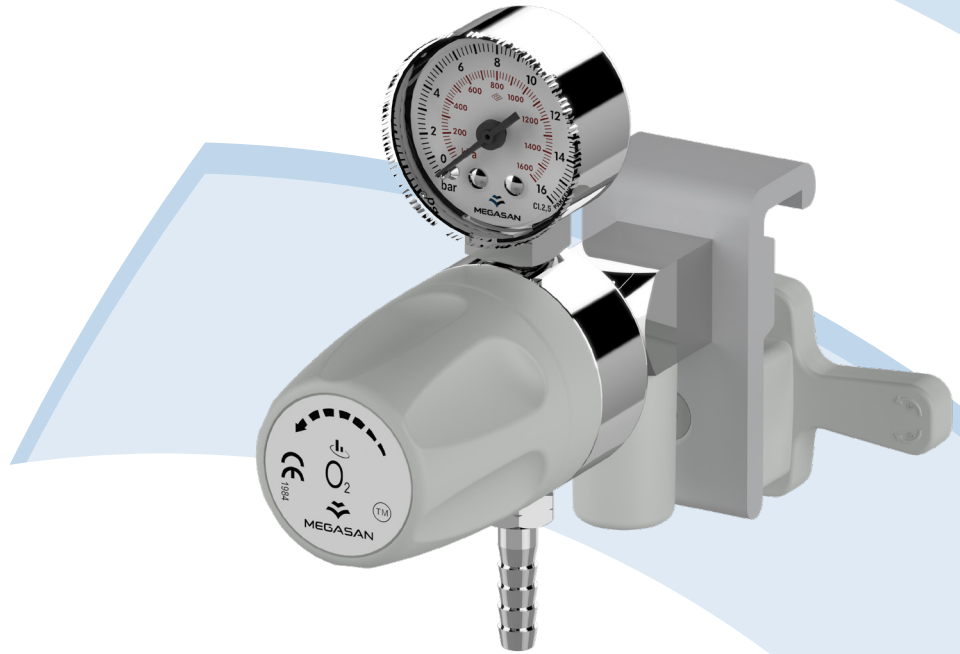




MEGASAN

LOW PRESSURE REGULATORS

Maintenance and Operating Manual



Model

MG-xRM-y-z	Central System Low Pressure Regulator
MG-GAMx-y-z	Central System Gas Flow Adjustment Tap
MG-IBD-x	The Second Pressure Reducer
MG-IBD-BP-x	Second Pressure Reducer With By Pass

x: O (Oxygen), A (N₂O), H4 (Compressed Air 4 Bar), H7 (Compressed Air 7 Bar), K (CO₂)

y: S (Standard), R (Rail Type)

z: B (BS-British norm), D (DIN-German norm), F (AFNOR-French norm), OM (Ohmeda)



Product Brand and Model

LOW PRESSURE REGULATOR

Manufacturer / Exporter Company

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Warranty Period

2 Years

Economic Life

10 Years

Version Table

Version Table			

PREFACE

This guide is prepared to provide basic information to users who require knowledge about the Low Pressure Regulator and to offer general information about the use of these products.

Dear Customers

We appreciate your interest and trust in our company and products. The Low Pressure Regulator you have chosen is presented to you with an extensive service network and the assurance of Megasan.

Please ensure to validate the warranty certificate of our products through your seller. Any tampering with the serial numbers on the warranty certificate or the absence of serial numbers on the product renders the warranty invalid. The seller is responsible for filling out the warranty certificate accurately during the sale. In cases where the warranty certificate is not filled out completely, the product's exit date from Megasan is considered the start of the warranty period.

During the warranty period, service operations will be carried out by the authorized dealer/technical service specified in the warranty certificate.

The following situations are not covered by the warranty, and the repair of these faults will be subject to a fee:

Failures caused by the misuse of the product, contrary to the instructions in the user manual. Damages and faults occurring in cases of natural disasters, fire, accidents, and improper use of the product.

This guide in your hands will assist you in installing and using the regulator. We wish you pleasant use of our products and hope you will be satisfied with our product. Sincerely,





Low Pressure Regulator comply with the interface criteria published by the Ministry of Health of the Republic of Turkey.

Low Pressure Regulator operate in full compatibility with International Gas Systems.

ÖNEMLİ

- > The lifespan of the system you have purchased is 10 years.
 - > Megasan provides a warranty for the purchased product for a period of years from the delivery date.
 - > The WARRANTY CERTIFICATE is provided within the product.
 - > The list of AUTHORIZED SELLERS and DEALERS is provided together.
 - > Please validate your Warranty Certificate with your seller.
 - > In the event of a malfunction, the product should only be repaired by an authorized technician. Any interventions made by unauthorized individuals render the product out of warranty coverage.
 - > Please have the installation and routine maintenance of your system performed by the specified authorized seller and authorized technical service.



ATTENTION

Low Pressure Regulator must meet the following conditions to prevent any adverse effects on you and the environment:

- >Do not open the box outside of authorized service. Do not approach with fire.
- >Avoid any contact with oil.
- >Do not immerse Anesthetic Gas Scavenging Systems in water. This action renders the product warranty void.

LEGAL DISCLAIMER

Megasan Medical Gas Systems Low Pressure Regulator, when used outside of the provided features and applications or contrary to the usage instructions, will not hold **Megasan Medical Gas Systems Medical Devices and Equipment Inc.** responsible for any material damage, loss of life, or similar situations that may arise. The buyer acknowledges and declares awareness of this warning upon purchase.”

