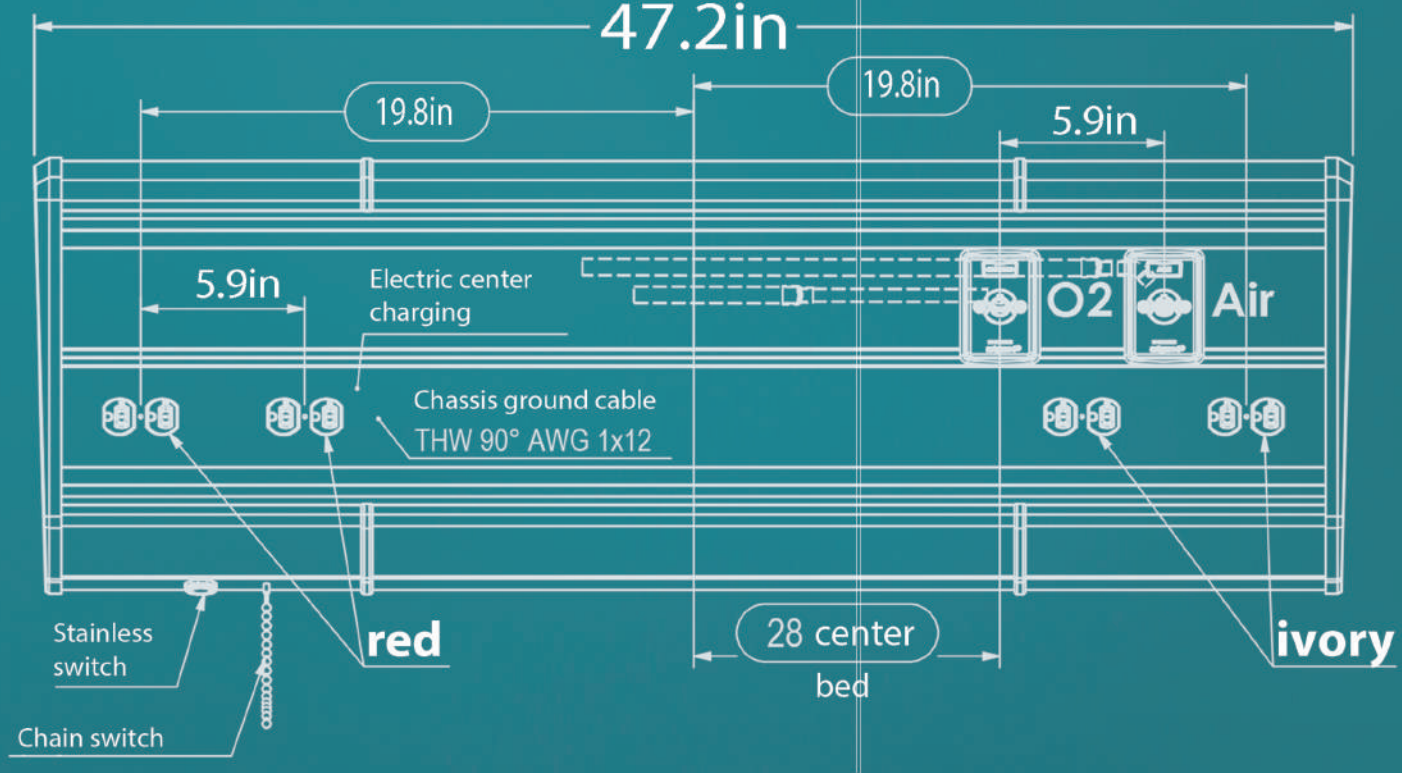
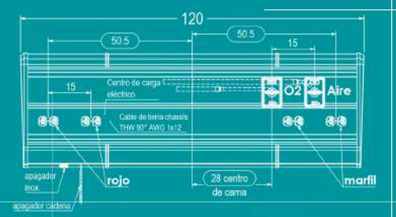
operation and maintenance

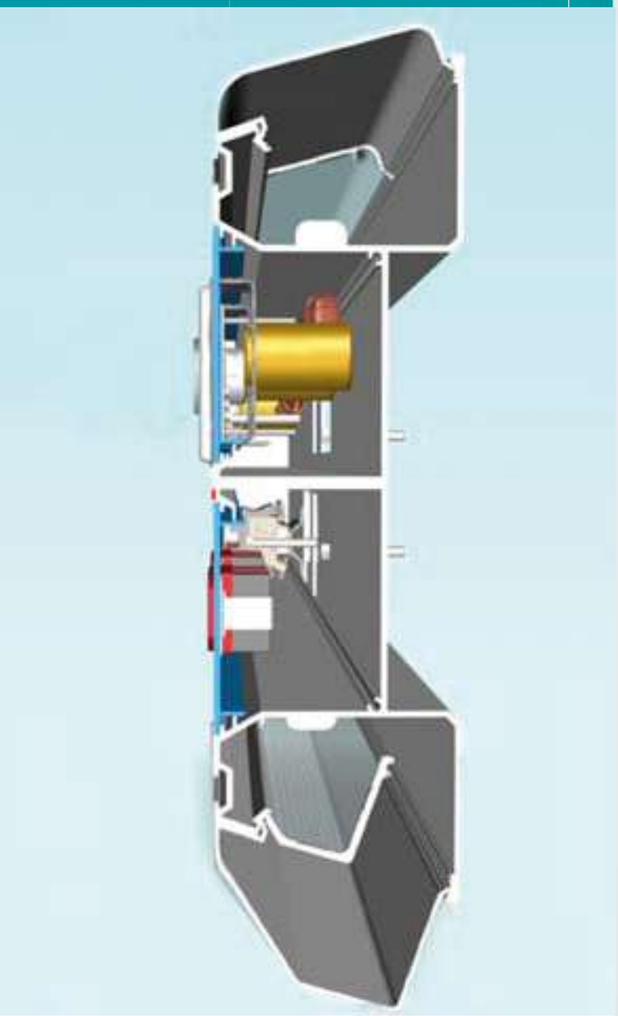
MANUAL



4 V Model Medical Horizontal Headwall



Index



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Pictograms meaning
used in this manual.

Reading Symbol:
This pictogram indicates the particulary points and information given.

Warning Symbol:
Not following this warning pictogram can cause injuries and possible damage to the equipment, the regulation and correct application of some precuations must be followed.

Danger Symbol:
This pictogram represents Danger, that can be fatal (cause of dead) or serious injuries.
This symbol must de abided by all the perssonel working with this equipment, work safety codes and regulations inlcuding use of PPE must be endorsed.

