AIR LIQUIDE Healthcare

Devices for Medical Gas Pipeline Systems Catalogue

www.airliquidemedicalsystems.com

Air Liquide Healthcare is a world leader in medical gases, home healthcare, hygiene products and healthcare specialty ingredients. Our aim is to provide continuous care from hospital to home with medical products, specialty ingredients and services that contribute to protecting vulnerable lives.

Air Liquide Medical Systems, a subsidiary of Air Liquide Healthcare, are experts in the field of ventilation and respiratory assistance devices. Its employees are committed to the design, manufacture and sale of innovative products and solutions for ventilation, devices for distribution and administration of medical gases, and aerosol therapy.

With a constant concern for improving patient care and satisfying the expectations of healthcare professionals, Air Liquide Medical Systems offers solutions combining quality with ergonomics.

Innovation

Innovation is central to Air Liquide Medical Systems' products. Our priority is to contribute to the quality of care by optimizing patient comfort and simplifying the use of our products.

Expertise

Air Liquide Medical Systems has a 40 year history of listening to its customers and working with healthcare professionals. We create solutions that keep up with the changes in medical practice.

Commitment

Safety, Quality and Environment

We design our products based on ensuring safety and quality in respect of patients, users and employees, and regulatory compliance. Air Liquide Medical Systems is committed to an ongoing initiative to reduce its environmental impact.

Service

Local and responsive

Whatever the situation, you can always count on the expertise of our hotline and our local technical teams. They will help you ensure the safety of your patients and get the best performance out of your equipment.

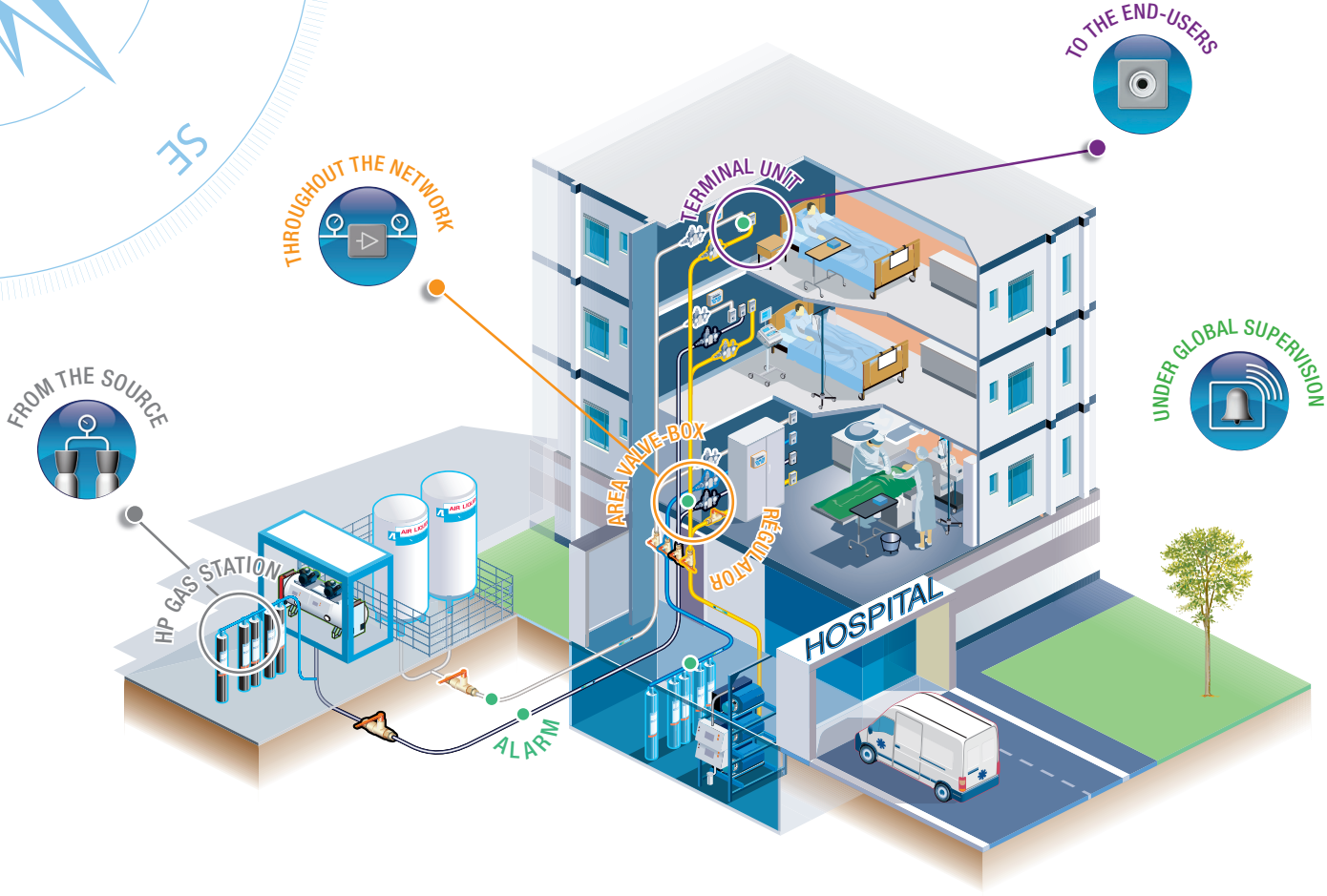
Our offer for Medical Gas Pipeline Systems

A complex environment to control, with a variety of needs, and a common objective:

«Uninterrupted gas delivery to patients.»

Air Liquide Medical Systems offers the most appropriate solutions at every steps of the gas supply, setting the course for a wide range of benefits.

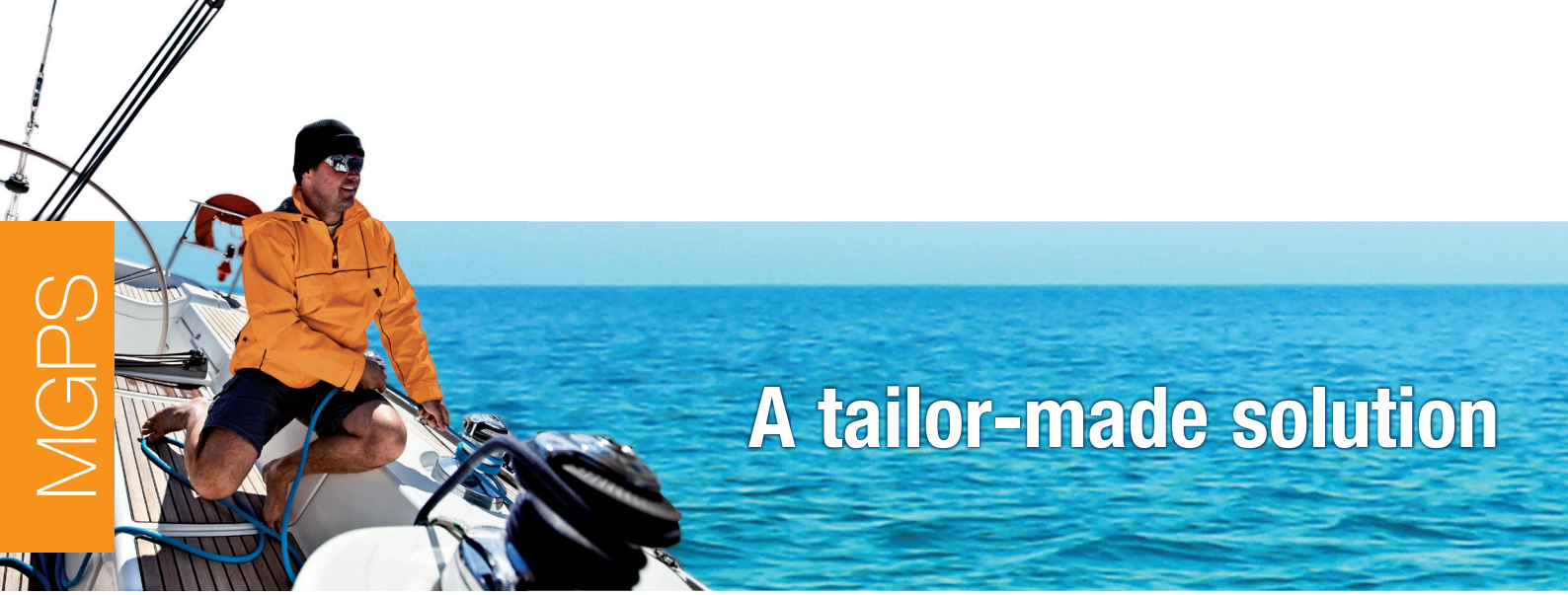
- *Hospitals must have medical gases available at all times and directly within the treatment facilities.*
- *Air Liquide Medical Systems offers a coherent set of equipments to be connected on the gas pipeline network.*
- *Every piece of equipment is appropriate, reliable, and top-quality, to ensure the safety of the system under any circumstances.*



Most of our products are designed and manufactured by Air Liquide Medical Systems in France.

Made in France

MGPS



A tailor-made solution

Content

For network standards :

At every levels of the gas delivery

SSN : Single Stage Network (5 bar all along) DSN : Double Stage Network (9 & 5 bar)

1 From the source

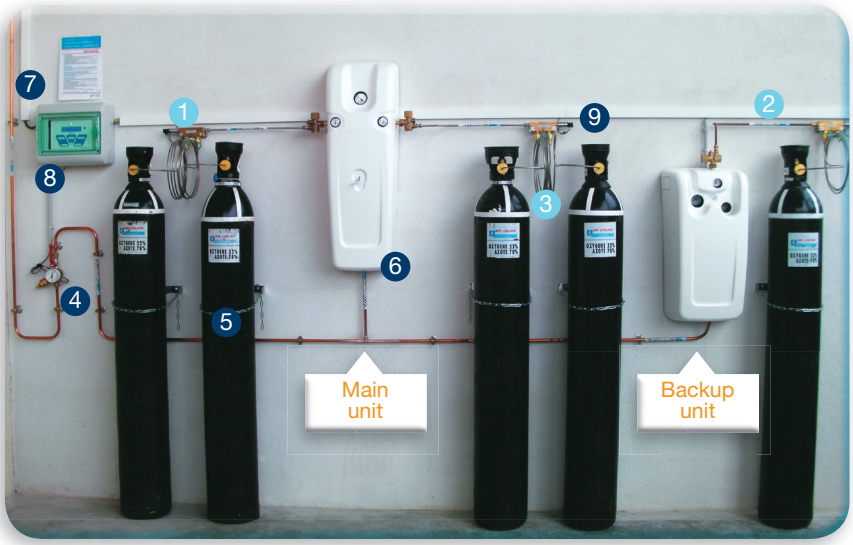
Danube high pressure gas station

The Danube high pressure gas station, specially designed for medical gas distribution, has a fully automatic switch-over system to provide a continuous supply to medical gas networks from cylinders or bundles of cylinders.
This equipment adapts to your requirements, and can be used as a main source or as a backup source for your gas pipeline.

Danube, main source of your network

A complete composition in three subassemblies:

- The Danube HP gas station
- Connection accessories
- Safety accessories



Connection accessories:

1. High pressure valve-box
2. Degreased high pressure copper tube
3. Pigtail, or Cylinder bundle station

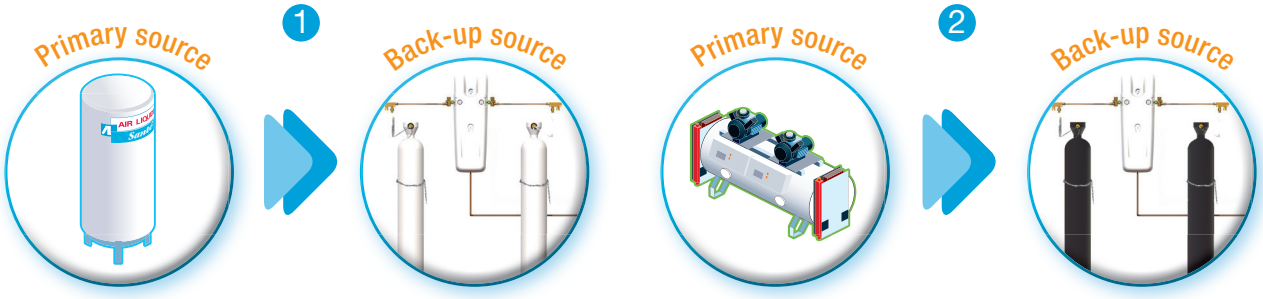
Safety accessories:

4. Line valve assembly, or Sensor connection assembly
5. Wall-mounted rack
6. Protective cover
7. Instruction and safety poster
8. Vigi alarm
9. Pressure sensor

Danube, backup source for your network

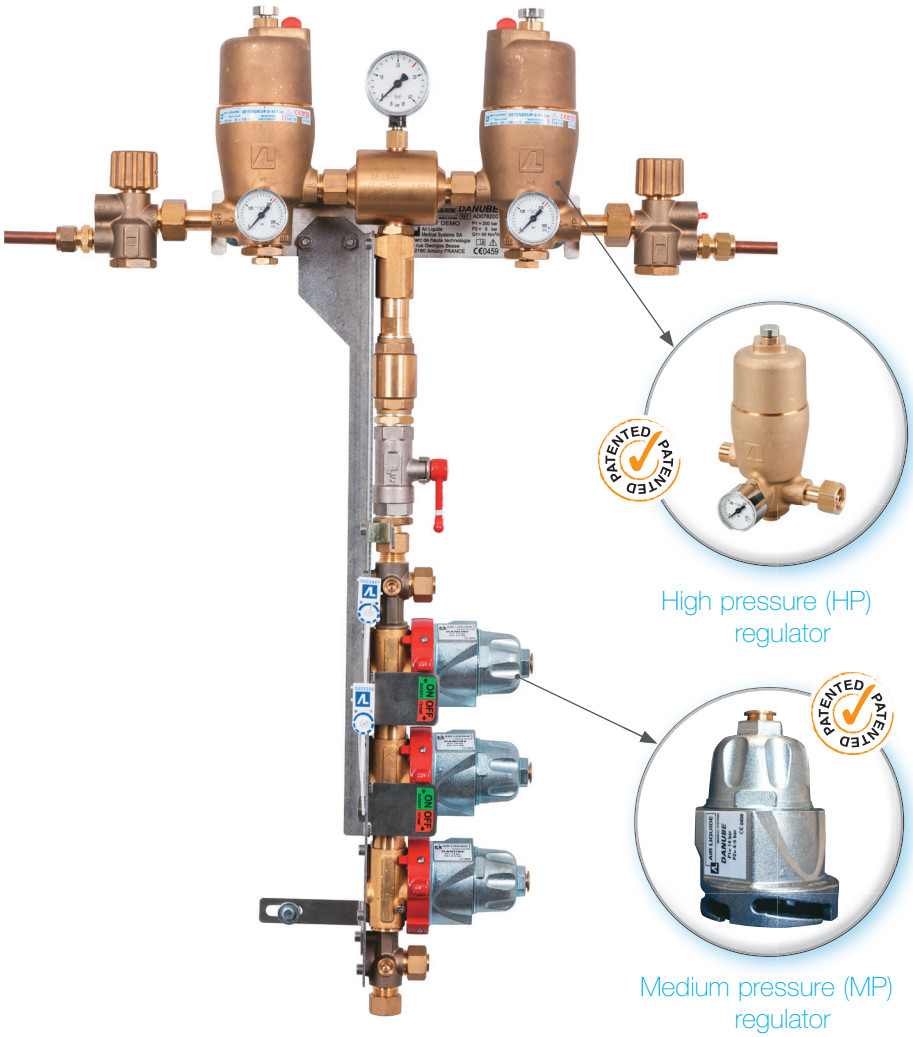
A configuration to suit every situation:

- Backup configuration connected to an oxygen evaporator 1
- Backup configuration connected to an air compressor 2



For single or double stage networks

The Danube high pressure gas station is the essential component for the distribution of compressed medical gases.
This high pressure regulation unit is placed upstream from the pipe network, to which various essential accessories are added to connect the cylinders and make the distribution of medical gases safe.