TABLE OF CONTENTS

1. Important Notes	6
2. The Service Life and its justification	6
3. Intended Use	6
4. Product Control	6
5. Accessories	7
6. Gas Supply Inlet	7
7. Markings on the Product, Label Color Design and Packaging	8
8. Safety Tips and Points to Consider When Using	10
9. Patient Population	11
10. Indications	11
11. Contraindications	12
12. Side Effects	12
13. Connection and Assembly	12
14. Operating principle	14
15. Maintenance Repair / Calibration	14
16. Cleaning Sterilization	15
17. Possible Problems and Solutions	15
18. Differences Between Models And Features	16
19. Product Package Label	19
20. Technical Service Stations	20

1. Important Notes

- Before using the Low Pressure Regulator, read this guide.
- Keep the ambient temperature of the Low Pressure Regulator between a minimum of +10 °C and a maximum of +40 °C. Freezing may occur outside these temperature ranges, and damages resulting from freezing will not be covered by the warranty.
- Avoid contact of the Low Pressure Regulator with oil and oil vapor.
- Do not disassemble any part of the Low Pressure Regulator. Do not make any changes to the Low Pressure Regulator. Clean the Low Pressure Regulator with a clean, dry cloth or a cleaning solution. Do not use any chemical liquids and aerosol cleaners, flammable liquids (such as thinner, gas oil, etc.) for cleaning.
- Only individuals who have received training should use the Low Pressure Regulator. Before use, check the connections to ensure there are no leaks.
- Be cautious about keeping oxygen or oxygen supply devices away from sparks, heat, or electrical switches that can produce sparks.
- Do not smoke or approach with fire in areas where oxygen and nitrogen gas are used, as the interaction of oxygen gas with fire can result in fire and explosion.
- Oxygen itself is not flammable, but anything that burns in the air burns faster with oxygen. Oil and grease in an oxygen-rich environment are explosive. Therefore, do not use combustible materials derived from oil or petroleum around devices related to oxygen. Do not bring oily substances near the Low Pressure Regulator.
- It should be remembered that inhaling nitrogen gas can cause a fainting effect, and in the event of any leakage, lethal effects may occur for individuals in the area where it is used.
- Excessive inhalation of oxygen gas can be harmful to human health, so in the event of any leakage, inhaling oxygen gas can cause harm to individuals.
- If the Low Pressure Regulator, plumbing, or connected equipment is not operating normally, do not use it and contact your seller. Remove all protective covers before installation.

2. The Service Life and its justification

- Due to the fact that medical devices generally undergo technological innovation in the range of 6-10 years, a new medical device may be better in terms of functionality, efficiency, reliability than older devices. Therefore probability of medical devices having new technology to provide better experiences in patient treatment may be higher.
- Medical devices may have to be replaced with updated medical device versions for maintaining compliance with quality and safety standards which are specified by health authorities and regulatory institutions.
- Maintenance activities should be made periodically for medical device to work with same performance continuously. Since 5% of annual cost of product will return within 3-5 years, 10% of annual cost will return in 5-10 years, and 20% of product cost will return as maintenance cost; there may be need for supplying new product at the end of this period.
- The parts used on the device wear out and get old over time, which leads to the supply of spare parts. The supply of spare parts for old devices may become difficult in the future. Our company commits to supply provide spare parts for “ Low Pressure Regulators” it produces for 10 years.
- The product service lifetime has been determined as 10 years because of the reasons we have explained above

3. Intended Use

- They are AUXILIARY equipment for the Treatment Of The Patient used for transmitting medical gases produced by Medical Gas Plants and transported up to gas sockets by copper piping to devices after adjusting according to a certain pressure.
- The regulators can be used actively when connected to an outlet. The adjustment handle located on it is used to adjust the pressure of the gas to be used thanks to the tap. It will be able to remain fixed at the desired point on the scale divided in the range of 0-16 bar on the manometer located on it by moving the On-Off handle. When the handle is completely closed, the flow will stop and the pressure will be 0
- The most important point to pay attention to is the actual regulation that can be adjusted. Our products in the low pressure regulators product group (EXCEPT for the gas flow adjustment tap) have full regulation features. The full regulation control method is to change the inlet pressure after the regulator is set to a certain pressure. If the outlet pressure does not change when the inlet pressure changes (as long as it does not fall below the set pressure), it is in real regulation. Otherwise, there will be no regulation.

4. Product Control

- Read this manual before using. When you do not understand any explanation in this manual, contact with your dealer before use.
- Failure to read the manual and therefore failure to follow the instructions may result in fire, serious damage and injury to users and patients.
- Once you purchase the product open its package and check whether it is damaged. If there is any failure do not use the product and proceed the process to return it.
- Especially check the manometers. Do not use it if it is broken or damaged (if the hands of the manometers show a value other than 0).
- After checking the durability of the product, read and take into account all warnings in this manual before use.

5. Accessories

Intermediate connection hose

After pressure adjustment is made in high pressure regulators that do not have a gas outlet, it is transmitted to the device that will use the regulated air by attaching a plastic hose to the outlet hose. Specified connection hoses are not delivered to user together with pressure regulator. The connection hose can also be supplied by us if requested.

The user is free to supply connection hose from anywhere.

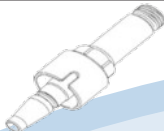
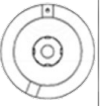
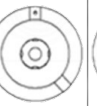
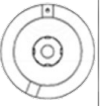
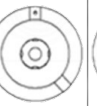
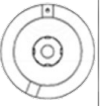
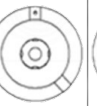
Flexible connection hoses with a wall thickness of at least 3 mm, an inner diameter of 6 mm, a pressure resistance of at least 16 bar, braided type, and ISO 9001 and EEC 90/128 certificates should be connected.