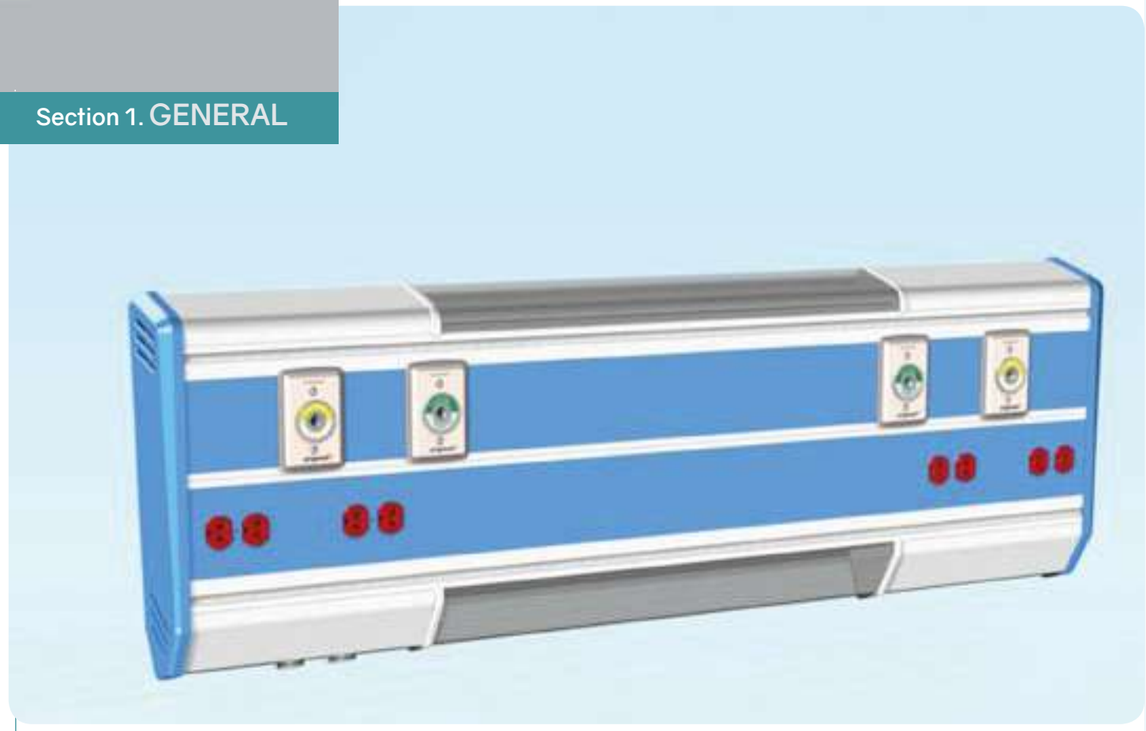
Environmental protection symbol:
This pictogram reminds need to maintenance operation performed to calssify wastes and store it in a safety place recycling and disposse respecting nature.

Pictograms
can be shown in the equipment

	Mandatory: Always use PPE.		**Mandatory:** Read Instructions.
	Warning: Hot Surface.		**Warning** Low Temperature.
	Forbidden: Prohibited to adapt or modify Systems and devices.		**Warning:** Electric shock risk.
	Warning: Only trained personnel.		**Warning:** Hgh pressure exposed devices.
	Warning: Pressurized equipment.		**Warning:** Becare with equipment handle.

Apply to 4v Horizontal Headwall Model.

Section 1. GENERAL



1.1. Description

Horizontal headwall 4v Model aluminium extrusion profile 6063 T5 alloy made, 2.5mm - 3mm profile thickness 10 micron natural anodized finish, 4 internal channels in solid state not removable to electrical power, medical gas, data and ligthing devices.

Aluminium extrusion meeting ASTM B-221-02/AA , self supported snap fit and screwfree front, upper and lower service panels.

Aluminium foundry side endcaps made, horizontal headwall 4v mod. are powder coating finish, can be inlcude an anti-bacterial clear layer cover (upon request).
High resistance clear Policarbonate extrusion lighting patient covers, self supported and screw free hardware.

1.2.Aplication

Horizontal headwall 4v Model need in medical areas where systems, devices and flows are required for medical treatment and unite those in a planned unit or cabinet specially designed to facilitate medical patient care.
Can include an Horizontal aluminum profile service rails to support and slide auxiliary medical devices, like I.V Hooks support, medical baskets, vacuum bottle slide support, Sign patient monitor, etcetera.

Horizontal Headwall include pressurized and energized systems that under certain conditions can be flammable and explosive,so all recommendations of each devices that horizontal headwall contain must be followed.
Failure to heed this recommendations and safety warnings could result in severe damage to people and property without liability to the manufacturer.

Inside Installations must be follow the NFPA99 code (Medical Health Care Facilities) chapter V, also with electrical local regulations, anyway this codes must be informed to the factory in advance to the rigth performance of devices and installations.

Medical headwalls where there are high oxygen concentrations they should be not exposed to oils and derivates, a high risk of explosion could occur.

1.3.Features

Medical Horizontal Headwalls inlcude a self supported snap fit panels screwfree, in all pipeline sections to medical gases, electrical, ligthing, voice and data, those are seperate in each compartment without mix installations.

Maintenance personnel can access the interior by removing the panels.

Only trained personnel can access the interior by removing the panels, omitting this indication could result in permanent damage to the panels and the medical horizontal headwall structure.

Setion 2. LOCATION

2.1.Location and Environmental conditions.

Indoor use Only, must be free of dust and protected to high temperatures also thermal radiation, avoid to direct expose to sunligth , not be exposed to any chemical or any kind of liquids.

Environmental temperature mus be between +1°C / + 49°C to temperatures outside this range, must be consult to the factory.

Would be necessary that not be near any kind of device or machine with thermal radiation to the medical horizontal headwall.

When be exposed to high humidity weather (coast and tropical jungle) corrosion and oxidation may occur in the materials.

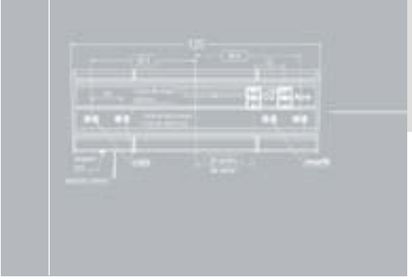
In hot and high humidity weather conditions, materials must be treated against corrosion and oxidation, however the standart factory coating does not include an special coating to hot and high humidity weather conditons.

In case of this weather conditions, factory must be notified in advance to apply an special coating (there may be an additional costs), otherwise customer or user must be take all cautions to prevent corrosion and oxidation in the materials on their own.

When medical horizontal headwall will be exposed continuosly to direct sunligth, coating and finishes may be degraded with color change or loss of adhesion coat.

