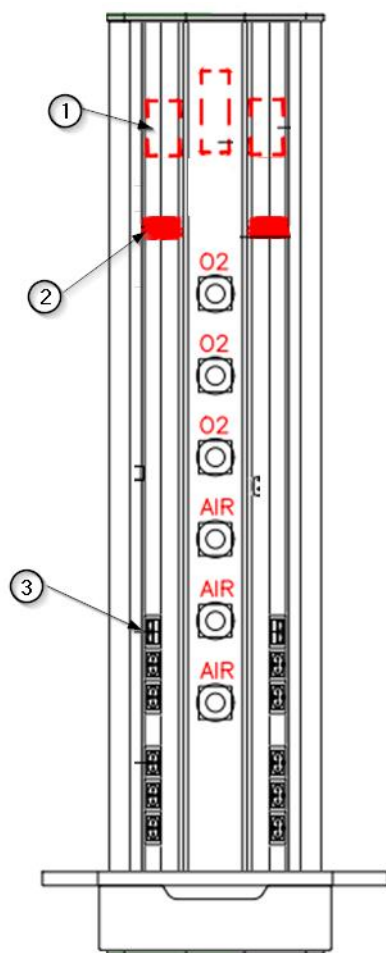


Fig. 4 Detail of electrical connection points at ADONIS

6.3. Gas connection:

The medical gas circuits enter the equipment through a window whose size 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.

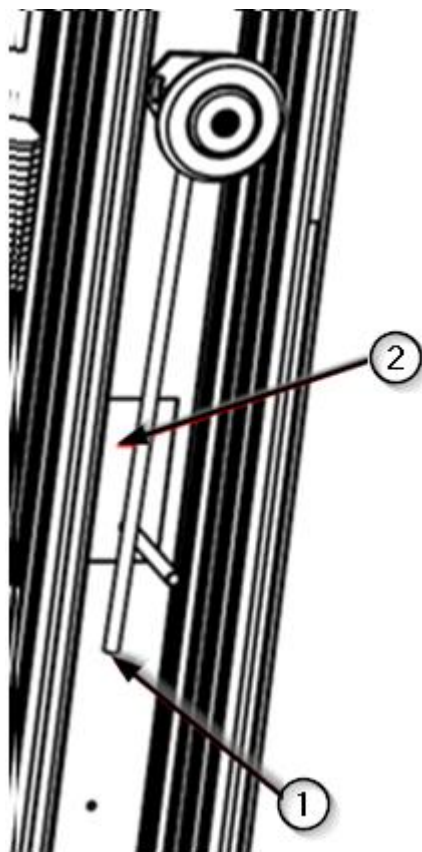




Fig. 5 Inlet connection for medical gases and vacuum

- Remove the central gas cap.
-  See section 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 equipment installation drawing

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.

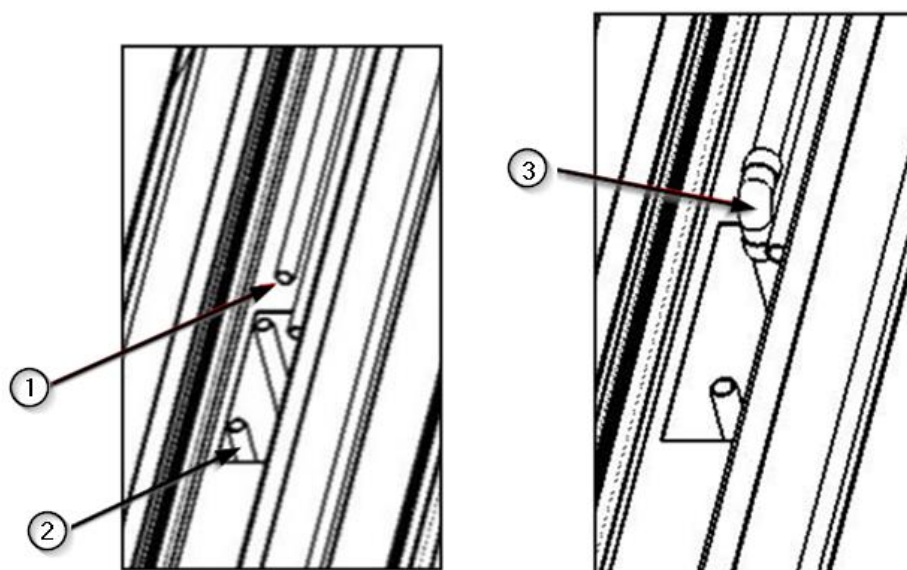


Fig.7 Cutting of pipes and fitting of copper fittings

- 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 7.
- 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 measures must be taken 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 metallic element impact 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.