6. Gas Supply Inlet

Low pressure regulators have probes manufactured according to BS (British), DIN (German), AFNOR (French), OHMEDA (American) norms in accordance with ISO 9170-1 standard.

The probe structure of each norm is different from each other.

For example, just as the oxygen probe does not enter other gas outlets, other gas probes will not enter the oxygen outlet.

Standard	Technical Drawing Section	Explanation												
BS Norm	 <table><tr><td>OXYGEN</td><td>N2O</td><td>AIR-4</td><td>AIR-7</td><td>VACUUM</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	OXYGEN	N2O	AIR-4	AIR-7	VACUUM						The BS (British) norm is the jack ring section of the structure that provides the gas privilege for probes. The outer diameter of the jack ring and the tab thickness symbolize the gas-specific status. This measure varies for each type of gas. For example; Just as the oxygen jack does not enter other gas outlets other gas jacks will not enter the oxygen outlet		
OXYGEN	N2O	AIR-4	AIR-7	VACUUM										
														
DIN Norm	 <table><tr><td>OXYGEN</td><td>N2O</td><td>AIR-4</td><td>AIR-7</td><td>VACUUM</td><td>CO2</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	OXYGEN	N2O	AIR-4	AIR-7	VACUUM	CO2							DIN (German) norm is the geometric shapes of the structure that provide the gas privilege for probes. For example; The probe for oxygen has a hexagonal structure, and the measurement between its parallel sides symbolizes its specificity for the gas. These measurements and geometric structures change for each type of gas.
OXYGEN	N2O	AIR-4	AIR-7	VACUUM	CO2									
														
AFNOR Norm	 <table><tr><td>OXYGEN</td><td>N2O</td><td>AIR-4</td><td>VACUUM</td></tr><tr><td></td><td></td><td></td><td></td></tr></table>	OXYGEN	N2O	AIR-4	VACUUM					The Afnor (French) norm is the tabs on the probe structure that provide the gas privilege for probes. For example, the probe for oxygen has 3 tabs, and the thickness of the tabs also varies depending on the gas. Only oxygen has a 3-tab structure. These measurements and geometric structures change for each type of gas.				
OXYGEN	N2O	AIR-4	VACUUM											
														
OHMEDA Norm	 <table><tr><td>OXYGEN</td><td>N2O</td><td>AIR-4</td><td>VACUUM</td></tr><tr><td></td><td></td><td></td><td></td></tr></table>	OXYGEN	N2O	AIR-4	VACUUM					Jacks produced in accordance with the OHM standard have protrusions of different sizes and angles on the supply jack, specific to gases, to prevent them from being used in gas sockets for the wrong gas. For example, there is a 180 degree angle between the projections for oxygen.				
OXYGEN	N2O	AIR-4	VACUUM											
														

7. Markings on the Product, Label Color Design and Packaging

	There is an example of a low pressure regulator product label in the picture on the left side. It is stated for which gas it is produced and the direction of increasing the pressure.
	Do not use with oil.
	The Company Logo, Product serial number and Approved organization identification number are written on the flowmeter body with laser marking device In addition, information such as "TYPE-2 Non-electrical Devices Package Label" Manufacturer name, address, contact information, product type and year of production are indicated in detail on the product box.
	The picture on the left side shows an example of a pressure gauge used in a low pressure regulator. Manometer ground color and gas name are designed in accordance with ISO 32. It is designed to be equally scaled in the range of 0-16 bar.

Low Pressure Regulators Label Color Design

Label colors for the regulators and taps that we produce within our company and whose jack structures are defined by international standards are as follows.

Gas Symbol	Standard where it is subjected to	Subjected EN Standard	Label Ground Color	
OXYGEN (O ₂)	BS 5682	EN 9170-1		White
	DIN 13260-2			
	NF S 90-116			
	OHMEDA			
VACUUM (VAC)	BS 5682	EN 9170-1		Yellow
	DIN 13260-2			
	NF S 90-116			
	OHMEDA			
MEDİKAL HAVA 4 (AİR 4)	BS 5682	EN 9170-1		Black White
	DIN 13260-2			
	NF S 90-116			
	OHMEDA			
MEDİKAL HAVA 7 (AİR 7)	BS 5682	EN 9170-1		Black White
	DIN 13260-2			
AZOTPROTOKSİT (N ₂ O)	BS 5682	EN 9170-1		Blue
	DIN 13260-2			
	NF S 90-116			
	OHMEDA			
KARBONDİOKSİT (CO ₂)	BS 5682	EN 9170-1		Grey
	DIN 13260-2			

The background colors to be used on gases and their labels are as follows According to TS EN ISO 9170-1 standard article 6.1.3 Table 2, ISO 32 and the British Compressed Gas Association Circular are as follows

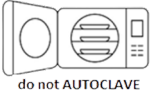
GAS		Color	
Oxygene	O		White RAL 9010
Vacuum	V		Yellow RAL 1018
Air 4 Bar	H4		White - Black RAL 9010 - RAL 9005
Air 7 Bar	H7		White - Black RAL 9010 - RAL 9005
Nitrogen Protoxide	N2O		Blue RAL 5010
Carbon Dioxide	K		Grey RAL 4001

Packaging of Low Pressure Regulators

PRODUCT	WEIGHT (g)	PACKAGE SIZE (cm)
Low Pressure Regulator	535	4x15x12
Low Pressure Regulator - Rail Type	655	4x15x12
Gas Flow Adjustment Tap	495	4x15x12
The Second Pressure Reducer	535	4x15x12