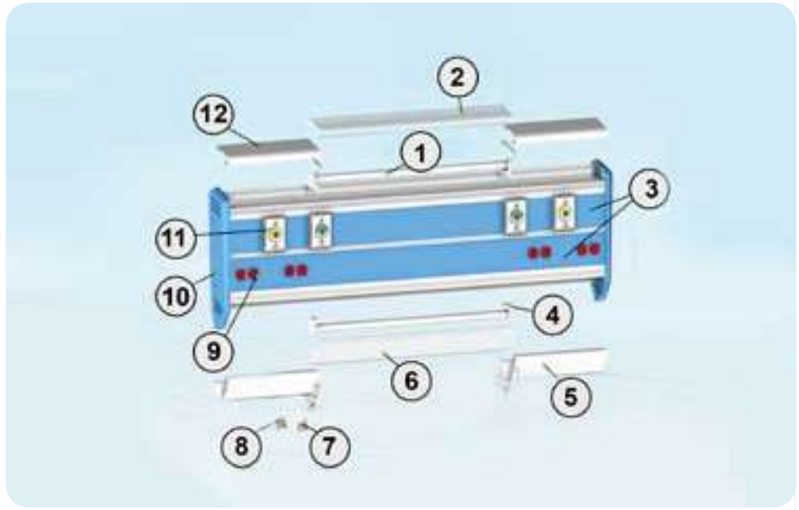
Continously exposed to direct sunligth radiation, coat and finishes may be present a general coating degradation, that can manifest in a color and tone changing gradually, until the total loss in the adherence of coating.

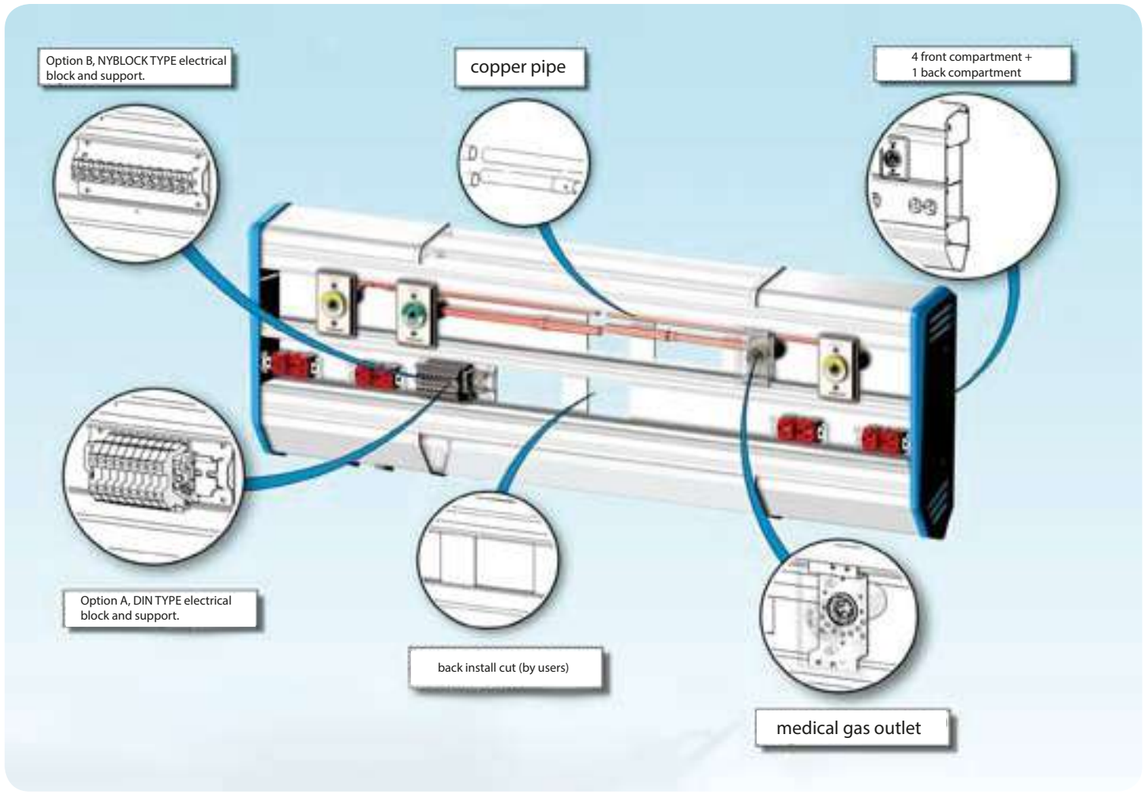
When medical horizontal headwall will be exposed continuosly to high chlorine concentration cleaning chemical substances or costruction adhesives mixes, permanent stains and discolorations may occur in coating and finishes.



Continously expose to high concentration of chlorine and cleaning or chemical substances like alcaline and chemical acids (drywall plasters, construction glue, paints, cleaning acids, etcetera), may occur permanent stains and discolorations in coating of medical horizontal headwall.

Item	Description
1	T-8 60cm led lamp
2	Policarbonate ligth cover
3	Aluminium front panels screwfree
4	led lamp electrical base
5	Aluminium endcap
6	Policarbonate ligth cover
7	Upper ligth electrical switch
8	Down ligth electrical switch
9	Twin electrical outlet
10	Aluminium endcap
11	Medical gas outlet
12	Aluminium upper panels





Section 3. INSTALL

3.1. Install

Installation must be performed by trained and certified personnel ASSE 6010 ASME BRAZER IX (Medical gas installator and oxyacetilene qualified brazer). Use of qualified personnel ensure a good installation of the medical horizontal headwall unit .

Administrative and technical resposability will be supported by test certificates and functional run test of any electrical, ligthing, medical gas, voice and data devices included in the medical horizontal headwall unit.

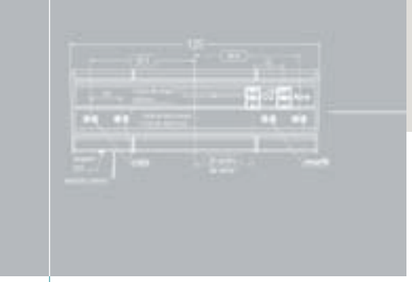
ASSE 6010 ASME BRAZER IX certified and qualified personnel must be perform installation of medical horizontal headwall unit otherwise, serious and permanent damages may occur in the electrical, ligthing, medical gas, voice and data devices included in the unit.

Electriacl shock, fire and explosion risk, medical horizontal headwall structure damage also a general malfunction may be occur by a poor installation cause.

A Pre-planning of wall mounting box locations of all devices must be determined prior to installation of medical horizontal headwall unit, taking care that the location of these boxes in the wall agree with respect to the internal installation compartments sizes and dimentions of the unit than will be installed.

References of measures and point location of boxes in the wall must be provided in advance in the event that will be required that the backside cuts be preparated from the factory.

In the event that backside box cuts measures are not provided to the factory, Installer is obliged to perform this cut on his own, the medical horizontal headwall unit will be supplied without any type of cut on its back.



ASSE 6010 ASME BRAZER IX, qualified and certified personnel must perform any cut and preparation to the backside of the medical horizontal headwall unit, only in the case that the factory has not been informed in advance of the realization of these backside cuts.