High pressure (HP) regulator

Medium pressure (MP) regulator

Modular configuration

- Compatible with all medical gases
- Available for single or double stage network standard
- With two maximum flow rates: 40 or 80 Nm^3/h
- Exterior or interior mounting and direct or grid mounting

Simplified installation

- Reduced weight and dimensions
- Two-part equipment
- Use of standard tools
- Quick and intuitive assembly by just one technician

Ultra-reliable operation

- 100% automatic pneumatic inversion
- Piston regulator with patented valve
- Stable pressure guaranteed thanks to its two-stage pressure reduction system
- Immediate pressure readings (manometer always visible)

Expertise in medical gas

- Perfect adaptability for all medical gases
- Optimised assembly time
- Continuous supply for patient safety

Did you know?
An $80m^3/h$ flow rate supplies an 800-bed hospital at least (according to appendix M of HTM 02-01).

Danube high pressure gas station

The Danube high pressure gas station can be installed outdoors or indoors and according to two types of mounting: directly on a wall or pre-mounted on a grid.

Toolbox:
Spirit level, drill, screwdriver, clamp, torque spanner, and workbench.

All-in-one quick mounting

Pre-mounted configuration on a grid

Tailor-made gas station to customer requirements

Configuration mounted directly on a wall

References

Single stage network

Designation	Reference	Detail
Danube main station SSN	AD078200	5 bar & 80 m³/h
Danube back-up station SSN	AD078300	5 bar & 80 m³/h
Danube main station SSN	AD078500	5 bar & 40 m³/h
Danube back-up station SSN	AD078600	5 bar & 40 m³/h
Danube back-up module HP SSN	AD078400	9 bar & 40-80 m³/h

References

Double stage network

Designation	Reference	Detail
Danube main station DSN	AD078000	9 bar & 80 m³/h
Danube back-up station DSN	AD078100	7 bar & 80 m³/h

Specifications

Available gases	O_2, Air, N_2O, CO_2, N_2 (Not compatible with acetylene and corrosive gases)
Number of cylinders	Configuration from 1 to n cylinders
Inlet pressure	Up to 200 bar
Outlet pressure	SSN: Between 4 and 5 bar (preset to 5 bar) DSN: Between 8 and 9 bar (preset to 8.5 bar)
Inlet fitting	A double ring for copper tube 5x10 mm
Outlet fitting	A double ring for copper tube 12x14 mm
Dimensions	SSN: Main: 456x772 (mm) Back-up: 236x714 (mm) DSN: Main: 456x608 (mm) Back-up: 236x714 (mm)
Weight	Main unit: Between 13.5 kg and 16.7 kg according to product ref. Back-up unit: Between 6.1 kg and 9.5 kg according to product ref.
Regulatory compliance	Class IIb medical device with CE 0459 marking, manufactured by Air Liquide Medical Systems S.A. ISO 7396-1 and ISO 10524-2 standards. Read the user manual carefully.
Life time	15 years

The benchmark for high pressure gas station

Disassembled HP regulator

HP regulator 5 years maintenance kit

HP regulator cartridge

Connection accessories

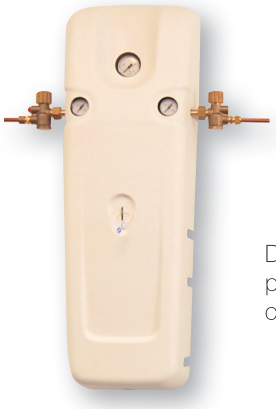
Designation	Reference
HP copper pipe (5x10mm)	Page 13
HP valve-box	Page 13
Pigtail	Page 15
Bundle gas station	Page 17
HP flexible hose	Contact us

Safety accessories

Designation	Reference
Danube protective cover for main station	AD078700
Danube protective cover for back-up station	AD078800
Line valve assembly SSN / DSN	Page 19
Sensor connection assembly	Page 20
Cylinder rack	Page 21
Safety label for HP gas-station	YL003200
Safety label for N_2O specificity	YL003000
Label « OXYGEN » (x1)	YF016000
Label « AIR » (x10)	YF010300
Label « NITROUS OXIDE » (x10)	YF016100
Label « CO_2 » (x10)	YF010600
Pipe heater	Contact us

Did you know?

There are high pressure hoses to connect valve-boxes to the cylinders.



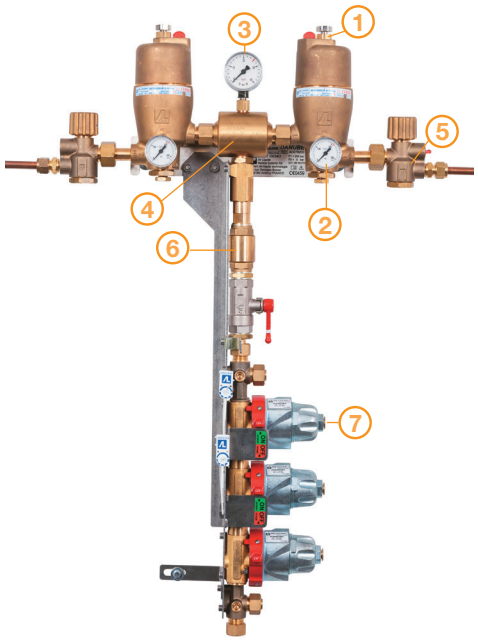
Design protective cover

Le saviez-vous?

An electric heater eliminates the risk of the valves and regulator icing up, to ensure constant flow.

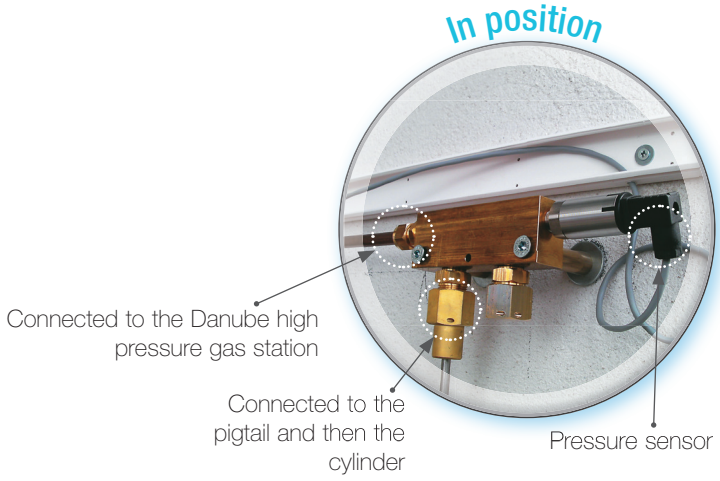
Spare parts

Designation	Reference	Number
HP regulator 100 m^3/h Danube	CE061400	1
Automatic swich-over	AG060700	4
Purge valve with sintered filter	AE071100	5
Non-return valve	AD070600	6
MP regulator module DSN	BB021500	7
MP regulator module SSN	BB026100	7
Manometer 0-315 bar ø 40 for HP regulator	CX071000	2
Manometer 0-40 bar ø 50 for switch-over	CX092800	3
Manometer 0-40 bar ø 50 for back-up station	CX012600	
Manometer 0-40 bar ø 40 for back-up station	BY020700	
Diabolo gasket for manometer (x20)	CX079200	
5 years maintenance kit for HP regulator	CY008200	
HP regulation cartridge	CX012300	
Filter kit for purge valve	CY009000	
5 years maintenance kit for purge valve	CY008100	
5 years maintenance kit for MP module (x10)	CY008800	



Valve-box

Valve-boxes are essential components for the creation of supply manifolds for the high pressure gas station.
This device, combined with a pigtail, is used to connect the cylinder to the gas station.



Modularity

- Choice of configuration, 1 or 2 cylinders connected
- Kit assembly, possibility of connecting several valve-boxes
- Adaptable to a main or backup manifold

High level of safety

- Automatic regulation of the manifold pressure thanks to its controlled pressure reduction system
- No risk of pigtail flapping when changing the cylinders thanks to its non return valve
- Limited risk of adiabatic compression thanks to its “zero plastic” design

Performance

- Adapts perfectly to all medical gases
- Equalisation of manifold pressure, for a real visualisation of the pressure on the gauges
- Facilitated leak detection; the measured pressure matches the overall pressure of the manifold

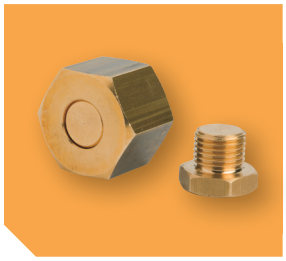
Controlling high pressure

- Adapts perfectly to all medical gases
- Ideal configuration, kit assembly
- Pressure equalisation and self-regulation

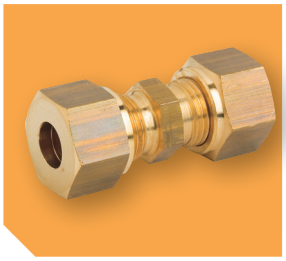
Specifications

Operating pressure	Up to 200 bar
Type of fitting	1/4” gas HP fitting for copper tube 5x10 mm
Dimensions	67 mm (H) x 112 mm (L) x 26 mm (l)
Weight	1 kg
Material	Brass
Wall mounting	2 holes ø 8 mm, spaced at 90 mm, with brackets and screws provided
Regulatory compliance	Class IIa medical device with CE 0459 marking, manufactured by Air Liquide Medical Systems S.A. ISO 7396-1 standard. Read the user manual carefully.
Life time	15 years

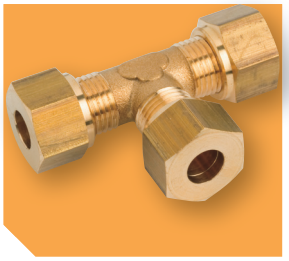
Controlling the high pressure system



Plugs for HP valve-box



Union fitting Ermeto 5x10



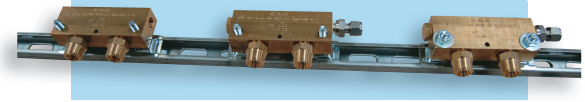
Tee fitting Ermeto 5x10

References

Designation	Reference
HP valve-box	AC101100
HP valve-box O_2 for Spain/Italy	AC106100
HP valve-box Air for Spain/Italy	AC102400
HP valve-box N_2O for Spain/Italy	AC102500
HP valve-box N_2 – CO_2 for Spain	AC102600
HP valve-box CO_2 for Italy	AC106000
HP valve-box N_2 for Italy	AC106700

Did you know?

To save time, mount your valve-boxes on a standard rail.

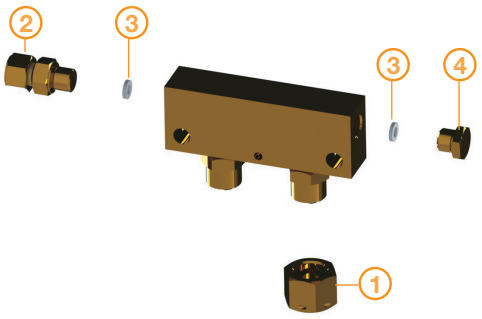


Composition of a complete valve-box assembly:

- 2 mounting brackets
- 2 connectors for copper tube 5x10 to connect to the high pressure gas station and another valve-box
- 1 outlet plug for installation at the end of the manifold

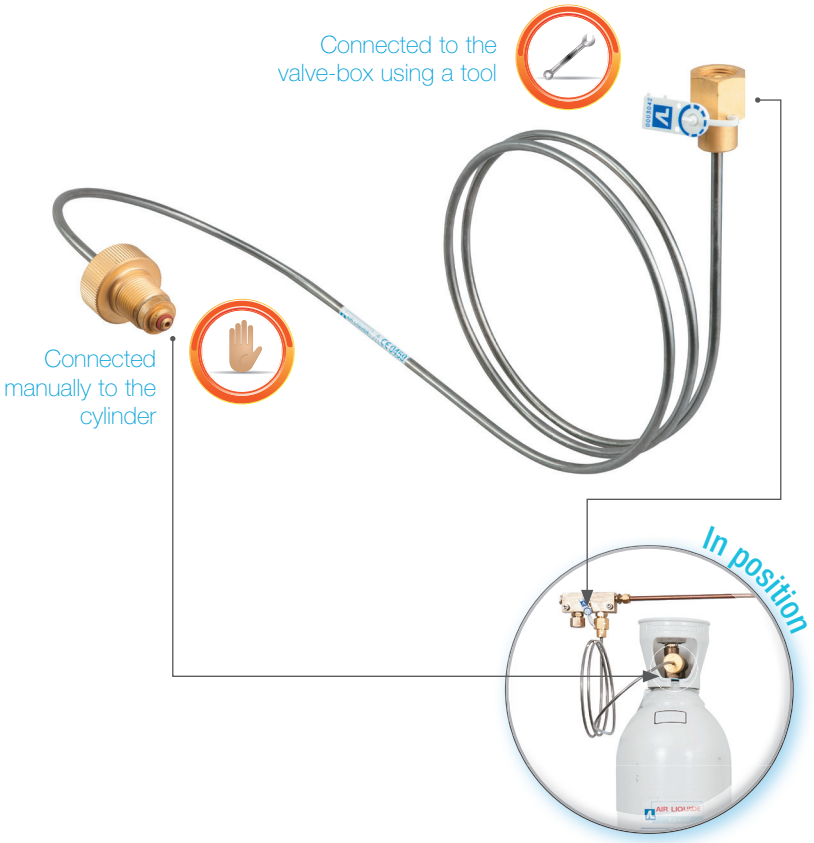
Accessories and spare parts

Designation	Reference	Number
Plug M20 x 1,5	AC101600	1
Plug M20 x 1,5 Air for Spain/Italy	AC105100	
Plug M20 x 1,5 N_2O for Spain/Italy	AC105200	
Plug M20 x 1,5 N_2-CO_2 for Spain	AC105300	
Plug M20 x 1,5 CO_2 for Italy	AC106200	
HP fitting 5x10 1/4" gas in brass (x 5)	AE070300	2
Copper gasket 11x6x2 (x 10)	YJ101600	3
Plug H19 1/4" gas	CX086300	4
HP fitting 6x8 1/4" gas stainless steel (x 5)	AE070500	
HP copper pipe 5x10, 2 meters long	YD021100	
HP copper pipe 5x10, 1 meter long	YD021200	
Union fitting Ermeto 5x10	AC052000	
Tee fitting Ermeto 5x10	AC052300	
HP analogue sensor (0-250bar)	AF004200	
Seal in white plastic with AL logo 185mm (x10)	YA011100	
Seal in red plastic with writing zone 225mm (x10)	YA014700	



Pigtail

Pigtails are the final connectors of the high pressure gas station. They supply the gas network by connecting the valve-boxes with the cylinders at high pressure.