- The flowmeter is protected from dust, dirt and impacts by being placed in closed transparent bags before being boxed.
- Low pressure regulators are stored and shipped with their own unique boxes, the dimensions of which are specified above.
- Shipment is made by placing a maximum of 5 pieces on top of each other in order to prevent crushes during product transportation

8. Safety Tips and Points to Consider When Using

	Be careful. Consider the warning and directives regarding product.
	When oxygen gas comes into contact with oil or other lubricants, there is a danger of combustion, explosion. Low pressure regulators adjustment shaft "LOXEAL TEFLON GREASE 4" silicone lubricant is used, which is resistant to burning and does not pose a danger when in contact with the human body. The low pressure regulators will work without the need for any other lubricant from the moment of production. Picture at left hand side, it is explained in symbol with writing and symbol over flow pressure regulator that there should be no contact with oil during operation of equipment
	Do not approach with fire at the points where oxygen is used. Fire can cause explosions and may lead flames become greater together with oxygen
	Do not smoke at the points where oxygen is used. Fire can cause explosions and may lead flames become greater together with oxygen
	Use Low Pressure Regulators in the inlet pressure within 01-6 Bar range The setting scale is set in the range of 0-16 bar.
	Store the product at the specified storage temperature. Temperature during storage and transportation should be between -20 °C and 60 °C.
	Risk of physical injury and/or device malfunction: Magnetic fields can negatively interfere with the correct functioning of the medical device and therefore pose a danger to the patient and the user. Do not use medical devices near magnetic resonance imaging devices (MRI).
	Do not subject any part of the low pressure regulators to autoclav (cleaning) with the Autoclav device.
	Read the user manual carefully. (Operating manual should be read completely and clearly for product to be used properly throughout economic life and for preventing accident which are caused directly or indirectly from product)
	Low pressure regulators should only be used by people who have received sufficient training in their use. When using low pressure regulators, make sure that the pressure gauge faces up. Please check the connections before using and make sure that there are no leaks.
	Do not remove any part of the low pressure regulators. This will cause the product to be excluded from the warranty. If you encounter a possible problem, please contact the manufacturer or authorized companies.

	When the input filter needs to be changed, the user should not make the change process himself. The intervention of unauthorized persons may damage the unit sealing. Please contact the authorized service.
	Low pressure regulators are used by connecting to gas outlets so they work under constant pressure. It allows gas flow as soon as the jack of the low pressure regulators is plugged in due to the structure of gas sockets. Do not disassemble any part of the low pressure regulators while the unit is under pressure. If you need to remove the interconnection hose of the low pressure regulators, turn the adjustment handle of the regulator to the far left to end the pressure transition and make sure that the value on the manometer is 0. You can remove the connection hose from the outlet hose.
	Low pressure regulators should be plugged into the gas-specific outlet included in the label information.
	Turning the adjustment handle of the low pressure regulators clockwise increases the gas pressure, while reversing increases the gas flow. (The Strokegen regulator handle label is given as an example in the picture on the side.)
	NOTE: Do not attempt to replace the probe (INLET) of the low pressure regulators in any way. This can lead to serious injuries due to improper use of gas(s).
	Use the product between the specified temperature values interval. . Temperature Ambient conditions during operation should be between 5°C and 40 °C.

9. Patient Population

Low pressure regulators are designed for general use. The type of gas that will flow and the gas pressure should definitely be determined by a specialist doctor considering the patient's age and discomfort, as well as the intended use. In addition, low pressure regulators are also used for equipment other than delivering any gas to the patient.

For example: Regulating the compressed air used in the sterilization process.

For example: Regulating pure nitrogen gas, for example, used in laboratories in IVF centers, for other equipment.

ATTENTION: As the operator or practitioner of users, you must be well aware of the use of this medicinal product. Pay attention to the legal requirements and requirements for the operation and application. Have a person authorized by the manufacturer provide you with expert information about the use, application and operation of this medicinal product.

10. Indications

Low pressure regulators are auxiliary equipment for transferring pressurized gases from tubes to devices in a stable way by regulating the pressure so as not to damage other devices in which the gas will be used.

Low Pressure Regulators are used for some of the functions listed below, depending on the type of medical gas to be used;

Oxygen; low pressure regulators are used in groups of patients with respiratory distress, ventilator devices that regulate the patient's breathing, and for adjusting the inlet pressure during anesthesia procedures,

Air 4 Bar; Low pressure regulators are used for adjusting the inlet pressure of respiratory supportive ventilator devices, anesthesia devices in anesthesia procedures, devices for procedures such as giving drugs via steam

N2O; Low pressure regulators are used in anesthesia procedures to adjust the inlet pressure of anesthesia devices used during the patient's sedation process.

Air 7 Bar; Low pressure regulators are used in surgical operations to adjust the inlet pressure of the devices used by the user during the procedure,

CO2; It is used in physical therapy, incubators and operating rooms to adjust the inlet pressure of the devices used by the user during the procedure

11. Contraindications

According to some examples mentioned in the Indications section, the place where the low pressure regulators will be used and the purpose of use and the method of use should be determined by the specialist who will use the device.

Since low pressure regulators are not directly therapeutic equipment, it is impossible to identify areas where they cannot be used.

12. Side Effects

Since low pressure regulators are not directly therapeutic equipment, there is no definition related to their side effects.

13. Connection and Assembly

ATTENTION: Installation of low pressure regulators should be carried out by specialized medical personnel or technical personnel who have read the user manual fully and clearly at least 1 time..