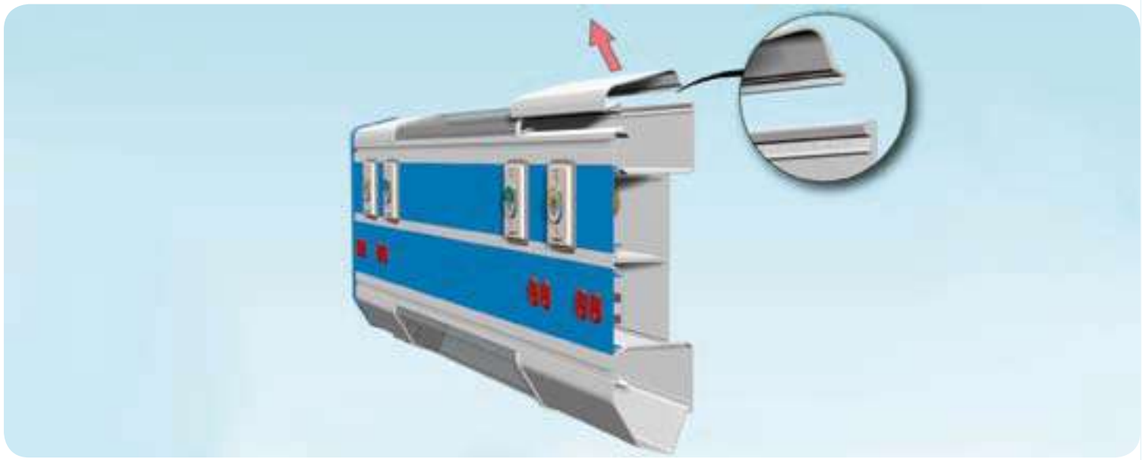
Take care of the handling in any maneuver of preparation for installations, never support the equipment directly on the floor without protection and always use anti-scratch mats to support the equipment on any surface, use height adjustable and transportable work tables of a correct height for the working standing position.

Take care when handling the unit to make any cuts for installations, the aluminum structure can be easily and permanently damaged.

Use personal protection equipment in any preparation and installation maneuver.

Take care of equipment handling when perform any manipulation maneuver or movement, anti-scratch protective mats should always be used to support the equipment on any surface during its preparation.

Remove the aluminum front panels with extreme care, do not use tools with sharp edges could damage aluminium permanently, panels can be removed by hand, always performed by specialized personnel and taking care to not deform the aluminum panel, identify each panel, that not confuse in the installation process exchanging by one panel for another. Remember that diffrent length sizes can be presented in the medical horizontal headwall.



3.1.1. Wall drywall and cement board reinforcement

Wood or steel internal wall reinforcements will be needed in the case of panel drywall or cement board walls, the medical horizontal heawall will be monunted and fixed directly over those reinforcements.

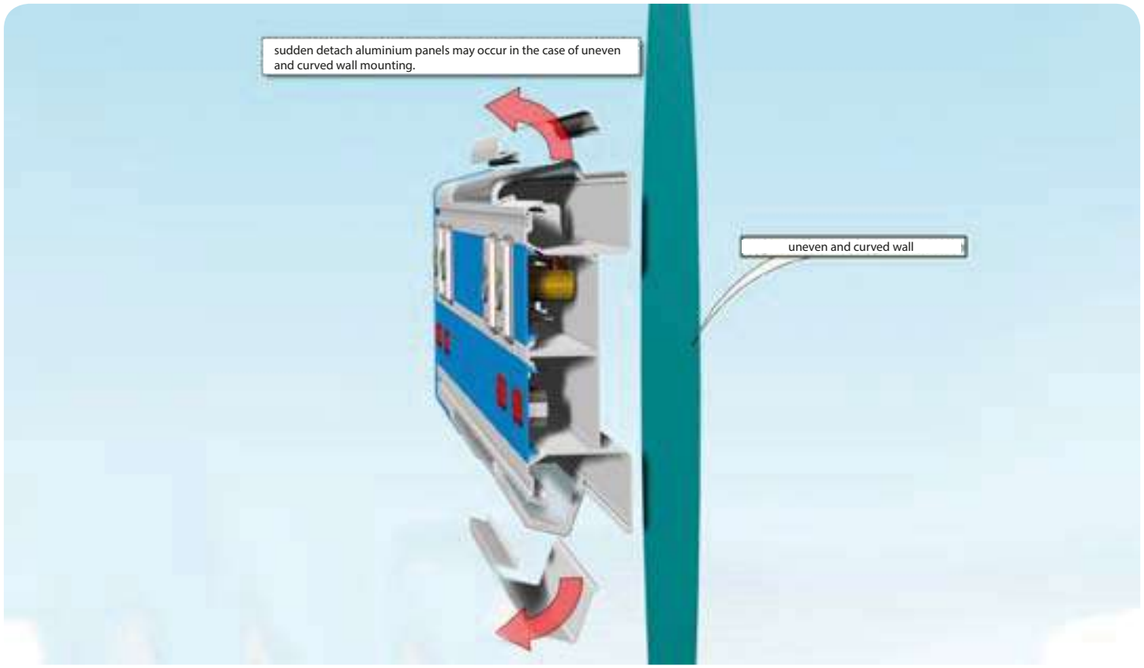
High risk damage to patient may occur in the case that wall internal reinforcements not be installed in drywall and cement board walls.

To block or brick walls will not be necessary to install reinforcements to medical horizontal headwalls mounting, but is necesaary that a correct mount be performed.