Simplified use

- Simply tighten/loosen by hand to replace cylinders
- Modifiable mounting direction, from the right or from the left
- Compact

Guaranteed safety

- Connected by hand, impossible to disconnect under pressure
- Pigtail sealed with the valve-box

Robustness

- Unbreakable connection with induction brazing
- Longer life (made of stainless steel)
- No damage to the connections on the cylinder side, thanks to tool-free connection

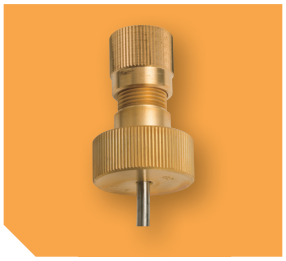
Essential to the Danube gas station

- Safer supply to the network
- Tightened/loosened by hand, simple and no risk of damaging the connectors
- Greater modularity thanks to connection from the left or from the right

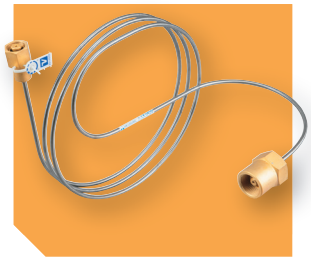
Specifications

Available gases	O_2, Air, N_2O, CO_2 and N_2
Operating pressure	Up to 200 bar
Inlet fittings	NF and other standards
Weight	712.5 g
Materials	316 L stainless steel tube, brass fittings
Regulatory compliance	Class IIa medical device with CE 0459 marking, manufactured by Air Liquide Medical Systems S.A. ISO 21969 standard. Read the user manual carefully.
Life time	15 years

Performance right down to the cylinder



Pigtail plug, NF



O_2 Pigtail, Italian type 2

HP flexible hose

References

Designation	Reference	Gas	Cylinder connection
Pigtails	AC107000	O_2	NF type F
Pigtails	AC107100	Air	NF type D
Pigtails	AC107200	N_2O	NF type G
Pigtails	AC107300	CO_2 and N_2	NF type C
Pigtails	AC108000	O_2	DIN type 9
Pigtails	AC108100	Air	DIN type 13
Pigtails	AC108200	N_2O	DIN type 11
Pigtails	AC108400	CO_2	DIN type 6
Pigtails	AC108300	N_2	DIN type 10
Pigtails	AC104600	O_2	Italy type 2
Pigtails	AC104300	Air	Italy type 6
Pigtails	AC104400	N_2O	Italy type 9
Pigtails	AC106600	CO_2	Italy type 10
Pigtails	AC104500	N_2	Italy type 10
Pigtails	AC107500	O_2	Spain type F
Pigtails	AC107600	Air	Spain type B
Pigtails	AC107700	N_2O	Spain type U
Pigtails	AC107800	CO_2 and N_2	Spain type C
For any other standard, please ask us.			
HP Flexible hose	Contact us	Any gas	Any type

Pigtails are supplied in pairs:
One to connect the cylinder on the left, and one to connect the cylinder on the right.
The length is 2 m for all standards and 3m for Italian pigtails.

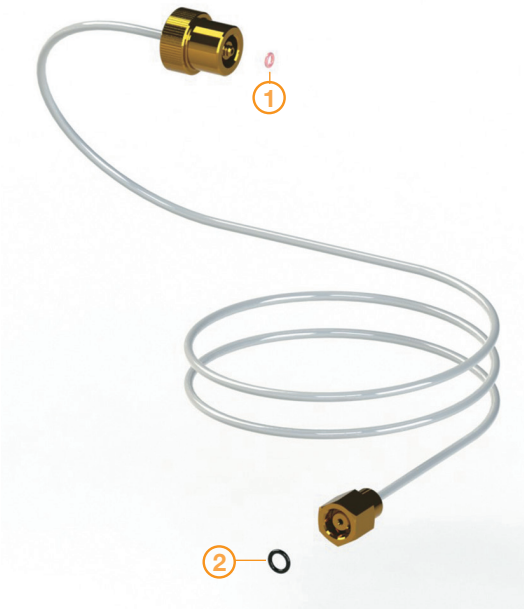
Did you know?
There are high pressure hoses to connect valve-boxes to cylinders.
Useful for a fleet of different cylinder sizes.

Accessories

Designation	Reference	Gas	Cylinder connection
Pigtail plug	AC101500	O_2	NF Type F
Pigtail plug	AC101900	Air	NF Type D
Pigtail plug	AC101800	N_2O	NF Type G
Seal in white plastic with AL logo 185mm (x10)	YA011100		
Seal in red plastic with writing zone 225mm (x10)	YA014700		

Spare parts

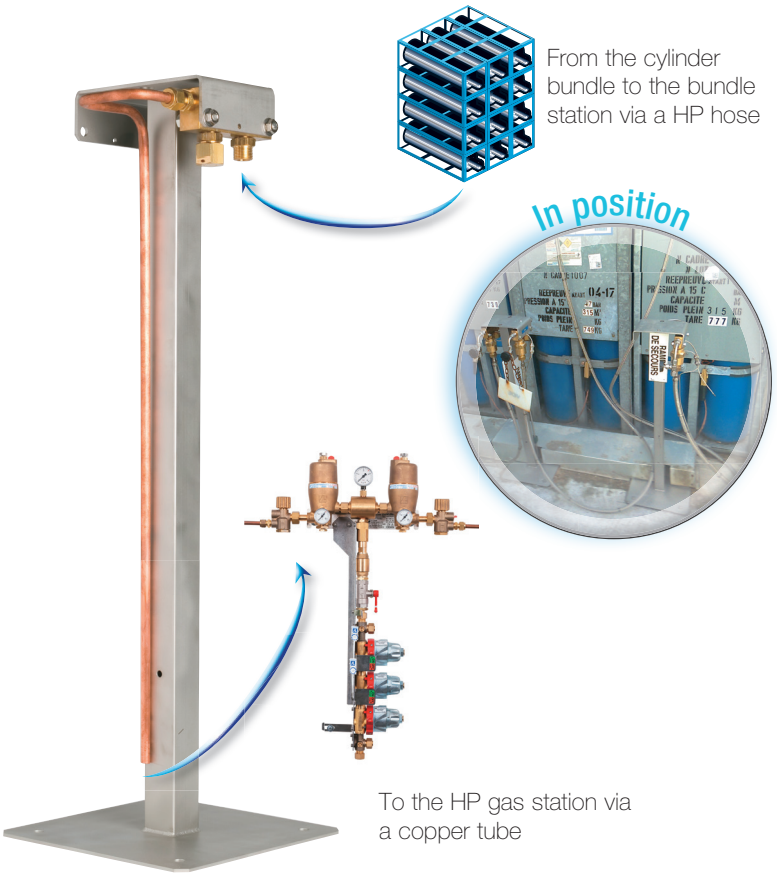
Designation	Reference	Number
Thoric gasket R5 silicone (x 10)	YJ040600	1
Thoric gasket EP851 10,5x2,7 (x 10)	YJ102500	2



For the German, Italian, and Spanish standard spare parts and accessories references, please ask us.

Cylinder bundle station

The bundle station is a key element in the installation of a high pressure gas station. It connects the cylinder bundle to the high pressure gas station. The connection to the cylinder is created using a high pressure hose and the connection to the gas station is done via a copper tube. This rigid support facilitates and secures the connection of the cylinder bundles.



User-friendly

- The elbowed copper tube is supplied with the bundle station tube
- Possibility of connecting a second bundle station
- Very simple design to limit the number of parts
- Network supply with a single connection

Robustness

- Unbreakable bundle station
- Longer life (made of stainless steel)

Guaranteed safety

- Limited risk of adiabatic compression
- Built-in and protected non-return valve-box
- Tamper-proof: the connector kit is protected by a security seal

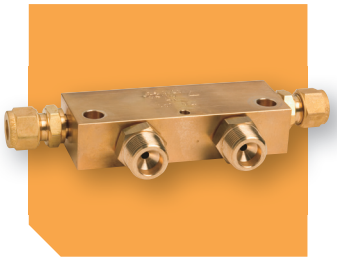
Essential for high pressure cylinder bundles

- Built-in, protected valve-box
- Network supply with a single connection
- Limited risk of adiabatic compression

Specifications

Available gases	O_2, Air, N_2O, CO_2, N_2
Supply pressure	Up to 200 bar
Inlet	Frame fitting according to gas
Outlet	1/4" gas HP fitting for copper tube 5 x 10 mm
Dimensions	750 mm (H) x 250 mm (L) x 250 mm (l)
Weight	5,8 kg
Materials	Stainless steel for bundle station, brass for valve-box and fittings
Floor mounting	Four holes, ø 11 mm, spacing 190 mm x 190 mm
Mounting of HP safety cable	Two holes drilled in the bundle station, then mounting of HP safety cable
Regulatory compliance	Class IIa medical device with CE 0459 marking, (for the special bundle station valve-box only), manufactured by Air Liquide Medical Systems S.A. - ISO 7396-1 standard. Read the user manual carefully.
Life time	15 years

Safe connection to the gas station



Valve-box

HP flexible hose

References

Designation	Reference	Gas	Inlet fitting	Number
Single-bundle station	AB090700	Any gas		1 to 7
Second-bundle station	AB092000	Any gas		1 to 6
Connector kit	AB090900	O_2	M35 x 2	8
Connector kit	AB091000	Air	M30 x 1,75	8
Connector kit	AB091100	N_2O	M41 x 2	8
Connector kit	AB091200	N_2 et CO_2	M38 x 2	8
HP flexible hose	Nous consulter			

Composition of a bundle station for one cylinder bundle:

- 1 single-bundle station
- 1 connector kit, chosen according to the gas

Composition of a bundle station for two cylinder bundles:

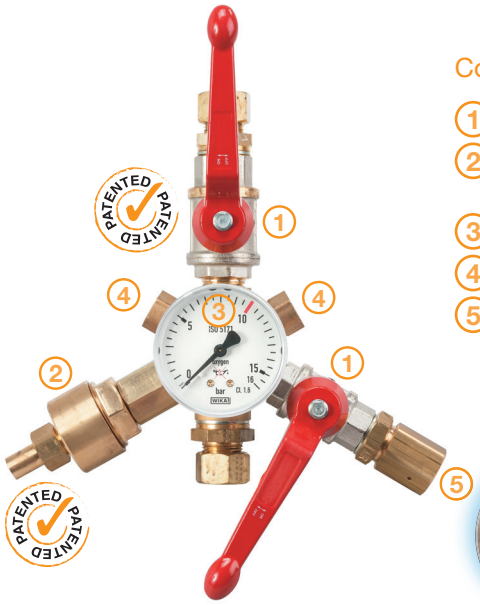
- 1 single-bundle station
- 1 second bundle kit
- 2 connector kits, chosen according to the gas

Spare parts

Designation	Reference	Number
HP valve-box for bundle station (with parts 2, 3, 4, 5)	AB090800	1
HP fitting 5x10 1/4" gas in brass (x 5)	AE070300	2
Copper gasket 11x6x2 (x10)	YJ101600	3
Plug H19 1/4" gas	CX086301	4
Plug M20 x 1,5	AC101600	5
Seal in white plastic with AL logo 185mm (x10)	YA011100	
Seal in red plastic with writing zone 225mm (x10)	YA014700	

Line valve assembly

The line valve assembly VSP secures the high pressure medical gas network. This all-in-one device isolates the high pressure gas station from the main network, evacuates excess pressure, and supplies the network continuously during maintenance. Combined with the pressure sensors, the VSP is used to monitor the network.