ATTENTION: The device with which the low pressure regulators will work together should not require more pressure than the regulator's capacity. (max.16 bars)

ATTENTION: The device with which the low pressure regulators will work should not contain oil and its components such as regulators.

Before installing the product;

- The system where the regulator will be used must have a pressurized gas between 0-16 bar.
- Temperature Ambient conditions during operation should be between 5°C and 40 °C.
- Once you purchase the product open its package and check whether it is damaged. If there is any failure do not use the product and proceed the process to return it.
- Especially check the manometers. Do not use it if it is broken or damaged (if the hands of the manometers show a value other than 0).
- After checking the durability of the product, read and take into account all warnings in this manual before use.
- Turn the adjustment handle to the left by pulling the adjustment handle slightly towards you (move it to the 0 position.)
- Connect the interconnection hose to the Regulator outlet hose using a clamp.
- Connect the other end of the Decoupling hose to the device to be used.
- Then you can install the low pressure regulator in the gas outlet.

Installation of the Central System Low Pressure Regulator

- The regulator jack is plugged into the gas outlet indicated on the regulator label.
- The unit box indicates the standard for which the regulator is manufactured.
- The regulator manometer should initially be at 0 position.
- Connection is made from the outlet hose to the device where compressed air will be used.



Central System Low Pressure Regulator Rail Type Installation

- Rail mounting is performed with the movable jaw system of the regulator.
- The probe coming out of the box is plugged into the gas outlet as shown in the picture below.
- The unit box indicates the standard for which the regulator is manufactured.
- One end of the connection hose coming out of the box is attached to the output of the probe.
- The other end of the hose is mounted at the inlet of the rail type tensioner.
- The regulator manometer should initially be at 0 position.
- Connection is made from the outlet hose to the device where compressed air will be used.



Installation of Gas Flow Adjustment Tap

- The regulator jack is plugged into the gas outlet indicated on the regulator label.
- The unit box indicates the standard for which the regulator is manufactured.
- The regulator manometer should initially be at 0 position.
- Connection is made from the outlet hose to the device where compressed air will be used.

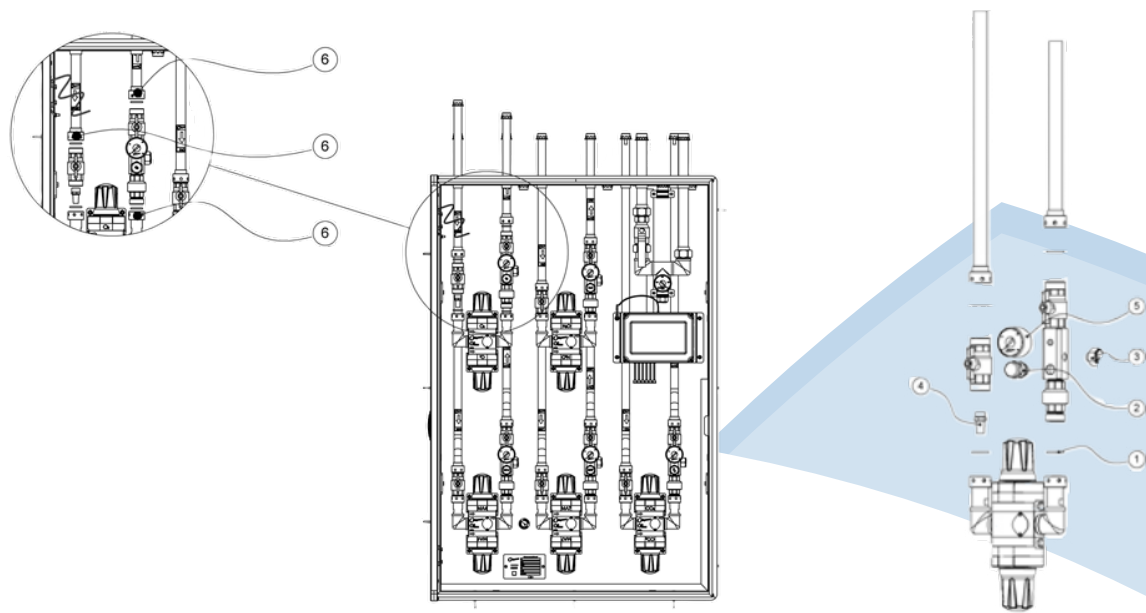


Installation of the Second Pressure Reducer

- The second pressure reducers have a 3/8" (female) gland at the inlet and outlet.
- The second pressure reducers are usually used in regional control units. There is a 3/8" (male) gland internal structure in which a 3/8" (female) gland can be connected within the regional control units. In this way, the process of changing the regulator is carried out easily.
- The assembly is done by turning the gland clockwise and tightening it into the record.
- If the second pressure reducers are to be connected to the line, the 3/8" (male) Record internal structure must be installed before it is connected to the point where it will be connected.



Installation of the Second Pressure Reducer - By Pass



- The second pressure reducers with By Pass have a round record (6) at their inlet and outlet.
- The second pressure reducers with By Pass are used in regional control units. There is a nipple structure in the regional control units where the round record can be connected. In this way, the process of changing the regulator is carried out easily.
- The assembly is done by turning the gland clockwise and tightening it into the record.