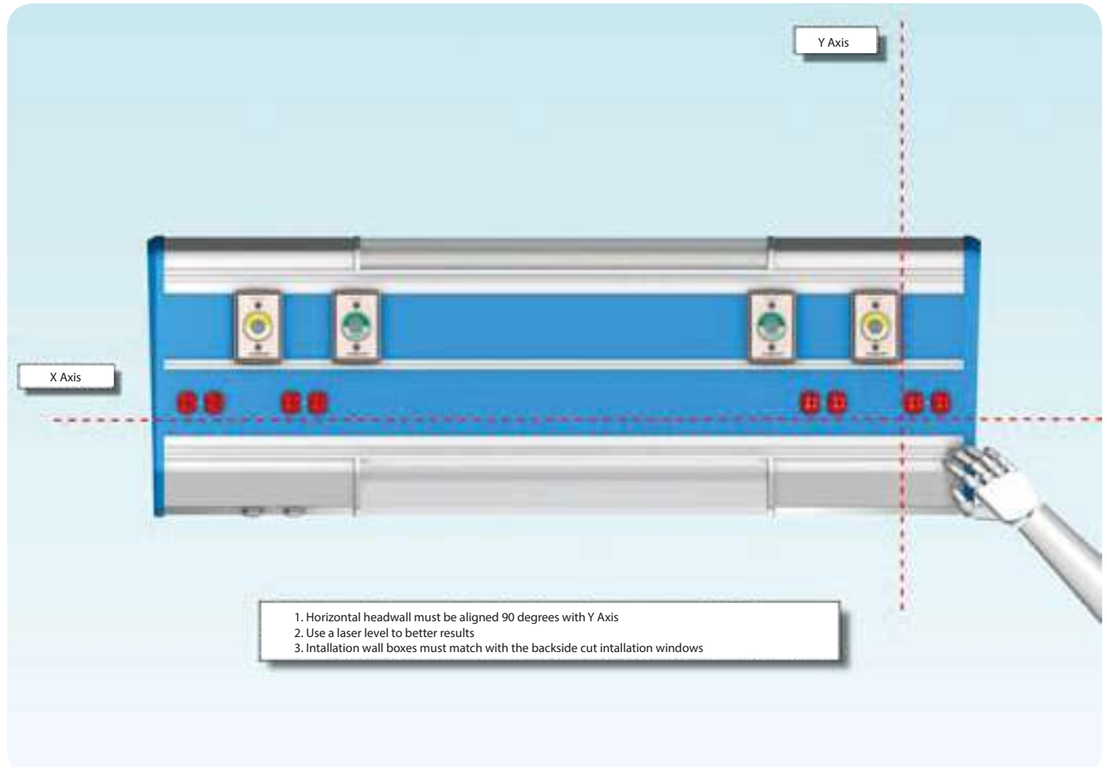
3.1.2. Uneven and curv walls mounting

Mounting in uneven and curved walls may cause many problems in the medical horizontal headwall wallmount, also an important instability and sudden detach in the front and lower panels that can fall to the patient.

RISK OF SERIOUS INJURY
Mounting in any kind of uneven and curved walls may cause serious injuries to the people.



Verify that the structure is not deformed due to an excess of torque in the fixing screws, in case of an excess of torque, the structure of the medical horizontal headwall will present deformation.

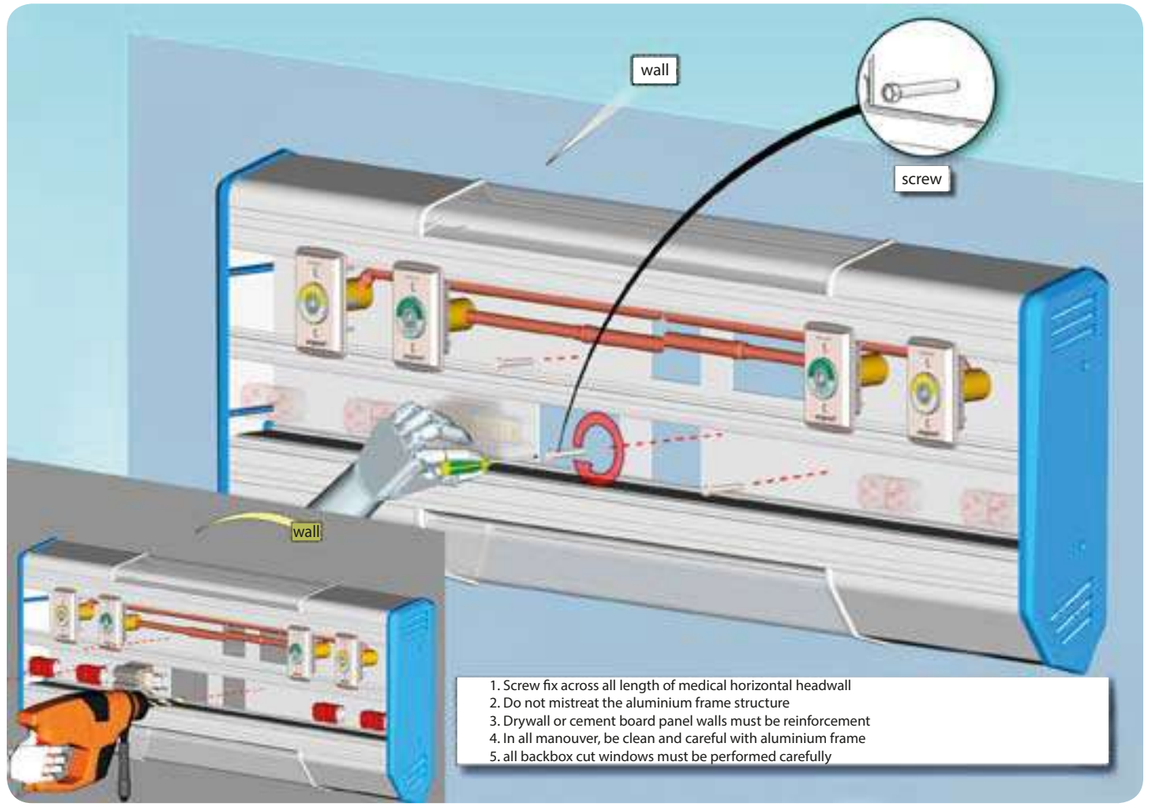


Without the front panels installed, you must proceed to position on the wall, match with the wall installation back boxes and in a correct alignment on the “Y” and “Z” axes (vertical and horizontal), proceed to the fixing with screws.

Factory does not recommed the selection of fix screws type, number and type of fix screws will be on the responsibility of qualified installer, selection of the screws will be based on the type of wall and materials for each specific project.

It is recommended use of laser level to aligned medical horizonatl headwall with “X” and “Y” axis refferences, so screw to the wall and verify the aluminium structure not be deformed by screw torque.

Verify that front, upper an low panels match and snap fit in the main aluminium frame structure, tested many times to be sure to avoid any deformation.



Once the medical horizontal headwall be fixed on the wall, proceed to connect all electrical, ligthing, medical gases, voice and data systems.

3.2. Medical Gas System connect

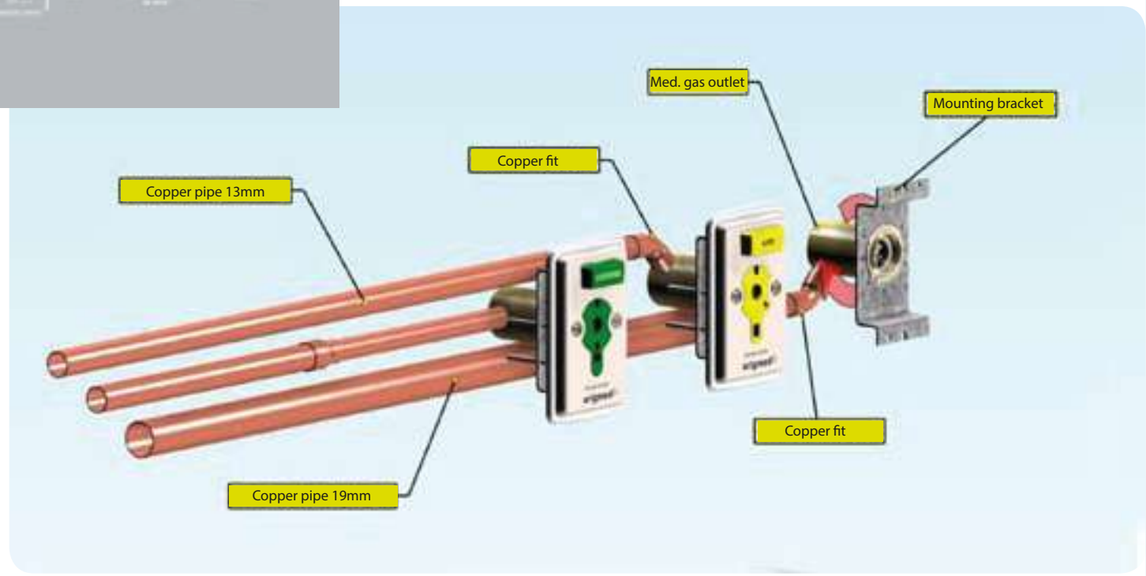
It will be only performed by trained and certified personnel ASSE 6010 ASME BRAZER IX meeting NFPA99 chapter V