Composition

1. 2 ¼-turn valves
2. 1 safety valve with gradual opening
3. 1 pressure gauge
4. 2 sensor connection ports
5. 1 gas-specific inlet

NIST connector without cap

Performance

- Sealing provided by the ball valve
- Increased precision of valve calibration
- Direct display on a large pressure gauge
- Minimal pressure loss thanks to its double helical groove gasket

User-friendly

- A single action to shut off the network
- Direct supply to the network with its built-in connector
- Compact
- No wall mounting required

Guaranteed safety

- Non-return valve on safety valve
- Network monitoring via pressure sensors

Optimum network safety

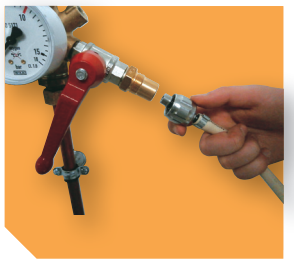
- Single action to shut off the network and simplified supply
- Network monitoring via pressure sensors
- All-in-one, coherent, high performance assembly

Specifications

Available gases	O_2, Air, N_2O, CO_2, N_2
Passage diameter	10 mm
Pressure gauge class	1.6
Gas inlet standard	SSN: NIST DSN: NF
Max. flow at fitting	NIST: 60 m^3/h NF: 80 m^3/h
Valve calibration	SSN: Fully open at 10 bar / Closing above 7 bar DSN: Fully open at 12 bar / Closing above 9.5 bar
Inlet / Outlet	1-ring fitting for copper tube ø 14 mm
Sensor connection	M10 x 100
Non-return valve	On the safety valve
Dimensions	260 mm (H) x 260 mm (L) x 80 mm (l)
Weight	1,7 kg
Materials	Nickel-plated brass and brass
Regulatory compliance	Class IIa medical device with CE 0459 marking, manufactured by Air Liquide Medical Systems S.A. ISO 7396-1 standard. Read the user manual carefully.
Life time	15 years

Optimum network safety

VSP with pressure sensors



Connecting an Emboufix flexible hose

Supplying the network with backup cylinder

References

Designation	Reference	Gas
VSP SSN NIST	BA062100	O_2
VSP SSN NIST	BA062200	Air
VSP SSN NIST	BA062300	N_2O
VSP SSN NIST	BA062500	CO_2
VSP SSN NIST	BA062400	N_2
VSP DSN NF	BA063100	O_2
VSP DSN NF	BA063200	Air
VSP DSN NF	BA063300	N_2O
VSP DSN NF	BA063500	CO_2
VSP DSN NF	BA063400	N_2

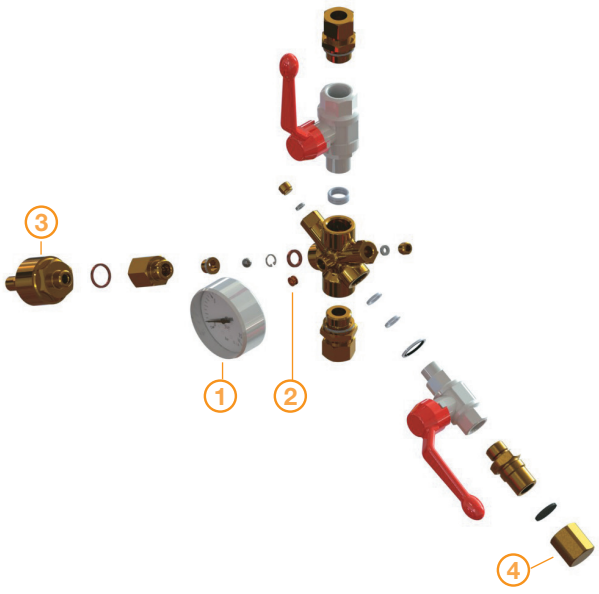
Accessories

Designation	Reference	Gas
Label « OXYGEN » (x1)	YF016000	O_2
Label « AIR » (x10)	YF010300	Air
Label « NITROUS OXIDE » (x10)	YF016100	N_2O
Label « CO_2 » (x10)	YF010600	CO_2
Analogue sensor 4-20 mA / 0-16 bar / M10 x 100	AF004000	
To connect a cylinder		
Emboufix 3m NF	BF030200	O_2
Protal II NF type F	CD080100	O_2

For any other reference, please contact us.

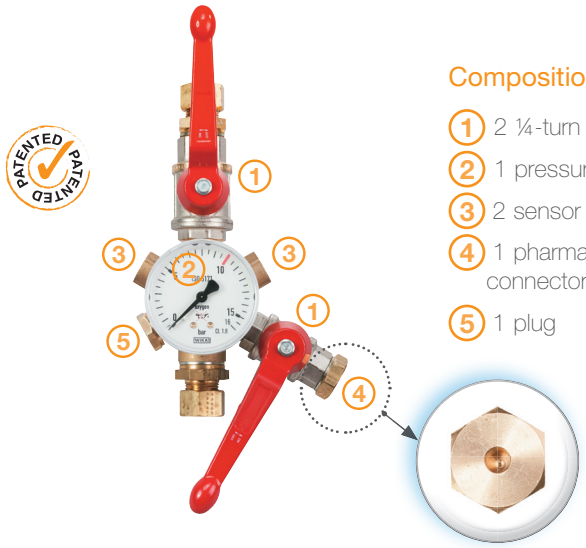
Spare parts

Designation	Reference	Number
Manometer 0-16 bar Ø 63 mm M10 x 100	BY005900	1
Diabolo gasket for manometer (x 20)	CX079200	2
Safety valve 10 bar for VSP SSN	AH011000	3
Safety valve 12 bar for VSP DSN	AH011200	3
Cap for NIST inlet with flat gasket	BY017000	4



Sensor connection assembly

This special line valve assembly is installed at the outlet of the high pressure gas station. It supplements the VSP by allowing the connection of additional sensors and the medical gases quality analysis.



Composition

1. 2 ¼-turn valves
2. 1 pressure gauge
3. 2 sensor connection ports
4. 1 pharmaceutical sampling connector
5. 1 plug

Performance

- Sealing provided by the ball valve
- Increased precision of valve calibration
- Direct display on a large pressure gauge
- Minimal pressure loss thanks to its double helical groove gasket

User-friendly

- A single action to shut off the network
- Compact
- No wall mounting required

Guaranteed safety

- Network monitoring via pressure sensors
- Gas quality analysis via the sampling connector

Optimum network safety

- Pressure display and simplified network shut-off
- Network quality assurance
- All-in-one, coherent, high performance assembly

Specifications

Available gases	Any gas
Maximum operating pressure	20 bar
Passage diameter	10 mm
Max. flow at sampling connector	30 L/min
Inlet / Outlet	1-ring fitting for copper tube ø 14 mm
Sensor connection	2 fittings M10 x 100
Socket	ø 6 mm
Dimensions	200 mm (H) x 140 mm (L) x 70 mm (l)
Weight	1.4 kg
Materials	Body made of nickel-plated brass
Regulatory compliance	Class IIa medical device with CE 0459 marking, manufactured by Air Liquide Medical Systems S.A. ISO 7396-1 standard. Read the user manual carefully.
Life time	15 years

Reference

Designation	Reference
Sensor connection assembly	BA070000

Spare parts

Designation	Reference
Pressure sensor 4-20 mA / 0-16 bar / M10 x 100	AF004000
Manometer 0-16 bar / M10 x 100	BY005900
Diabolo gasket for manometer (x 20)	CX079200
Plug H19 1/4" gas	CX086301

Cylinder rack

Cylinder racks are the safety belts of the high pressure cylinders.
These brackets are installed with the high pressure gas station.
They hold the cylinders and provide security for the network supply, during cylinders replacement, and maintenance.

Maintaining safety

- No risk of injury because cylinders are held securely
- Secured network supply
- Facilitated maintenance operations

Modularity

- Adaptable to all types of cylinder
- Possibility of connecting several racks together

Robustness

- Unbreakable galvanised steel chain
- Made of stainless steel for longer life
- Weather-resistant

Safe installation of cylinder

- No risk of falling cylinders
- Modular configuration

Specifications

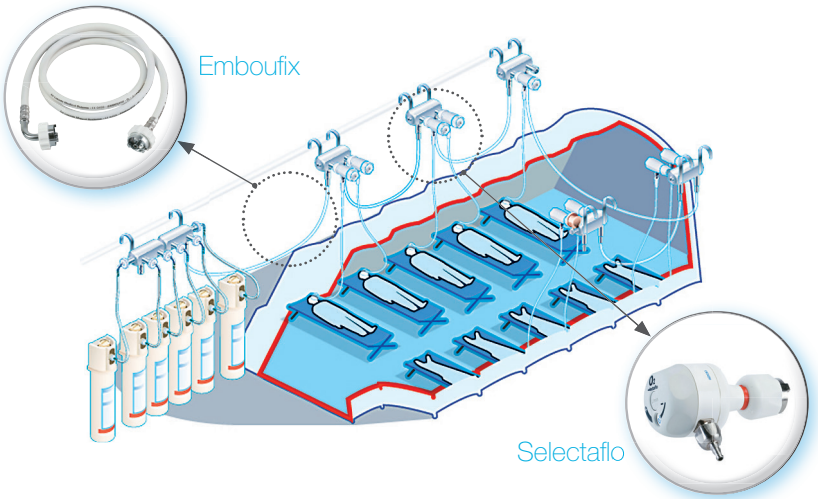
Materials	Stainless steel and galvanised steel (chain)
Dimensions	30 mm (H) x 254 mm (L) x 62 mm (D) for a ø 240 mm cylinder max.
Weight	400 g
Wall mounting	Drill two ø 9 mm holes, spacing 186 mm
Regulatory compliance	ISO 7396-1 standard. Read the user manual carefully
Life time	15 years

Reference

Designation	Reference
Cylinder rack in stainless steel	AC024100

Emergency plan ramp

The emergency plan ramp provides an oxygenation solution to cope with a mass influx of victims.
It enables mobile oxygen distribution networks to be set up at frontline medical stations in record time.



Performance

- High treatment capacity, delivering oxygen to 10 patients at a time
- High capacity, up to 6 cylinders connected

Reliable

- Built-in pressure reduction flow meters: Selectaflo
- Pressure monitoring gauge
- Corrosion-resistant

Simplified installation

- Deployed in a few minutes
- Assembly without screws: quick connection
- Can be transported and re-used

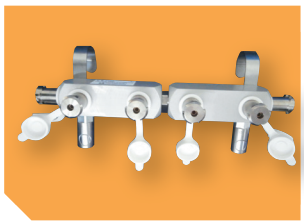
Composition of the kit

- One supply ramp with 6 cylinder connection
- Six 3 m Emboufix hoses to connect the cylinders
- Four mini ramps with two NF gas outlets
- One mini ramp with two NF gas outlets and 1 pressure gauge
- Four 3 m low pressure O_2 hoses to connect the mini ramps
- One 6 m low pressure O_2 hose to connect the mini ramps
- 10 Selectaflo 0-15 L/min flow meters to be installed on each gas outlet

Specifications

Available gas	O_2
Supply	3.5 to 5 bar, 150 L/min
Minimum outlet pressure	3.5 bar (at each connector)
Outlet flow rate	120 L/min maximum on one connector 150 L/min maximum total for the 10 outlet connectors
Flow meter	Selectaflo NF 0-15 L/min; 0 - 1 - 1,5 - 2 - 3 - 4 - 6 - 9 - 12 - 15
Storage temperature	-20°C to +60°C
Operating temperature	0°C to +40°C
Dimensions and weight	Supply ramp: 320 mm (L) x 126 mm (H) x 118 mm (D); 2 kg Mini-ramp: 149 mm (L) x 126 mm (H) x 118 mm (D); 1 kg Mini-ramp (including manometer): 164 mm (L) x 126 mm (H) x 118 mm (D); 1.2 kg Emboufix hose: 3 m, 550 g: Low pressure hose: 3 m, 550 g ; 6 m, 900 g Selectaflo: 90 (L) x 56 (Ø) x 115 (H) mm, 295 g
Total weight	17.5 kg
Regulatory compliance	Class IIa medical device with CE 0459 marking, manufactured by Air Liquide Medical Systems S.A. Read the user manual carefully.
Life time	10 years

For crisis management



O_2 supply ramp 6 cylinders

Emboufix 3m

Selectaflo

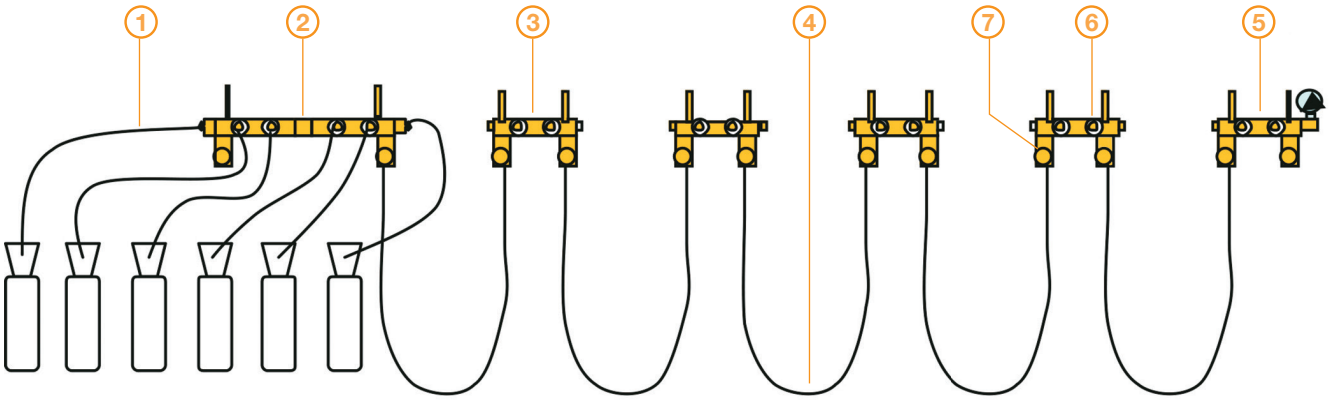
Emergency plan ramp

References

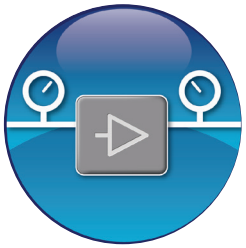
Designation	Reference	Gas	Inlet / outlet standard
Emergency plan ramp	BB072300	O_2	NF

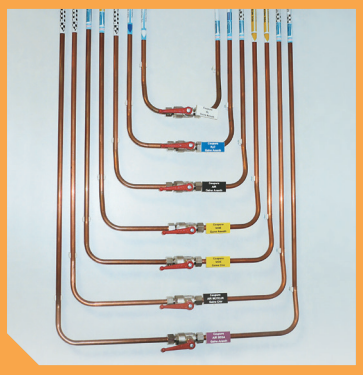
Spare parts

Designation	Reference	Number
Emboufix O_2 3m	BF030200	1
Supply ramp for 6 cylinders	BB072200	2
Mini ramp 2 connections	BB072100	3
Low pressure hose O_2 (3 m)	BB072600	4
Low pressure hose O_2 (6 m)	BB072700	4
Mini ramp 2 connections 1 manometer	BB072500	5
NF terminal unit O_2	CK023500	6
Safety fitting with gasket	BY011400	7
Cap for terminal unit	KA002300	
Selectaflo O_2 NF 0-15 L/min	CM080300	



2 Throughout the network

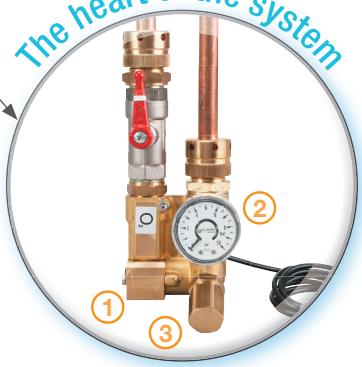




Dalian control closing box

Dalian is an essential element for single stage network standard. This area shut-off valve-box secures the distribution of medical gases, identifies errors, and supplies the network in the event of an emergency.