14. Operating principle

- Low pressure regulators are used to adjust the pressure required for another device that needs compressed air.
- The pressure will increase when you gently pull the adjustment handle towards yourself and turn the adjustment handle to the right side after the necessary connections and pre-operations are made,.
- The pressure setting is monitored from the manometer.
- After the desired pressure adjustment is made, the adjustment handle is placed in place by pushing forward and the locking process is performed.
- There is no need to unplug the low pressure regulators when they are not in use.
- When the low pressure regulators are not in use, the adjustment handle is turned to the far left and the pressure gauge is moved to the 0 position so that it remains on the outlet.

15. Maintenance Repair / Calibration

- Please contact the manufacturer Megasan Medical Gaz Sist. or contact the specified service representatives and ask for help for the repair vacuum regulators.
- Since the regulator can directly affect human health in the event of improper repair and installation, it creates a disadvantage for people and organizations who are not authorized to enter into repair work in the event of a malfunction, and any negativity that may occur
- Authorized companies and manufacturer company Megasan Medical Gaz Sist. are not responsible.

There is no set maintenance period for low pressure regulators. It is sufficient to follow the cleaning and usage instructions in order for the product to work healthily throughout its service life,. The user should definitely not disassemble any part of the low pressure regulators.

Inlet filters for low pressure regulators should also be controlled in proportion to the frequency of use. Faults that may be caused by filters are evaluated in Section 17.

No part of the low pressure regulators should be tried to be cleaned by undergoing the sterilization process.

Problems that may be encountered are described in the possible repair problems and solutions section.

We recommend that low pressure regulators be subjected to calibration process 1 time a year in order to ensure continuity of performance in accordance with the intended use throughout their service life.

The following is a list of spare parts for low pressure regulators that may fail or be replaced during maintenance.

Product Code	Part Code	Part Name
MG-xRM-y-z MG-IBD-x	ORM-08	Diaphragm Gasket
	ORM-10	Flap Spring
	ORM-11	Flap Gasket
	ORM-12	Flap Shaft
	ORM-13	Flap Gland
	ORM-14	Low Pressure Diaphragm Housing
	ORM-15	Diaphragm Spring
	ORM-16	Setting Nut
	ORM-17	Setting Shaft
	ORM-19	Adjustment Handle
	040100010870	Ø40mm 16 Bar 1/8 Manometer With Bottom Outlet
MG-GAMx-y-z	ORM-GF	Inlet Filter
	GAM-09	Gas Flow Adjustment Handle
	GAM-04	Tap Valve
	GAM-03 472-12	Tap snap ring inox
	XP-NF-17	Capsule Plug Oring O2 Nf (6.75x1.78)
	GAM-01	Gas Flow Adjustment Tap frame
MG-IBD-BP-x	GAM-03	Gas Flow Outlet Hose
	PP-000163	Regulator Needle
	IBD-BP-17	24 x 20 x 2 mm Gasket
	PLPL-PP-000649	26 x 22 x 2 mm Gasket
	IBD-BP-52	20 x 9.5 x 2.5mm Gasket
	HP-YAY-005815	Regulator Needle Spring
	IBD-S-03	Regulator Diaphragm
	HP-YAY-005809	Regulator Adjustment Spring
	IBD-S-15	Diaphragm Seal
	PLP-PA6-000746	Reg. Adjustment Handle

16. Cleaning Sterilization

Low pressure regulators are not disposable Low pressure regulators are not included in the sterile product class and are not sold as sterile.

You can clean the low pressure regulators by wetting them with a clean cloth or rubbing them with a cleaning solution.

17. Possible Problems and Solutions

Problem	Detail Of Problem	Possible Reason	What Should Be Done	Responsible Personnel
The pressure gauge does not show a value	It does not show value on the manometer.	Clogging of the filter of the inlet due to dirt	Disconnect the regulator from the power outlet, replace the filter with a new one.	Authorized service
		The pressure gauge is defective	Change the pressure gauge.	Authorized service
Regulator failure	The regulator does not keep the setting	The regulator is defective	Repair the regulator	Authorized service
	The regulator is draining	Drainage ends in 10 seconds	The regulator has adjusted the line pressure and there is no malfunction.	No need for intervention.
		Evacuation is continuous	Check that a reverse feed may have been made to the regulator. If the regulator is defective, do the repair process	Authorized service
The manometer value is incorrect	Not within the required value range	The regulator is out of tune	Make the adjustment	Authorized User
			Check the outlet	User Technical Service Unit
		The pressure gauge is defective	Change the pressure gauge.	Authorized service

18. Differences Between Models And Features

Classification	: Class IIb, Rule 11
GMDN CODE	: 36271 - Medical gas supply system
EXPLANATION	: It is a system designed to provide a pressurized medical gas (oxygen, nitrous oxide, air) and vacuum source from a source to the exits and entrances of the medical department. A system may consist of a gas source, manifold unit, pressure regulation and alarm system, pipe system, remote or local indicators, pressure relief valves, zone valves and wall outlet terminal units
Product Life Cycle	: 10 years
The Software Used	: None
Accessories	: Output (intermediate) connection hose
Specifications	: 1. It is not disposable. 2. The Service Life is 10 Years 3. The Package Type Is Packaging And Carton Box.

A) Central System Low Pressure Regulator

Product code	: MG-xRM-y-z
x:	O (Oxygen), A (N ₂ O), H4 (Compressed Air 4 Bar), H7 (Compressed Air 7 Bar), K (CO ₂)
y:	S (Standard), R (Rail Type)
z:	B (BS-British norm), D (DIN-German norm), F (AFNOR-French norm), OM (Ohmeda)

Usage Area : It is used for transmitting medical gases produced by Medical Gas Power Plants and transported up to gas sockets by copper piping to devices after being adjusted according to a certain pressure.