SERIOUS INJURY AND DEATH RISK

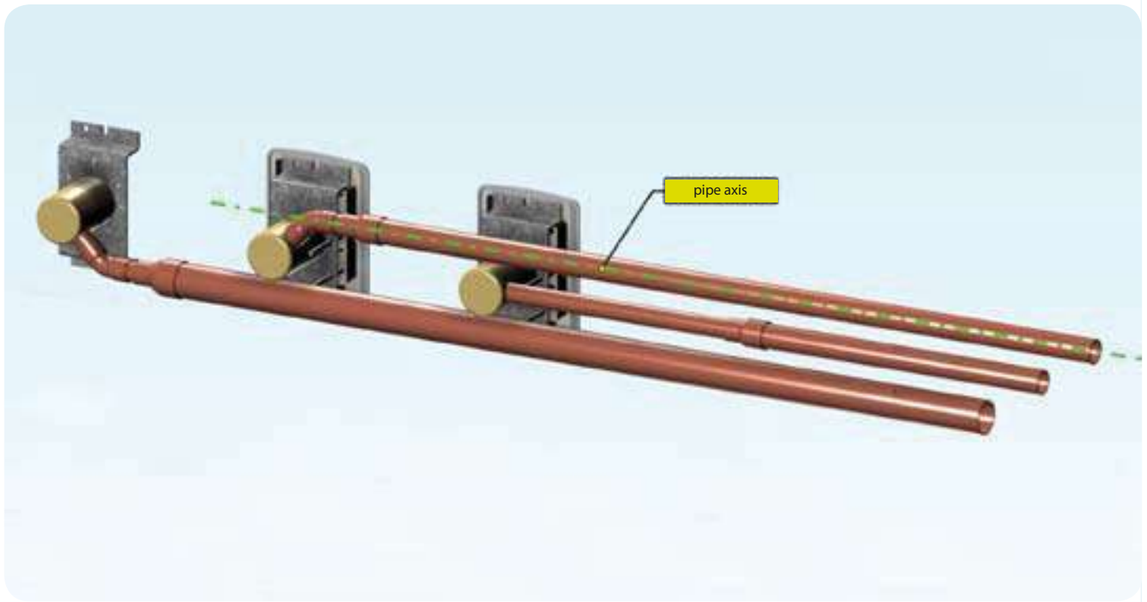
In the case of the medical gas piping not be performed by ASSE 6010 ASME BRAZER IX personnel meeting the NFPA99 Chapter V, can be occur a serious injuries and deadly risk.

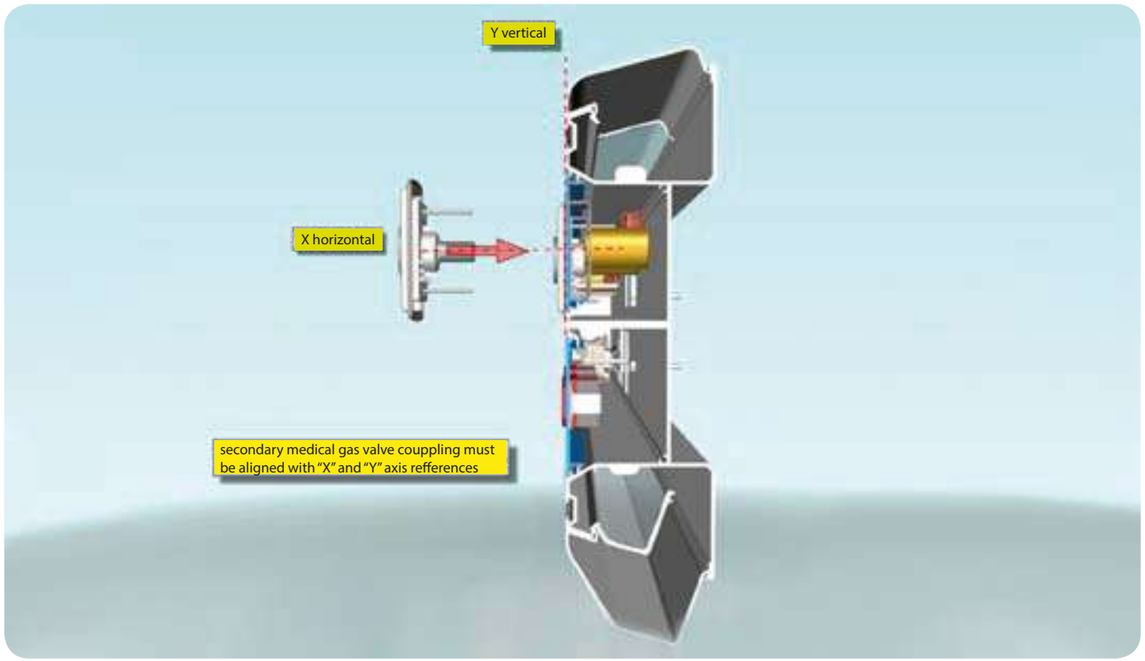
Minimum copper diameter pipe inside medical horizonta
headwall unit.
According with NFPA99 **chapter V.**

Oxygen	Medical Air	Medical Vacuum
13mm	13mm	19mm



Medical gas copper pipe arrenge.
Note: May change depending of medical gas outlet type also length of medical horizontal headwall unit.





3.3. Electrical Connection

Electrical connection must be performed only by trained and certified personnel ASSE 6010 ASME BRAZER IX according with NFAP99 chapter V.

SERIOUS INJURIES AND DEATH RISK

In the case of the medical gas piping not be performed by ASSE 6010 ASME BRAZER IX personnel meeting the NFPA99 Chapter V, can be occur a serious injuries and deadly risk.

Location of electrical devices can be different according with each type of electrical project, also type and trade-mark of the electrical devices.
Could be locate on the middle, lower or upper channels of the medical horizontal headwall unit.

Patient ligthing (T8 type 60cm length LED type 4300°K Temperature color, when it be inlcuded) will be located in the upper and lower channels of the medical horizontal headwall unit, unless the project has specified otherwise.