Punch to open



All-in-one gas kit

Modular

- Compatible with all medical gases
- Flexible configuration: from 1 to 3 gases, with or without alarm, surface or flush mounted.
- Personalising the cabinet: attractive stickers (for paediatric departments)

Guaranteed safety

- Permanent isolating block, easy to install (1)
- Pressure gauge with built-in sensor (2)
- Built-in valve and emergency gas inlet to connect a cylinder to supply the network (3)
- Emergency punch opening

Efficiency and economy

- Uniform pre-mounting of pipes
- Easy one-step mounting of gas kit
- The cabinet can be reused thanks to the tube kit sold separately

An essential part of the single stage network

- Perfect adaptability with all medical gases
- Ideal configuration, 1 to 3 gas kits, flush or surface mounted
- Safety: Built-in emergency connector and isolating valve
- Control your budgets, custom configuration according to your needs

Specifications

Available gases	O_2, Air, N_2O, CO_2, N_2, Air-800 and vacuum
Pressure	5 bar
Gas inlet standard	NIST
Mounting type	Flush or surface
Sensor connection	M10 x 100
Network connection	Ready-to-braze copper tube, diameter 13/15 and 20/22 mm
Dimensions	Weight of flush-mounted box: 10 kg (including 3 kits and 1 VIGI)
	Weight of surface-mounted box: 12 kg (including 3 kits and 1 VIGI)
Mass of magnetic materials	7 kg
Regulatory compliance	Class IIa medical device with CE 0459 marking, manufactured by Air liquide Medical Systems S.A. - ISO 7396-1 standard. Read the user manual carefully.
Life time	10 years

Controlling the single stage network

Disassembled gas kit

Monitoring pressure gauges

3-channel Vigi

Stickers

Example of composition of a complete safety valve-box:

- 1 surface-mounted Dalian box without built-in alarm
- 1 to 3 Dalian gas kits, chosen according to the gas with their corresponding straight probes
- 1 set to stickers to decorate your box

References

Designation	Reference
Dalian flush mounted box with alarm	AD073400
Dalian surface mounted box with alarm	AD073300
Dalian flush mounted box without alarm	AD072200
Dalian surface mounted box without alarm	AD072100
Gas kit Dalian O_2 ø 13x15 mm	AD072300
Gas kit Dalian O_2 ø 20x22 mm	AD073700
Gas kit Dalian Air ø 13x15 mm	AD072400
Gas kit Dalian Air ø 20x22 mm	AD073800
Gas kit Dalian N_2 ø 13x15 mm	AD072500
Gas kit Dalian CO_2 ø 13x15 mm	AD072600
Gas kit Dalian N_2O ø 13x15 mm	AD072700
Gas kit Dalian Air-800 ø 13x15 mm	AD072800
Gas kit Dalian Vacuum ø 20x22 mm	AD072900

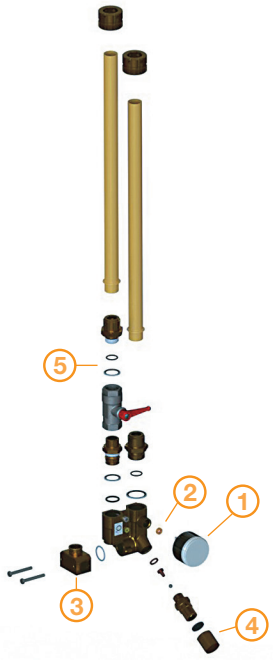
Accessories

Designation	Reference
Dalian protective cap (for surface mounting)	AD073000
Stickers fishes	YF183900
Stickers various cartoons	YF184000
Stickers aliens	YF184100
Straight probe NIST O_2	BF066500
Straight probe NIST Air	BF066600
Straight probe NIST N_2O	BF066700
Straight probe NIST CO_2	BF066800
Straight probe NIST N_2	BF066900
Straight probe NIST Air-800	BF067000
To connect a cylinder	
Emboufix 3m NF O_2	BF030200
Protal II O_2 NF type F	CD080100

For any other reference, please contact us.

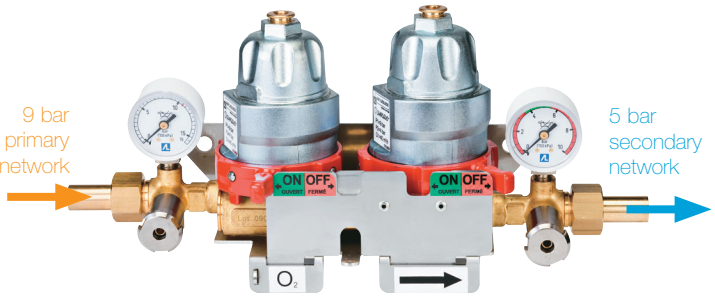
Spare parts

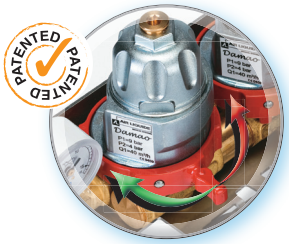
Designation	Reference	Number
Dalian copper pipes ø 13x15 mm (x2 with fixing nuts)	AD073100	
Dalian copper pipes ø 20x22 mm (x2 with fixing nuts)	AD073200	
Manometer with analogue sensor 4-20 mA, 0-10 bar	BY017900	1
Manometer with analogue sensor 4-20 mA, 0-16 bar for air-800	BY018200	1
Manometer with analogue sensor 4-20 mA, 0/-1000 mbar for vacuum	BY018000	
Diabolo gasket ¼" gas for manometer (x10)	YJ104400	
EPDM gasket 5x3 for vacuometer (x10)	YJ073900	2
Fitting 14x16 for vacuum analogue sensor (M10 x 100)	BB011100	
Permanent isolating block (with 2 gaskets and screws)	BY016500	3
Cap for NIST inlet with flat gasket	BY017000	4
Nitrile gasket for Dalian copper pipe ø 13x15 mm (x10)	YJ074500	5
Nitrile gasket for Dalian copper pipe ø 20x22 mm (x10)	YJ074600	5
Label « O_2 » for Dalian box	YF182600	
Label « Air » for Dalian box	YF182700	
Label « N_2 » for Dalian box	YF182900	
Label « CO_2 » for Dalian box	YF183000	
Label « N_2O » for Dalian box	YF183100	
Label « air-800 » for Dalian box	YF183200	
Label « vacuum » for Dalian box	YF182800	



Damao pressure regulator

Damao is an essential device for double stage network standard.
This pressure regulator allows the safe pressure reduction of medical gases from medium to low pressure and the network back-up in case of an emergency.
It is available with a single or double pressure reducer, for greater safety.





Control lever

High performance for gas network

- Intuitive use: 3 gas flow configurations for continuous supply to the network
- Maintenance is facilitated by the control levers
- Safety plate: prevents forgetting and mistakes

Optimum safety

- Safety plate: continuous supply, a network shut-off is impossible
- 2 pressure gauges: 1 upstream and 1 downstream, colour-coded to facilitate pressure control
- The cover protects against chock and dust
- Quick and easy action in case of emergency

Unrivalled simplicity

- On/Off in just one action
- Compatible with all gases
- Easy and foolproof reversal of gas flow direction
- Optimised space: compact, lightweight with simplified installation

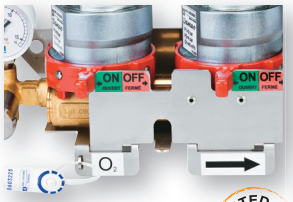
Easier maintenance

- Control lever for fast action in a single motion
- Interchangeable pressure reduction module, positioned vertically, no risk of falling
- Continuous gas distribution because modules can be maintained separately

Specifications

Available gases	O_2, Air, N_2O, CO_2, N_2, Air-800
Gas inlet standards	NF and on request DIN, BS, UNI
Supply pressure	5.5 to 10 bar
Downstream pressure	Preset to 4 bar (8 bar for Air-800), adjustable from 0 to 10 bar
Maximum flow rate	40 Nm^3/h
Network connection	Ready-to-braze copper tube, diameter 10x12 mm
Sensor connection	M10 x 100
Weight of double pressure reducer	3,95 kg (cover not included)
Weight of single pressure reducer	2,91 kg (cover not included)
Mass of cover	0,3 kg
Mass of magnetic materials	Single Damao: 80 g / Double Damao: 145 g
Dimensions of double pressure reducer	157,5 mm (H) x 259 mm (L) x 107 mm (l)
Dimensions of cover	216 mm (H) x 303 mm (L) x 120 mm (l)
Upstream pressure gauge	0 to 16 bar
Downstream pressure gauge	0 to 10 bar (0 to 16 bar for the Air-800)
Pressure gauge precision	± 2.5% of full scale
Regulatory compliance	Class IIb medical device with CE 0459 marking, manufactured by Air Liquide Medical Systems S.A. ISO 10524-2 / ISO 7396-1 standards. Read the user manual carefully.
Life time	10 years

Optimum pressure reduction



Safety plate

On/Off

Off/On

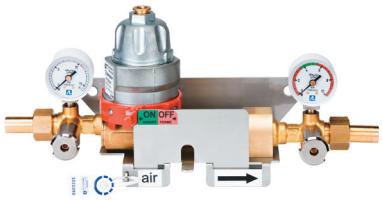
On/On

Thanks to this innovation, the Off/Off position is impossible.

References

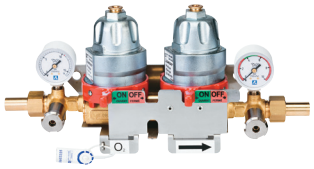
Designation	Reference	Gas
Damao single regulator 4 bar	BB023100	O_2
Damao single regulator 4 bar	BB023300	Air
Damao single regulator 4 bar	BB023200	N_2O
Damao single regulator 4 bar	BB023700	CO_2
Damao single regulator 4 bar	BB023500	N_2
Damao single regulator 8 bar	BB023400	Air-800
Damao double regulator 4 bar	BB022100	O_2
Damao double regulator 4 bar	BB022300	Air
Damao double regulator 4 bar	BB022200	N_2O
Damao double regulator 4 bar	BB022700	CO_2
Damao double regulator 4 bar	BB022500	N_2
Damao double regulator 8 bar	BB022400	Air-800

2 brazing connectors are included in each reference.



Damao 4 or 8 bar single pressure reducer

Damao double regulator: enhanced safety.



Damao 4 or 8 bar double pressure reducer

Accessories

Designation	Reference
Protective cover (x5)	BB022000
Seal in white plastic with AL logo 185mm (x10)	YA014700
Seal in red plastic with writing zone 225mm (x10)	YA011100
To monitor pressure	
Analogue sensor 4-20 mA / 0-16 bar / M10 x 100	AF004000
Flat gasket (x10) for pressure sensor mounting	BY008700
Vigi alarm systems	page 43
To connect a cylinder	
Emboufix 3m NF O_2	BF030200
Protal II O_2 NF type F	CD080100

For any other reference, please contact us.

Did you know?
The standard (§7 ISO 7396-1) imposes two pressure reducers working in parallel.

Advantages of the Damao double pressure reducer:
- Safe pressure reduction with 2 pressure reducers
- 1 backup pressure reducer is permanently available
- For maintenance: no need to shut off the network or external supply

Tools

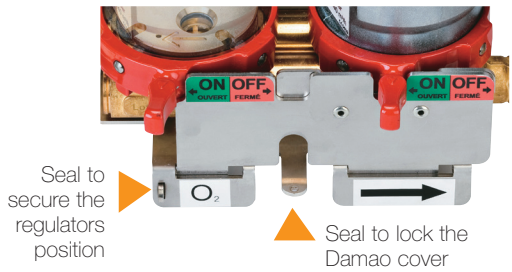
Designation	Reference
Valve key for Damao regulation module	CY011800
Reversibility kit (x5) Elastic pins (x12), arrow labels (x5), diabolo gasket for manometer (x10)	BB021900

Design protective cover

Optimum network pressure

Quick and easy disassembling

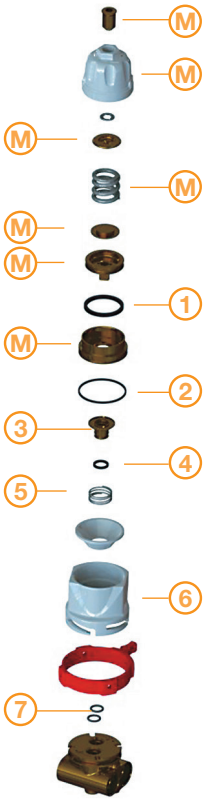
Regulation module

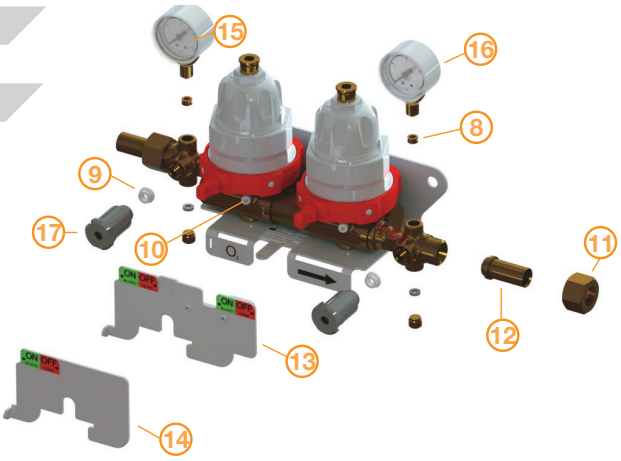


Locking system

Spare parts

Designation	Reference	Number
Damao regulation module 4 bar	BB021300	M + 1,2,3,4,5,6
Damao regulation module 8 bar	BB021400	
Thoric gasket R25	CY008800 Maintenance kit 2 years	1
Thoric gasket 46x2		2
Valve		3
Thoric gasket 11,6x2,4		4
Filter		5
Thoric gasket 12,5x2 (x2)		7
Safety plate double Damao	BY015800	13
Safety plate single Damao	BY016301	14
Screw CHC M4 x 8	YV036500	10
Nut	AD050400	11
Brazing socket 10x12	AD050300	12
Manometer 16bar D40 RR M10 x 1 Primary network	CX110401	15
Manometer 10bar D40 RR M10 x 1 Secondary network	CX110301	16
Manometer 16bar D40 RR M10 x 1 Secondary network	CX110501	16
Diabolo gasket for manometer (x20)	CX079200	8
Terminal unit NF O_2	CK023501	17
Terminal unit NF Air	CK026101	17
Terminal unit NF CO_2	CK029101	17
Terminal unit NF N_2	CK029001	17
Terminal unit NF N_2O	CK026201	17
Terminal unit NF Air-800	CK033201	17
Nylon shoulder gasket (x100)	CX075600	9
Label for Damao module 4 bar	YF178401	6
Label for Damao module 8 bar	YF178501	6

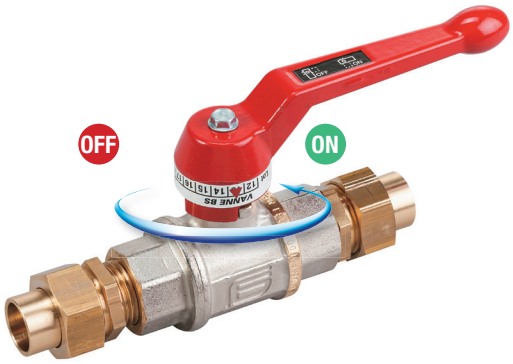




Did you know?
For maintenance easiness, use the pressure regulation modules (kit).