The regulators can be used actively when connected to an outlet. The adjustment handle located on it is used to adjust the pressure of the gas to be used thanks to the tap.

It will be able to remain fixed at the desired point on the scale divided in the range of 0-16 bar on the manometer located on it by moving the On-Off handle. When the handle is completely closed, the flow will stop and the pressure will be 0

After connecting the interconnection hose to the outlet hose of the regulator adjusted to the desired pressure and connecting the other end of the hose to the device to be used, the product is ready for use

4 Different standards are widely used in our country, including BS (British), DIN (German), AF-NOR (French) OHMEDA (American) standards. It must have the appropriate jack connection according to the type of gas outlet it will be connected to.

Operating Range	: 0-16 Bar
Package Type	: Box
Package Size	: 4x15x12cm
Weight	: 535gr



B-) Central System Low Pressure Regulator Rail Type

Product Code	: MG-xRM-Rz
x:	O (Oxygen), A (N ₂ O), H4 (Compressed Air 4 Bar), H7 (Compressed Air 7 Bar), K (CO ₂)
z:	B (BS-British norm), D (DIN-German norm), F (AFNOR-French norm), OM (Ohmeda)

Usage Area : It is used for transmitting medical gases produced by Medical Gas Power Plants and transported up to gas sockets by copper piping to devices after being adjusted according to a certain pressure.

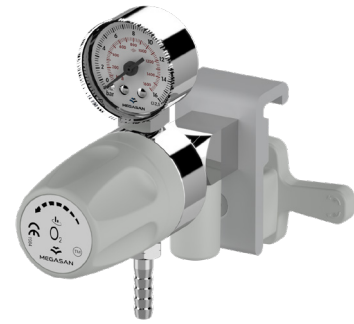
Unlike the application of the Low Pressure regulator, the Rail type Regulator is not connected directly to the outlet. Thanks to the clip on the regulator, it is fixed to a rail the other end of the hose connected to the output end of the probe of the appropriate standard that comes with the product is connected to the end of the regulator, the probe is plugged in and the gas flow is activated.

The adjustment handle located on it is used to adjust the pressure of the gas to be used thanks to the tap. It will be able to remain fixed at the desired point on the scale divided in the range of 0-16 bar on the manometer located on it by moving the On-Off handle. When the handle is completely closed, the flow will stop and the pressure will be 0

After connecting the interconnection hose to the outlet hose of the regulator adjusted to the desired pressure and connecting the other end of the hose to the device to be used, the product is ready for use

4 Different standards are widely used in our country, including BS (British), DIN (German), AF-NOR (French) OHMEDA (American) standards. It must have the appropriate jack connection according to the type of gas outlet it will be connected to.

Operating Range : 0-16 Bar
Package Type : Box
Package Size : 4x15x12cm
Weight : 655 gr



C-) Gas Flow Adjustment Tap

Product Code: : MG-xRM-R-z
x: O (Oxygen), A (N2O), H4 (Compressed Air 4 Bar), H7 (Compressed Air 7 Bar), K (CO2)
y: S (Standard), R (Rail Type)
z: B (BS-British norm), D (DIN-German norm), F (AFNOR-French norm), OM (Ohmeda)

Usage Area : It is used for the transmission of medical gases produced by Medical Gas Centers and transported to gas sockets by copper piping to devices without pressure adjustment.

The taps can be used actively when connected to an outlet. By turning the handle located on it a quarter turn in the specified direction, the flow of the gas to be used is ensured. The pressure of the gas used at the moment can be seen in the range of 0-16 bar on the pressure gauge located on it. When the handle is rotated a quarter turn in the opposite direction in the specified direction, the gas flow will stop and the pressure will reach the 0 position.

What separates the tap units from the regulator is that there is no regulation in the taps, they only have the function of opening and closing the gas passage. The gas pressure can be seen thanks to the pressure gauge on it,

After connecting the interconnection hose to the outlet hose of the regulator adjusted to the desired pressure and connecting the other end of the hose to the device to be used, the product is ready for use

4 Different standards are widely used in our country, including BS (British), DIN (German), AF-NOR (French) OHMEDA (American) standards. It must have the appropriate jack connection according to the type of gas outlet it will be connected to.

Working Range : 0-16 Bar
Package Type : Box
Package Size : 4x15x12cm
Weight : 655 gr



D-) The Second Pressure Reducer

Product Code : MG-IBD-x

x: O (Oxygen), A (N₂O), H4 (Compressed Air 4 Bar), H7 (Compressed Air 7 Bar), K (CO₂)

Usage Area : It is used for adjusting the medical gases produced by Medical Gas Centers and transported by copper piping to the pressure required by that region to feed a certain region.

The second Pressure Reducers are used on lines where it is desired to reduce the pressure. They are attached to the inside of the regional control units with the help of the glands on them. The adjustment handle located on it is used to adjust the pressure of the gas to be used thanks to the tap. It will be able to remain fixed at the desired point on the scale divided in the range of 0-16 bar on the manometer located on it by moving the On-Off handle. When the handle is completely closed, the flow will stop and the pressure will be 0

Operating Range : 0-16 Bar
Inlet : 3/8" Gland
Outlet : 3/8" Gland
Package Type : Box
Package Size : 4x15x12cm
Weight : 535gr



E-) Second Pressure Reducer – With By Pass

Product Code : MG-IBD-BP-x

x: O (Oxygen), A (N₂O), H4 (Compressed Air 4 Bar), H7 (Compressed Air 7 Bar), K (CO₂)

Usage Area : It is used for adjusting the medical gases produced by Medical Gas Centers and transported by copper piping to the pressure required by that region to feed a certain region.