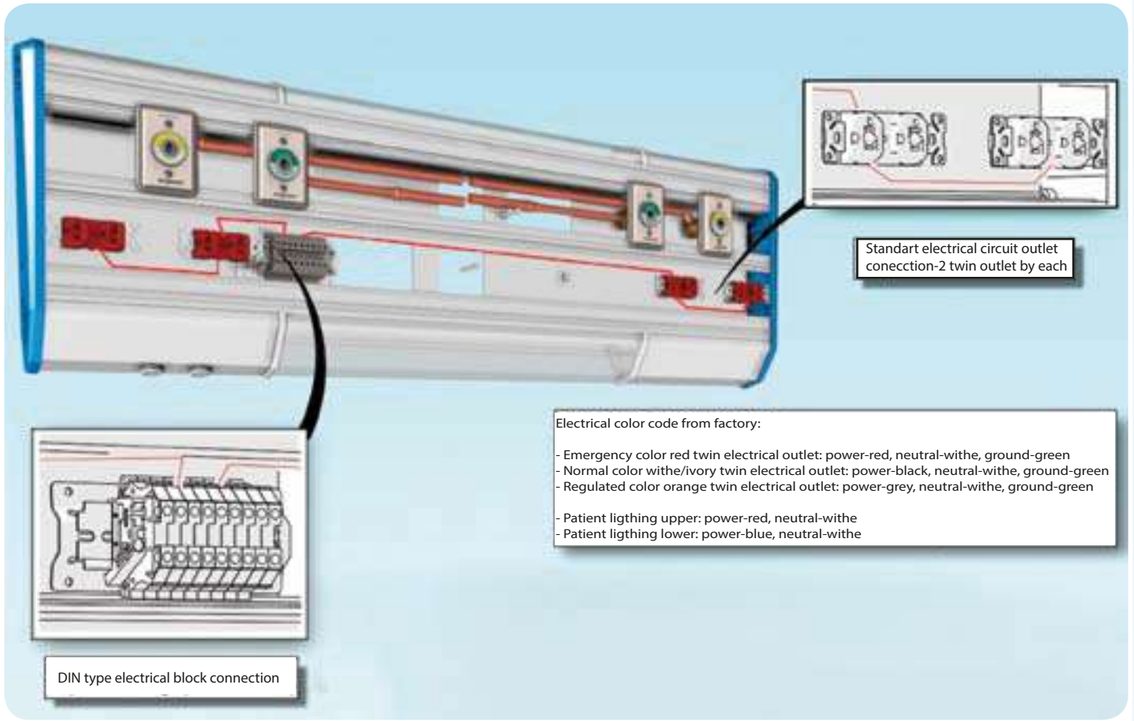
3.3.1. Electrical Harness

Will be used an electrical harness with 3 electrical copper wire AWG 12 (67X30), PVC AF 90°c, isololation, 600v U.L listed, like an standart, if the customer do not specify electrical wire type.

Electrical harness are built by 3 copper electrical wire stranded 65 - wire softh copper with PVC 90°c 600V isolated type, in paralel location.

Groped and fixed by plastic electrical belts and adhesive base to the aluminum frame.

AWG 12	POWER BLACK / POWER RED	Neutral withe	Ground green



Will be specify from the factory to 127V 20A, a different voltage type and electrical wire size will be noticed to the factory in advance.

Other type of specifications and Halogen free electrical wire are not inlcude in our standart electrical specifications.

HOSPITAL GRADE devices (electrical outlets) will be used in NEMA 5-20 class or INDUSTRIAL GRADE DIN SCHUKO 2 pin 220V 16 A, or any electrical outlet class and type specified by customer.

Any electrical adaptation, modification and alteration made by customer or user on their own, will be solely responsible for the result of those adaptations and release the factory from any responsibility.

Adapt, modifiy, replace or change electrical and ligthing devices will be solely resposible of customer and release the factory to any responsibility.

3.3.2. Voice and Data connection

The ASSE 6010 ASME BRAZER IX installer coordinates with the personnel in charge of wiring and assembling of voice and data devices, agreeing on the compartments of medical horizontal headwall where these wires and devices will be housed inside and fixed.
Even so, the direct responsible for the correct installation will be the ASSE 6010 ASME BRAZER IX installer.

3.4. Recommended Cleaning Sustances

Once review a good quality installation with funcionality test of all specialties performed by the ASSE 6020 (Medical Gas Inspector), and with a complete assembly of medical horizontal headwall (all panels installed), proceed to clean the complete equipment as follow:

PART	Clean fabric	Pre Cleaning	Finish
Aluminium frame	smooth and clean	warm water	liquid silicon
Aluminium panels	smooth and clean	warm water	liquid silicon
Policarbonate patient ligthing covers	smooth and clean	warm water	liquid silicon

Do not use fibers (Vegetal, Sintetic or Metallic) to clean the medical horizontal headwall, otherwise could scratch and damage permanently the aluminium frame and panels.

Use of Chlorine, gasoline, thinner, paint remover, acids, shinning oils and polishing pasters in any concentration could damage the coating layers and appearance of the equipment.

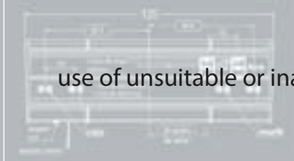
Waste result from the installation must be classified and disposed according to the regional codes for this purpose, the waste must never be dumped into the environment.

Section 4. SETUP

ASSE 6010 BRAZER IX proceed to test all devices included in the medical horizontal headwall as follow:

* Medical Gases Outlets: pressure working test , static pressure test, outlet gas type test, rate flow test, no cross connection test, medical gas leak test.
*Electrical Outlets: electric current leakage, electric voltage, electrical ground test.
* Ligthing: on/off switch test, electric voltage, luminous intensity.
* Data and Voice Devices: those specified for each specialty.
*Frame: electrical static test.
*Fixed Devices: position of devices will be rectified to verify that there are no movements.

Note: Cleaning will be performed meeting the hospital protocol, however Cleaning warnings in this manual will be observed.



use of unsuitable or inadequate screws to fix the equipment to the wall

Section 5. MAINTENANCE

ASSE 6040 MEDICAL GAS MAINTENANCE PERSONNEL will be perform any preventive and corrective manouver on the medical horizontal headwall.

Qualified and certified personeel ASSE 6040 will be perform any preventive and corrective maintenance, otherwise damages could be caused malfunction in the medical horizontal headwall.

You should consult the maintenance card of each manufacturer of devices included in the equipment, according to the cycle and schedules of preventive and corrective maintenance, as well as its replacement in case of the end of its useful life.

"Always refer to the manufacturer's manual of each device to verify the schedules of maintenance"

During maintenance and conservation operations it is essential to be informed of the risks related to pressurized and energized elements.

Completely disconnect the equipment before any maintenance and conservation maneuver.

Never carry out maintenance and conservation maneuvers with the patients connected to the equipment.

It's recommended to carry on maintenance every 12 months with a general inspection in all devices and systems included

* Medical Gases Outlets: pressure working test , static pressure test, outlet gas type test, rate flow test, no cross connection test, medical gas leak test.
*Electrical Outlets: electric current leakage, electric voltage, electrical ground test.
* Ligthing: on/off switch test, electric voltage, luminous intensity.
* Data and Voice Devices: those specified for each specialty.
*Frame: electrical static test.
*Fixed Devices: position of devices will be rectified to verify that there are no movements.