BS ball valve

The BS ball valve just needs a quarter turn to isolate medical gas networks and ensure optimum safety during maintenance.
This device is supplied degreased and medical O_2 compatible. It should be installed all along the medium- and low- pressure network, easily and quick mounted thanks to its ready-to-braze fitting.



Controlling gas networks
- Shut off the network in ¼ turn
- Double protection: chrome and nickel plating
- Sealing provided by the ball valve

Intuitive use
- ¼ turn to isolate the network
- Vertical or horizontal installation

Optimised safety
- Ideal design, to see from a distance whether the valve is opened or closed
- Double protection: chrome plating and nickel plating
- Hard chrome-plated brass ball

Tried and tested performance
- Optimum seal with 2 seats and 2 gaskets to the independent stuffing box
- Increased longevity thanks to the use of PTFE (no risk of blockage)
- Little pressure loss

Specifications

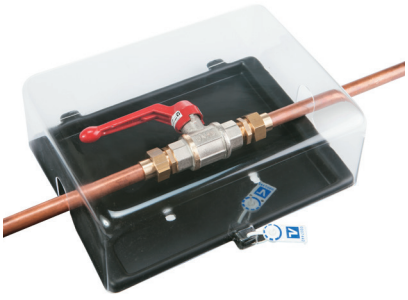
Max. operating pressure	20 bar
Connection to the network	Ready-to-braze on copper tube
Materials	Nickel-plated brass body and hard chrome ball valve
Weight	325 g for valve 08x10 3/8“ up to 5.4 kg for valve 50x52 2“
Life time	15 years

References

Designation	Reference	Diameter in mm	Diameter in inch
BS valve	BS001000	08 x 10	3/8"
BS valve	BS001200	10 x 12	3/8"
BS valve	BS001400	12 x 14	3/8"
BS valve	BS001500	13 x15	3/8"
BS valve	BS001600	14 x 16	1/2"
BS valve	BS001800	16 x 18	1/2"
BS valve	BS002000	18 x 20	3/4"
BS valve	BS002200	20 x 22	3/4"
BS valve	BS002800	26 x 28	1"
BS valve	BS003200	30 x 32	1 1/4"
BS valve	BS004200	40 x 42	1 1/4"
BS valve	BS005200	50 x 52	2"

Accessories

Designation	Reference
Sealable box for BS valve (until diameter 20 x 22)	BB010600
Seal in white plastic with AL logo 185mm (x10)	YA011100
Seal in red plastic with writing zone 225mm (x10)	YA014700



Valve with sealable box

3 To the end-users

NF terminal unit
Surface mounting

Air motor DIN terminal unit
Trunking mounting

AGSS terminal unit
Flush mounting

Wall outlets are available in
3 mounting types :
- Trunking
- Flush
- Surface

NF terminal unit

The BM gas outlet, designed to meet the French NF standard, is used to make quick connections to the medical gas network.
It makes the medical gases which are essential for patient care more readily available.

All-in-one guide-end

Intuitive use

- Optimum adaptability with 3 types of mounting: trunking, flush or surface
- Quick installation with its single-block structure

Quick and easy maintenance

- Only one reference for maintenance: the guide-end
- Marked device, guaranteeing visual traceability and therefore correct maintenance
- Base valve to avoid any interruption of the gas supply

Controlled safety and consumption

- Single-block design, no risk of interchanging the gases
- Safety notch so the medical device cannot be unlocked during use
- Controlled seal, no pressure loss
- Protective cover for safety and medical design

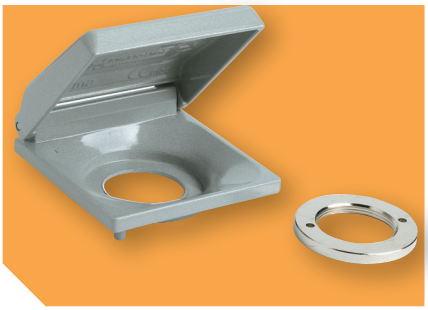
The ultimate wall outlet

- Single-block design:
  intuitive installation prevents leakage, no risk of interchanging the gases
- Perfect adaptability: 3 types of mounting
- Easy maintenance

Specifications

Available gases	O_2, Air, N_2O, CO_2, N_2, Air-800, Vacuum
3 types of mounting	Trunking, flush, surface
Nominal supply pressure	3 to 5 bar for gases, - 0.6 bar for vacuum
Max. pressure	10 bar
Max. flow rate	150 L/min for all gases and 100 L/min for vacuum
Inlet	Copper tube ø 10 mm
Dimensions of hinge plate	64 mm (L) x 64 mm (l)
Dimensions of surface-mounted box	64 mm (L) x 64 mm (l) x 45 mm (D)
Weight	Socket body 290 g, Housing: trunking 140 g , flush 200 g, surface 180 g
Mass of magnetic materials	26.1 g (MRI compatible)
Materials	Chrome-plated brass body, nickel-plated brass tip guide, hinge plate made of plated Zamak
Dimensions of hinge plate	64 mm (L) x 64 mm (l)
Filter	60 µm for gases and 350 µm for vacuum
Regulatory compliance	Class IIa medical device with CE 0459 marking, manufactured by Air Liquide Medical Systems S.A. ISO 9170-1 standard. Read the user manual carefully.
Life time	10 years

The BM outlet, reducing operating costs



Trunking mounting

Flush mounting

Surface mounting

Composition of the outlet:

- 1 connector (chosen according to the gas)
- 1 connector housing (chosen according to the type of mounting)
- 2 labels (chosen according to the gas)
- The hinge plate (cover) is supplied with the connector housing

References

Designation	Reference	Gas
BM gas outlet	BM000100	O_2
BM gas outlet	BM000200	Vide
BM gas outlet	BM000300	Air
BM gas outlet	BM000400	N_2O
BM gas outlet	BM000500	N_2
BM gas outlet	BM000800	CO_2
BM gas outlet	BM005000	Air-800

References

Designation	Reference	Mounting
BM mouting kit	BM001200	Trunking
BM mouting kit	BM001400	Trunking (special)
BM mouting kit	BM001000	Flush
BM mouting kit	BM001100	Surface
BM mouting kit	BM001300	Surface (reduced box)

BM Medical O_2 outlet

References

Designation	Reference	Gas
BM outlet label	YF020400	O_2
BM outlet label	YF020500	Vide
BM outlet label	YF020600	Air
BM outlet label	YF020700	N_2O
BM outlet label	YF020800	N_2
BM outlet label	YF021100	CO_2
BM outlet label	YF023900	Vacuum
BM outlet label	YF154700	Air-800

NF terminal unit

The heart of the NF gas outlet: the all-in-one filter valve guide-end

ø 6 Air-800

ø 7 O2, Air, N_2O and CO_2

ø 8 N_2

ø 8 Vacuum

E3 is the 5th batch manufactured in the year 2013

The following markings are on each guide-end visible face:

- The diameter, to identify the gas immediately.
- The code (letter + number), to guarantee visual traceability and correct maintenance.

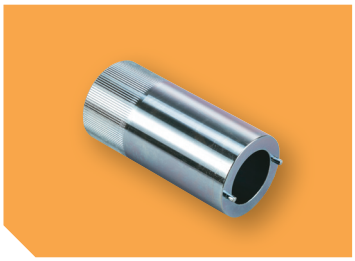
Maintenance :
Replacement every year for critical care units, every 2 years for others

Spare parts

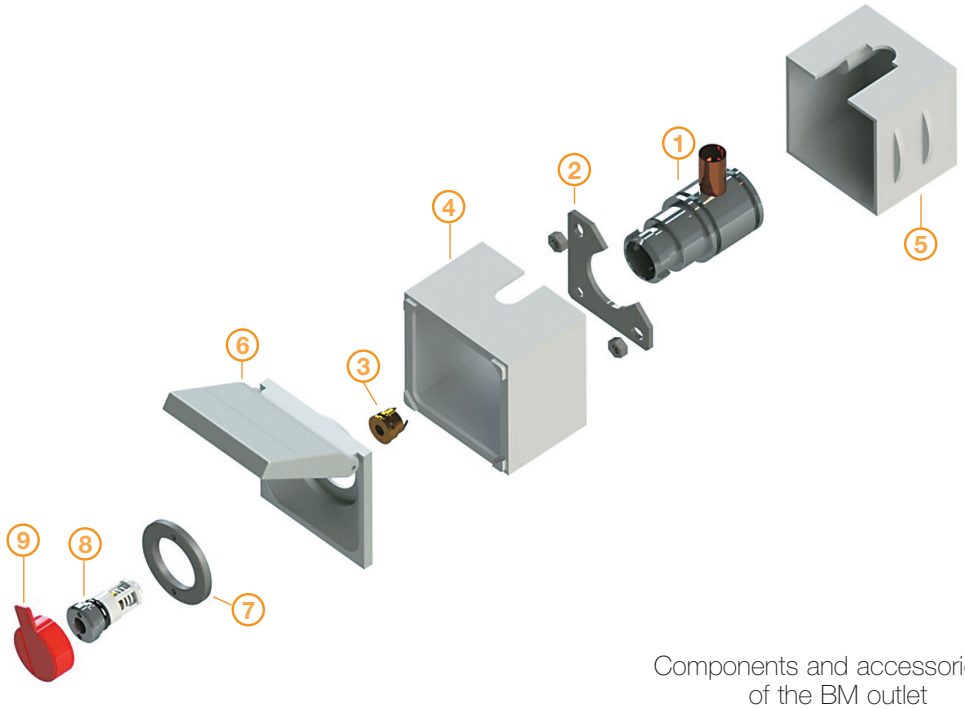
Designation	Reference	Gas	Number
Base block	Not sold apart		1
Fixing plate	Not sold apart	Any gas	2
Base valve	BM050800	Any gas (except vacuum)	3
Base valve	BM050900	Vacuum	3
Box alone for surface mounting	BM050200	Any gas	4
Box alone for trunking mounting	Not sold apart	Any gas	5
Hinge plate and lock nut	BM001200	Any gas	6 and 7
Lock nut	BL050100	Any gas	7
Filter valve guide-end ø 6 (x10)	BM051600	Air-800	8
Filter valve guide-end ø 7 (x10)	BM055200	O_2, Air, N_2O, CO_2	8
Filter valve guide-end ø 8 (x10)	BM055300	N_2	8
Filter valve guide-end ø 8 (x10)	BM055400	Vacuum	8
Safety cap	Not sold apart	Any gas	9

The BM outlet, reducing operating costs

Spanner for the guide-end



Spanner for the BM outlet lock nut



Components and accessories of the BM outlet

Tools and accessories

Designation	Reference	Gas
Spanner for the lock nut	YA003900	-
Spanner for the filter valve guide-end	YA004400	-
Hex key n° 5 for the base valve	Not sold	-
Emboufix 1,5 m	BF030600	O_2
Emboufix 3 m	BF030200	O_2
Emboufix 5 m	BF030000	O_2
Emboufix 1,5 m	BF030800	Air
Emboufix 3 m	BF030500	Air
Emboufix 5 m	BF030400	Air
Emboufix 1,5 m	BF030700	N_2O

DIN terminal unit

The DIN gas outlet designed according to the German standard allows quick connections without any risk of interchanging the medical gases.

Trunking mounting

Flush mounting

Surface mounting

Intuitive use

- Optimum adaptability with 3 types of mounting
- Equipped with a parking position for instant connection

Quick and easy maintenance

- No need to shut off the gas thanks to the non-return valve
- Marked device, guaranteeing traceability

Optimum safety

- Geometric and dimensional foolproofing of the connector according to gas
- Internal safety ring to code the connector according to the gas

German quality at the gas outlet

- Parking position for instant connection
- Perfect adaptability: 3 types of mounting
- No risk of interchanging the gases

Specifications

Available gases	O_2, Air, N_2O, Vacuum
Operating pressure	Gas: 5 bar ± 0.5 bar, Vacuum: – 0,7 bar ± 0,2 bar
Mounting types	Trunking, flush (depth in the wall: approx 62mm), surface
Plastic adaptor	13 mm (for flush mounting only)
Max. flow rate	200 L/min for all gases and 60 L/min for vacuum
Weight	Trunking: 400 g, flush: 640 g, surface: 730 g
Materials	Pushbutton: plastic, Securing parts: stainless and metal, Valve body : nickel- and chrome- plated metal, Connector body: metal.
Regulatory compliance	Class IIa medical device with CE 0044 marking, distributed by Air Liquide Medical Systems S.A. Read the user manual carefully. ISO 9170-1 and DIN 13260-2 standards.
Life time	15 years

References

Designation	Reference	Mounting	Gas
DIN gas outlet	BM003100	Trunking	O_2
DIN gas outlet	BM003300		Air
DIN gas outlet	BM003400		N_2O
DIN gas outlet	BM003200		Vacuum
DIN gas outlet	BM004100	Flush	O_2
DIN gas outlet	BM004300		Air
DIN gas outlet	BM004400		N_2O
DIN gas outlet	BM004200		Vacuum
DIN gas outlet	BM002100	Surface	O_2
DIN gas outlet	BM002300		Air
DIN gas outlet	BM002400		N_2O
DIN gas outlet	BM002200		Vacuum

Accessories

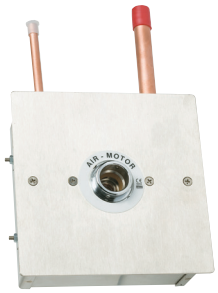
Designation	Reference	Gas
DIN angle probe	BJ025200	O_2
DIN angle probe	BJ025100	Air
DIN angle probe	BJ025300	N_2O
DIN angle probe	BJ025400	Vacuum

DIN Air angle probe

Air motor DIN terminal unit

The Air motor DIN gas outlet is an essential element for operating theatres. It provides the pneumatic supply to surgical tools. Connection to the wall outlet via a quick connector with a concentric part for fresh gas and another part to evacuate the used gas.