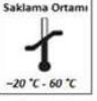
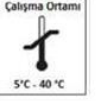
The Second Pressure Reducers with By Pass are attached to the inside of the regional control units where it is desired to reduce the pressure with the help of records on them. The adjustment handle located on it is used to adjust the pressure of the gas to be used thanks to the tap. There are two separate adjustment mechanisms in a single regulator body. One of the regulators provides the primary transition, while the other is in the reserve position. There is no pressure gauge on the regulator. There is a pressure gauge in the output line connected to the regulator in the regional control unit.

Operating Range : 0-16 Bar
Inlet : M32x1,5 Gland
Outlet : M32x1,5 Gland

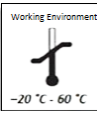
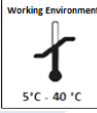


19. Product Package Label

TYPE-2 Non-electrical Devices Package Label

		MEGASAN Medikal Gaz Sis. Tıbbi Alet ve Cihazlar İnş.Taşh. Mad. Turizm İth. Ve İhr. San ve Tic.A.Ş. Merkez: Cumhuriyet Mah. Döğenciler Sok. Zafer İş Hanı Apt. No: 33/411 Merkez - ÇANKIRI / TÜRKİYE Fabrika: Dere Mah. Aşağı Ağıl Onü Mevkii Cad. No:18 PK:18700 Eldivan - ÇANKIRI / TÜRKİYE Tel: 0376 218 10 25 - Fax: 0376 218 12 26 info@megasan.com.tr - megasanmedical@yahoo.com www.megasan.com.tr MADE IN TURKEY	20..	
		Ü.ADI: Ü.KODU:	 Üretim Tarihi/...../2022	
 8 698973 920047				
SERIAL NUMBER  22/xx-00186	 Protect From Oil Yağdan Koruyunuz			 220-240 V ~AC / 50-60 Hz
UE-03 Revizyon No: 01 Revizyon Tarihi: 21.01.2022				

Explanations of symbols used on Product Labels;

	Manufacturer / Year of Manufacturing/ Company Information
	Approved Institution Identification Number
	See User Manual
	Store and transport at temperatures between -20°C and 60°C.
	The inlet pressure should be between 0 -16 bar
	Use ambient temperature values between 5°C - 40°C
	Do not use with oil in an oxygen-containing environment.
 Protect From Oil Yağdan Koruyunuz	User should be careful
 8 698973 920047	Product Barcode Code
SERIAL NUMBER  22/xx-00186	Production Year, Product Group, serial number

20. Technical Service Stations

LIST SHOWING SERVICE STATIONS	
OF THE IMPORTER/MANUFACTURER/PRODUCER COMPANY	
TITLE	MEGASAN MED. GAS. FOG. TIB. TOOLS AND DEVICES CONS. TAAH. MAD.NAK. TYPE. imp. DHR. SINGING. TRADE. Inc.
HEAD OFFICE ADDRESS	Cumhuriyet Mah. D�venciler sok. Zafer Iř Hanı Apt. No:33/411 Merkez / ankırı
PHONE	376-218 10 25
FAX	376-218 12 26
TRADE REGISTER NO	2 / 2163
Tax Office / No	613 088 4492

Service Name	MEGASAN MED. GAS. FOG. TIB. TOOLS AND DEVICES CONS. TAAH. MAD.NAK. TYPE. imp. DHR. SINGING. TRADE. Inc.
Authorized Name Surname	HAYRETTİN ELİKTEN
Tax Office / No	ANKIRI / 613 088 4492
Phone No	376-218 10 25
HYBN No.	Jun-59
Address	Cumhuriyet Mah. D�venciler sok. Zafer Iř Hanı Apt. No:33/411 Merkez / ankırı
Province	ANKIRI

Service Name	TEKNİKON MEDICAL C�H. AND GAS SYSTEM. SINGING. VE T�C.LTD. řT�.
Authorized Name Surname	OKAN řERİF AKMAN
Tax Office / No	OSTİM / 8360335116
Phone No	312-395 09 29
HYBN No.	Jun-04
Address	İVEDİK SANAY� B�LGESİ 645. SOK. NO:28 OSTİM
Province	ANKARA

Service Name	BUZSAN MEDICAL COOLING CONSTRUCTION TOURISM NATURAL GAS CONTRACTING IMPORT EXPORT INDUSTRY TRADE LTD. řT�.
Authorized Name Surname	İRFAN KALKAN
Tax Office / No	HARPUT /1910537688
Phone No	424 238 71 27
HYBN No.	14.31.23 / HYB-329
Address	AKPINAR MAH. PINARLI SOK.NO:8/C
Province	ELAZIĞ

Service Name	SERTEK TECHNICAL SYSTEMS - İZZET USLU
Authorized Name Surname	İZZET USLU
Tax Office / No	MİMARŞİNAN / 8950271798
Phone No	320 52 52
HYBN No.	38 / 1323
Address	HASTANE CAD. KİRANATLI İř MERKEZİ NO:33/1
Province	KAYSERİ

Service Name	MEDGAZ MEDICAL INDUSTRIAL MECHANICAL INSTALLATION ELECTRICAL CONSTRUCTION TAAH. SINGING. TRADE. LTD. řT�
Authorized Name Surname	�ZCAN DEMİRTAř
Tax Office / No	SETBAřI / 613 075 3619
Phone No	0224 360 04 10
HYBN No.	
Address	Değirmenli Kızık Mahallesi Teyyareci Cad. No:252/1 Yıldırım
Province	BURSA