Section 6. TROUBLESHOOTING

INCIDENT	POSSIBLE CAUSE
1 – Panels realase suddenly and are unstable in their position.	1.1 Equipment was mounted on uneleved, curved or deformed wall. 1.2 Aluminium frame deformation caused by screw fix excess torque, that cause a frame extended deformation.
2 – Headwall are unstable fixed in the wall.	2.1 Missing reinforcement support inside drywall or cement board walls. 2.2 Use of unsuitable or inadequate screws to fix the equipment to the wall.
3 – Panels do not fit with the aluminium frame structure.	3.1 Aluminium frame structure deformation prior to the mountig maneuvers. 3.2 Aluminium panel deformation due to excessive and improper handling.
4 – False contact, unequal electrical tension, short circuits, electric arc.	4.1 Poorly placed electrical grounding protection, or not implemented. 4.2 Lack of torque in the screws of the electrical terminals devices (loose screw). 4.3 Pressing of electrical wires as a result of closing panels improperly.
5 – Mediacl gas Leaks.	5.1 Poorly weld joins in copper pipes, perforated hoses or bad coupling. 5.2 Bad coupling in medical gas outlets (primary to secondary valve). 5.3 Non aligned medical gas copper pipes, or deform those to change medical gas direction pipes.
6– Secondary equipment not attached or is expelled under pressure.	6.1 Non aligned medical gas copper pipes, or deform those to change medical gas direction pipes. 6.2 Non aligned medical gas outlet with respect to medical horizontal hedawall aluminium frame alinged.
7– Headwall looks uneven on the wall with respect to the floor and ceiling references.	7.1 Poor leveling during the installation process. 7.2 Floor and ceiling references may be uneven.
8– Low rate flow in the medical gas outlets.	8.1 Primary valve are not coupling rigth to the secondary valve of medical gas outlet. 8.2 There are blockages in the medical gas pipes or outlets. 8.3 Inadequate dimensions of diameters in the medical gas copper piping.

Section 7. QUALITY MANAGEMENT SYSTEM COMPLIANCE STATEMENT

Sociedad de Responsabilidad Limitada de Capital Variable
EQUIPOS PARA GASES MEDICINALES
www.arigmed.com

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43820, México

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ventasmx@arigmed.com

In accordance with the design and manufacturing of quality management system for medical gas systems
ISO 9001:2015 and ISO 13485:2016 Medical Devices

We, Grupo Arigmed , Declare than:

4 V Model Medical Horizontal Headwall

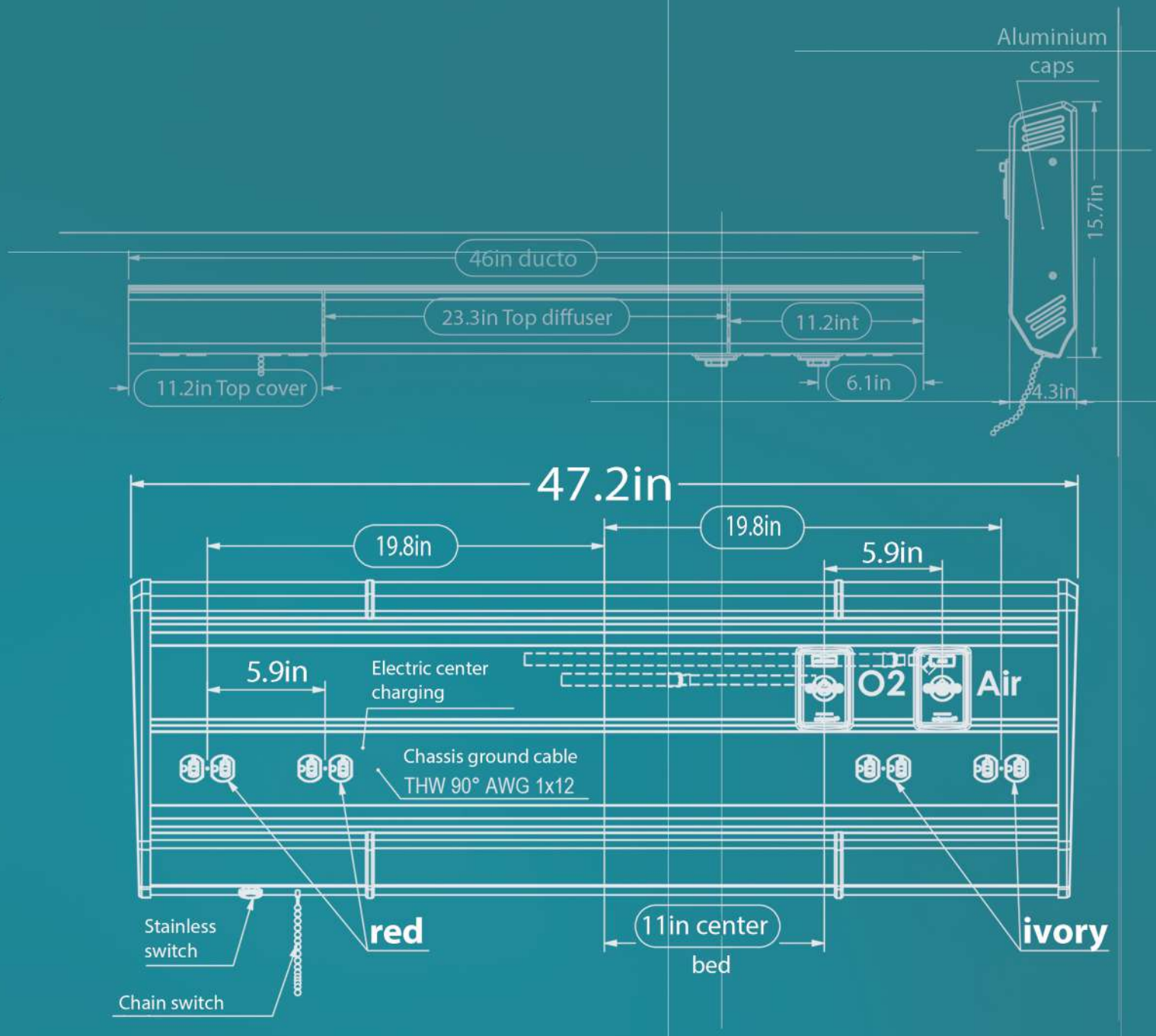
Complies with the characteristics that are presented on the supplied order, in accordance with the directives and standards of the quality management system for:
DESIGN AND MANUFACTURE OF SYSTEMS AND EQUIPMENT FOR MEDICINAL GASES.

This declaration loses all validity in case of modification or use not in accordance with the imperatives of the instruction_ manual.

Ing. ANA PAVON.
Quality Manager.

Tizayuca 20/03/2019

Notes:



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World Register ISO 9001:2015 CERTIFIED QUALITY MANAGEMENT SYSTEM

World Register ISO 13485:2016 CERTIFIED QUALITY MANAGEMENT SYSTEM