Trunking mounting



Flush mounting

Surface mounting

Intuitive use

- Optimum adaptability with 3 types of mounting

Controlled safety and consumption

- Gas flow stops immediately on disconnection from the outlet
- No risk of polluting the operating theatre, thanks to the used gas evacuation system
- Controlled sealing, little pressure loss

Safety in the operating theatre

- Gas flow stops immediately on disconnection
- No risk of polluting the operating theatre with the gas
- Perfect adaptability: 3 types of mounting

Specifications

Available gas	Air motor (also called Air-800)
Drive gas flow rate	500 L/min maximum
Evacuated gas flow rate	500 L/min maximum
Operating pressure	8-10 bar
Weight	Trunking: 720 g, flush: 2160 g, surface: 2300 g
Dimensions of front panel	160 x 160 mm
Dimensions of flush-mounted box	150 x 150 x 60 mm
Plastic adaptor	20 mm (for flush mounting only)
Regulatory compliance	Class IIa medical device with CE 0044 marking, distributed by Air Liquide Medical Systems S.A. Read the user manual carefully. ISO 9170-1 and DIN 13260-2 standards.
Life time	15 years

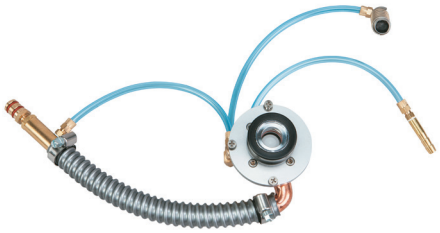
References

Designation	Reference	Mounting
DIN gas outlet Air motor	BM003500	Trunking
DIN gas outlet Air motor	BM004500	Flush
DIN gas outlet Air motor	BM002500	Surface

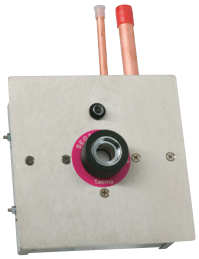
AGSS terminal unit

TO THE END-USERS

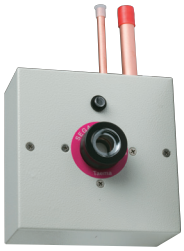
The AGSS connector is an essential device for operating theatres. During medical operations, the use of anaesthetic gases contributes to polluting the operating room. For the sake of a successful operation, it is important to remove these anaesthetic gases. The anaesthetic gas scavenging system (AGSS) creates a pressure drop and sucks up the pollutant gases.



Trunking mounting



Flush mounting



Surface mounting

Intuitive use

- Pressure reduction via the Venturi effect, with direct connection to the air network
- Display of On/Off status via a green LED
- Optimum adaptability with 3 types of mounting

Safety

- Suction stops immediately on disconnection
- No risk of gas backflow thanks to non-return valve
- No risk of network contamination, the AGSS fitting has its own evacuation network

Anaesthesia under control

- Suction stops immediately on disconnection
- Secure suction, non-return valve and visual On/Off signal
- No risk of network contamination, the AGSS fitting has its own evacuation network

Specifications

Suction flow rate	45-50 L/min
Air consumption	40 to 60 L/min
Max. suction volume	80 L/min
Air connection	Copper pipe 6 x 8 mm
Gas exhaust connection	Copper pipe 13 x 15 mm
Air operating pressure	5 bar
Mounting types	Trunking, flush, surface
Dimensions of front panel	160 x 160 mm
Dimensions of flush-mounted box	150 x 150 x 60 mm
Plastic adaptor	20 mm
Weight	Trunking: 670 g, flush: 1850 g, surface: 2100 g
Regulatory compliance	Class IIa medical device with CE 0044 markings, distributed by Air liquide Medical Systems S.A. Read the user manual carefully. ISO 9170-2 standard.
Life time	15 years

References

Designation	Reference	Mounting
AGSS gas outlet	BM003600	Trunking
AGSS gas outlet	BM004600	Flush
AGSS gas outlet	BM002600	Surface

Accessories

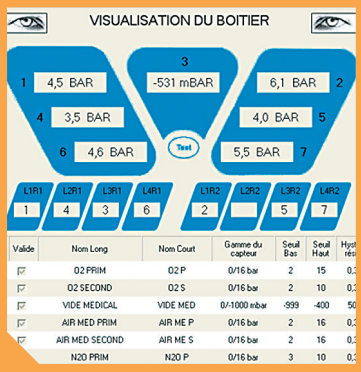
Designation	Reference
AGSS angle probe	BJ025500

AGSS angle probe

Beyond terminal units

For more information on medical devices connected to the gas outlets, please have a look at our "Oxygen Therapy and Medical Suction Catalogue"

4 Under global supervision



Vigi alarm

The Vigi alarm system provides security for the network from the high pressure gas station to the wall outlet.
Vigi monitors the whole network and indicates any error via audible, luminous, and visual signals. Vigi provides global monitoring, for the safety of all.

Performance

- Displays pressure values for each channel
- Quick and easy configuration via remote control or VIGI Access software
- Connection to Building Management System via MODBUS link.
- Customised display
- Medical design

High level of safety

- Normal operation indicated by a green LED
- Default situation indicated by:
  - A red LED
  - An audible alarm
  - An explicit message on the LCD screen
- Test button to check LED, LCD and sound alarm

Versatility

- Simultaneous monitoring of 3, 5 or 7 channels
- 'Mirror' unit repeating the information from the main unit; configurable in centralizer mode
- 'Remote' unit reporting visual and audible alarms
- Use of analogue or digital sensors

Safety within the network

- Simultaneous monitoring of 3, 5 or 7 channels
- Multiple alarms: LCD, LED and Buzzer
- Building Management System communication with the MODBUS link
- Modularity with the choice of sensors, inhibition time, and customised sensors

Specifications

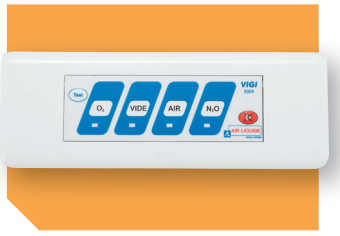
Number of channels	3, 5 or 7
Input type	Analogue (4-20 mA) or digital (normally closed dry contacts)
Electrical power supply	Single-phase 115 VAC / 230 VAC (±10%). Electrical class: class 1
Weight	Main: 1.7 kg - Remote: 0.44 kg
Materials	ABS plastic housing with anti-UV treatment
Dimensions	Main box: 165 mm (H) x 210 mm (L) x 60 mm (D)
Wall mounting	Main box 4 holes Ø 8 mm, spacing 190 x 125 mm, Remote panel on flush-mounted box (185 x 70 x 40 mm, Legrand ref. 080103) or surface-mounted box (208 x 80 x 42 mm, Legrand ref. 080286)
Mass of magnetic materials	Main: < 50 g Remote: 145 g
Regulatory compliance	Class IIa medical device with CE 0459 marking, manufactured by Air Liquide Medical Systems S.A. Read the user manual carefully. ISO 7396-1 / ISO 60601-1 / ISO 60601-1-2 standards
Life time	10 years

Monitoring the whole network

Vigi 3033 3 channels

Vigi 3055 5 channels

Vigi 3077 7 channels

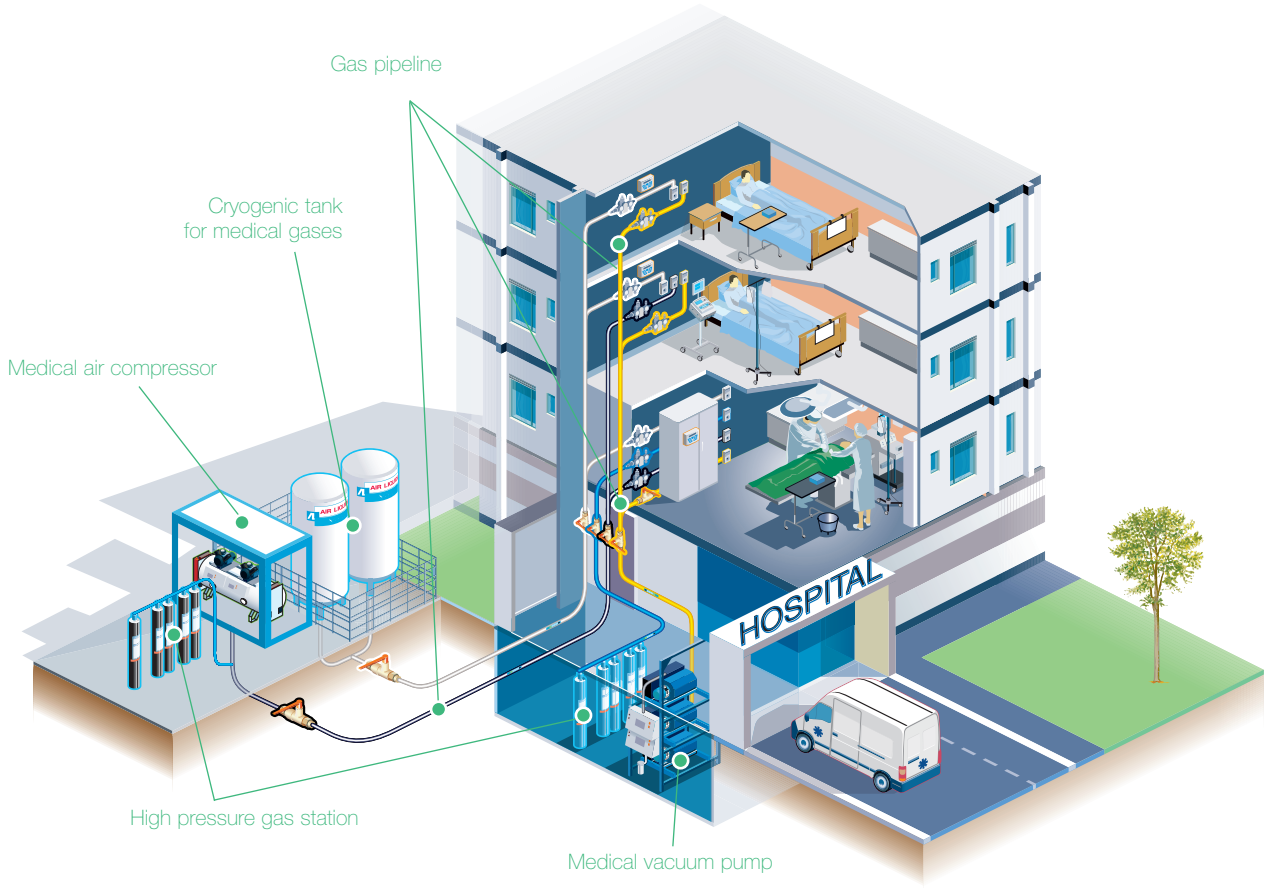


Vigi 3004 remote unit

References

Designation	Reference	Input
Vigi 3033 3 channels	AF071500	Analogue sensors or dry contacts
Vigi 3055 5 channels	AF071600	Analogue sensors or dry contacts
Vigi 3077 7 channels	AF071700	Analogue sensors or dry contacts
Vigi 3004 remote unit	AF071400	Vigi main unit

Location of the Vigi alarm



Monitoring the whole network

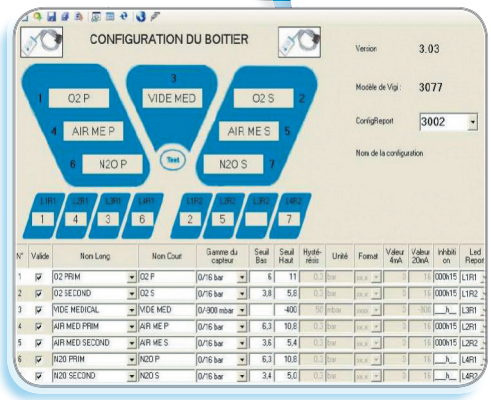
The Vigi alarm provides the security of 3, 5 or 7 channels at the same time. For optimum network security, it is essential to configure the Vigi alarm system in accordance with the elements being monitored.
To perform this simple step, Air Liquide Medical Systems offers two configuration modes: the first via Vigi Access software, and the second via the Vigi configuration keyboard.

1st mode

Install Vigi Access

Prepare to configure Vigi

Connection and Vigi configuration



Vigi Access software PC interface

Configuration remote control

2nd mode

Connecting configuration keyboard to Vigi

Vigi configuration

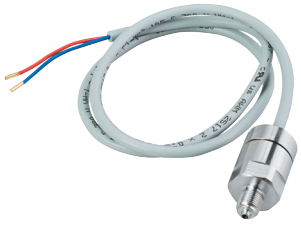
Accessories

Designation	Reference	Type	Value range	Fitting
Vigi configuration keyboard	AF022500			
Cable USB / RS232 for PC/Vigi connection	YR115800			
Vigi Access – Free software	Contact us			
Pressure sensor 4-20 mA	AF004000	Analogue	0 / 16 bar	M10 x 100
Pressure sensor 4-20 mA	AF004200	Analogue	0 / 250 bar	1/4" gas
Vacuum sensor 4-20 mA	AF004100	Analogue	0 / -900 mbar	M10 x 100
Vacuum sensor 4-20 mA	AF004300	Analogue	0 / -1000 mbar	M10 x 100
HP switch with 2 threads	AF070600	Dry contact	0 / 240 bar	1/4" gas
HP switch with 3 threads	AF070800	Dry contact	0 / 240 bar	1/4" gas
Pressure watcher on primary network (8 bar)	AF001600	Dry contact	3,5 / 10 bar	Ø 12 mm
Pressure watcher on secondary network (3,5 bar)	AF001700	Dry contact	2,5 / 5 bar	Ø 12 mm

Pressure sensor

Analogue pressure sensor are the key components in pressure monitoring. Installed all along the network, from the high pressure gas station to the wall outlet, they are Vigi's information source.

Analogue pressure sensor
4-20 mA & 0 / 250 bar



Analogue vacuum sensor
4-20 mA & 0 / - 900 mbar

Versatility

- Measurement range to 250 bar for gases and to -1000 bar for vacuum
- Adaptable to all medical gases

Safety

- Continuous monitoring of medical gas networks from the high pressure gas station to the wall outlet

Performance

- Immediate data transmission to Vigi
- Greater accuracy: pressure calculated in real time to within one tenth

Network pressure under control

- Continuous pressure measurement
- Perfect precision, data expressed to within one 10th

Specifications

Electrical connection	Mini-DIN, Pin 3: +Power, Pin 1: Signal, Red: +Power, Blue: Signal
Regulatory compliance	CE marked product (directive 2004/108/CE), distributed by Air Liquide Medical Systems S.A. Read the user manual carefully. ISO 60601-1-2 standard.
Life time	10 years

References

Designation	Reference	Type	Value range	Fitting
Pressure sensor 4-20 mA	AF004000	Analogue	0 / 16 bar	M10 x 100
Pressure sensor 4-20 mA	AF004200	Analogue	0 / 250 bar	1/4" gaz
Vacuum sensor 4-20 mA	AF004100	Analogue	0 / -900 mbar	M10 x 100
Vacuum sensor 4-20 mA	AF004300	Analogue	0 / -1000 mbar	M10 x 100

Accessories and spare parts

Designation	Reference	Detail
Adaptor 1/4" gas male - M10 x 100 female (x 5)	CX090500	
Adaptor 1/4" gas female - Ermeto	AF070700	
Adaptor 14x16 mm with M10 x 100 fitting	BB011100	for vacuum analogue sensor
Flat gasket (x10)	BY008700	for 0 / 16 bar sensor or vacuum sensor in M10 x 100
Copper gasket 11x6x2 mm (x10)	YJ101600	for 0 / 250 bar sensor

Maintenance best practices

Air Liquide Medical Systems offers you the ideal solutions for your medical gas network needs. This equipment requires special maintenance. This sheet gives details of the best practices to maintain each product at optimum efficiency.

Product	Page	Yearly	Every 5 years
Danube high pressure gas station	8	Functional and seal check on: 1.High pressure regulator 2.Switch-over 3.Medium-pressure regulator 4.Non-return valve 5.Pressure gauge 6.Purge valve Replace filter and washers	1. Change HP regulator cartridge and 4 gaskets 2.ø 3. Replace MP module and 2 gaskets located in the base 4. Complete replacement 5.ø 6. Replace filter, washers and gaskets
Valve-box	12	Functional and seal check	ø
Pigtail	14	Replace gasket on cylinder side (if damaged)	Replace gasket on valve-box side
Bundle station	16	Functional and seal check	ø
Line valve assembly	18	Functional check, replace pressure gauge if damaged	Replace valve if in doubt
Sensor connection assembly	20	Functional and seal check and replace pressure gauge if damaged	ø
Rack	21	ø	ø

			Every 5 years
Dalian control closing box	26	Functional and seal check	Replace sensors / pressure gauges Replace vacuum meter Replace isolation block if in doubt concerning proper operation

			Every 2 years
Damao pressure regulator	28	Functional and seal check	Preventive maintenance on the regulator modules. Replace parts of modules or replace complete modules and 2 gaskets located in the base
BS ball valve	31	Functional and seal check	ø

			Every 2 years
NF terminal unit	34	Replace filter valve guide-end in critical care, anaesthesia, and post-op recovery areas.	Replace filter valve guide-end in classic departments
DIN terminal unit	38	Functional and seal check every six months	ø
Air motor DIN terminal unit	39	Functional and seal check every six months	ø
AGSS terminal unit	40	Functional and seal check every six months	ø
Vigi alarm	44	Functional check	Replace the button cell every 10 years (CR 2032)
Pressure sensor	47	Functional check	ø

Maintenance operations must be performed by trained technicians. Use original spare parts only.

Notes

General conditions of sales

GENERAL POINTS

Our sales are made under the following terms and conditions, except for the points that could cover different special terms expressly accepted in writing by Air Liquide Medical Systems. Air Liquide Medical Systems is bound only by its written acceptance of the order. The prices considered by Air Liquide Medical Systems, in the absence of special supply agreements, are those that figure in the price list in force on the day of the sale; they are quoted excluding taxes, Taxes applicable on the delivery date will be added to the amount of the invoices. Any modification of the plan of taxes and duties that directly or indirectly affects Air Liquide Medical Systems products will entail a corresponding modification of the invoicing. In case of non-payment on scheduled due dates (general and special terms), the legal interest rates in force, increased by 4 points will be added to the amount of the unpaid invoices. The prices and information mentioned in the catalogues, brochures and price lists are not binding on Air Liquide Medical Systems which reserves the right to make changes to them. In case estimates are established, the supply will comprise exactly and solely the equipment specified on the estimate. For additional supplies, a new contract will be signed, with terms and conditions that cannot change those of the initial order. For any low-value order, Air Liquide Medical Systems reserves the right to include a part of the administrative charges in the invoice.

PAYMENT TERMS AND CONDITIONS

Payment is due in advance by swift transfer or at sight, by irrevocable Letter of Credit confirmed by a French Bank, unless different special terms expressly accepted in writing by Air Liquide Medical Systems. Any invoice issued by Air Liquide Medical Systems shall be paid directly by your company through a financial institution located in your country.

STUDIES AND PROJECTS

Studies and documents of any kind remitted or sent by Air Liquide Medical Systems always remain its entire property. These must be returned when asked by Air Liquide Medical Systems, which preserves the totality of the intellectual property of its projects, which cannot be communicated or executed without its prior written permission.

DELIVERY

Whatever the destination of the equipment and the conditions of the sale, the transfer of ownership and risks to the buyer is done in the factories or warehouses of Air Liquide Medical Systems subject to the provisions of the retention of title clause given later. Air Liquide Medical Systems is not responsible for a delivery fault or delay in the execution of the sale caused by a case of force majeure, strikes, epidemics, lock-out, manufacturing accidents, third part acts, third party faults, faults in essential supplies, etc., and generally, any event beyond its control. If the dispatch is delayed for a reason not attributable to Air Liquide Medical Systems, and if ALMS gives its consent, the equipment will be stored and handled, if necessary, at the costs and risks of the buyer. Air Liquide Medical Systems refuses any responsibility in this matter. These provisions in no way change the payment obligations for the supply and do not constitute any kind of substitution.

Except if expressly stipulated by Air Liquide Medical Systems in its confirmation of the order, the delivery schedules are given for information purposes. No penalty for delay in delivery can be claimed from Air Liquide Medical Systems. If the goods are delivered in successive deliveries, a fault in one delivery does not invalidate the contract for the other deliveries.

The formal acceptance of the goods by the buyer on receiving them abolishes any claim by him, unless he expresses his reservations by a registered letter within three days of the date of receiving mentioned, according to the terms of sale, either in the shipping notice or in the acknowledgement given to the transporters. The use of the goods that have been accepted by the buyer cannot give room for claims. Should the case arise, the return of equipment requested by the buyer can be done only with prior permission from Air Liquide Medical Systems. The equipment must be restored in perfect condition, free of all duties. No port due will be accepted. A sum equal to 20% of the amount of the equipment (with a minimum of (50€ excl. tax)) plus restoration costs, if any, will be deducted as administrative and return inspection charges and entered as reduction from the corresponding credit note for the returned equipment.

TRANSPORT, CUSTOMS, INSURANCE, ETC.

All operations of transport, insurance, customs, handling, carried out on site, are charged to the buyer. In any case, Air Liquide Medical Systems does not guarantee the means of transport, even in the case of transport done according to the buyer's request. The dispatched goods are transported at the buyer's risk, as the transfer of ownership and risks takes place at the factories of Air Liquide Medical Systems subject to the provisions of the retention of title clause given later.

Transportation is done at the lowest rates, unless otherwise expressly requested by the buyer.

GUARANTEES

The normal guarantee period (except for special terms) of the equipment supplied by Air Liquide Medical Systems against all manufacturing or assembling defects – if the assembling is done by Air Liquide Medical Systems – is one year from the date of delivery. The period of this guarantee does not apply to consumable goods. In case of defective delivery, the responsibility of Air Liquide Medical Systems is strictly limited to the obligation to supply or repair, or replace the goods, as the case may be, free of any damages. Air Liquide Medical Systems repairs in its workshops or replaces free of charge, including labour costs, but free of transport and packing charges, all the parts it inspects and acknowledges as defective.

Or Air Liquide Medical Systems repairs on site or replaces free of charge, including labour costs, but free of travel and staying charges, all parts it inspects and acknowledges as defective.

With a view to fulfilling this guarantee, Air Liquide Medical Systems reserves the right to change the devices in place or to replace the said parts. The parts taken back as per the guarantee will be the property of Air Liquide Medical Systems. Any repair or replacement does not consequently extend the guarantee.

The guarantee does not apply to replacements or repairs that may arise from the normal wear and tear of appliances or deterioration or accidents caused by negligence, lack of supervision or faulty maintenance or use of these appliances.

General conditions of sales

Further, this guarantee will cease when the client carries out himself repairs or changes to the sold equipment. In the case of custom work, Air Liquide Medical Systems guarantees exclusively an execution in compliance with the order. The transport costs of defective equipment or parts, as well as those of returning equipment or repaired or replaced parts, are charged to the buyer, as also, in case of repairs on the plant site, the travel and staying expenses of the employees or representatives of Air Liquide Medical Systems, in accordance with its rates in force at that time.
Air Liquide Medical Systems guarantees only that the equipment is suitable for the use defined in its accompanying documents consisting especially of the operating instructions, the delivery documents, the labels, the symbols, etc. The user must strictly and necessarily comply with the laws, regulations and prescriptions in force concerning the use of the equipment sold by Air Liquide Medical Systems.

CLEANING AND STERILISATION OF EQUIPMENT

Before any kind of intervention (taking back, returning, repairing, etc.) by the personnel of Air Liquide Medical Systems or a person appointed by Air Liquide Medical Systems, on the equipment or parts, whether it takes place at Air Liquide Medical Systems or at the Buyer's place, the Buyer agrees to hand over the equipment and/or parts in question, in a clean and sterilized state as far as the exterior is concerned.
If this obligation, specified by circular DGS/5C/DHOS/E2/2001/138 dated 14 March 200, is not honoured, Air Liquide Medical Systems reserves the right to suspend its intervention until the equipment holds no more risk for its personnel or people it has appointed. Air Liquide Medical Systems reserves the right to send back to the Buyer equipment or a part that does not fulfill this condition, with the transport costs charged to the Buyer.

WASTE DISPOSAL

In accordance with article 18 of the Order n° 2005- 829 of 20 July 2005 regarding the composition of electric and electronic equipment, the client will ensure the financing and organization of the disposal of waste coming from equipments under the conditions defined in articles 21 and 22 of the said Order. In case of inspection, the producer may ask his client to send him the documents that show he has, for these equipments, respected all the obligations that were transferred to him under the sales contract. If these documents are not sent, it will be presumed that the client is responsible for non -execution of obligations given to his charge and the producer reserves the right to ask him for reparation of any damages he may incur because of this.
In accordance with article 6 of the Order 2005-829 of 20 July 2005, a marking giving the identity of the producer and the date of placing on the market figures on all the equipments.
The producer was duly registered in the National Register of Producers as defined in the Order dated 13 March 2006 regarding the Registration procedure and information figuring in the National Register of Producers as given in Article 23 of Order n° 2005- 829, under the following SIREN No : 348 921 735 00026.
According to the legal provisions in force, the client who has taken over the obligations regarding waste disposal has to:

- make sure that the selective treatment, the valuation and destruction of waste from electric and electronic equipments collected selectively is done in plants that satisfy the technical requirements fixed by the Order of 23 November 2005 regarding the methods of treating waste from electric and electronic equipments as given in article 21 of Order n° 2005-829, or in any other plant authorized for this purpose in another member State of the European Union or in another State when the transfer of this waste outside France is done in accordance with the provisions of the abovementioned Regulation of 1st February 1993.
- make sure that the selective treatment of material and components of waste from electric and electronic equipments is done and getting all fluids extracted, in accordance with the prescriptions of the Order of 23 November 2005 regarding the methods of treating waste from electric and electronic equipments as given in article 21 of Order n° 2005-829,

RESPONSIBILITES

In the framework of the Regulations regarding Medical Device Vigilance and the EC markings of Medical Devices , the acquirer agrees to implement (or arrange to do so) the articles of the European Directive 93/42/CEE, especially in the matter of traceability of equipment, registration and declaration of malfunctions, control of documentation and training of technical personnel.
For any equipment fitted with software, the acquirer agrees, before installing it, to take all the necessary precautions for saving, controlling the media (virus).. ; in the absence of these arrangements, Air Liquide Medical Systems would not be held responsible for any kind of damage whatsoever.
It is forbidden to copy or reproduce the software products fully or partially by any means and in any form whatsoever.

RETENTION OF TITLE CLAUSE

THE GOODS REMAIN THE PROPERTY OF AIR LIQUIDE MEDICAL SYSTEMS UNTIL FULL PRICE PAYMENT IS MADE (ACT 80.335 OF 12.05.1980).
They cannot be used as security or for hypothecation before the full price is paid.
Nevertheless, if the buyer holds the unpaid goods, he will personally bear all risks, and in case of disappearance or destruction of the goods, he will still be the debtor of the agreed price.
In case of payment default, Air Liquide Medical Systems reserves the right to suspend or cancel the delivery of current or future orders.

CONTESTATIONS

ANY DISPUTE WILL COME UNDER THE JURISDICTION OF THE "TRIBUNAL DE COMMERCE" (Court for commercial causes) OF NANTERRE, even in the case of multiple defendants or introduction of third parties. The Bills of Exchange or acceptances of Air Liquide Medical Systems can entail neither substitution nor overriding of this clause of attribution of jurisdiction.
ANY PURCHASE OF OUR SUPPLIES IMPLIES ACCEPTANCE OF OUR GENERAL CONDITIONS OF SALE.

Contact

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AIR LIQUIDE Healthcare

Air Liquide Healthcare is a world leader in medical gases, home healthcare, hygiene products and healthcare specialty ingredients. It aims to provide customers in the continuum of care from hospital to home with medical products, specialty ingredients and services that contribute to protecting vulnerable lives.