



Medical Corporation®

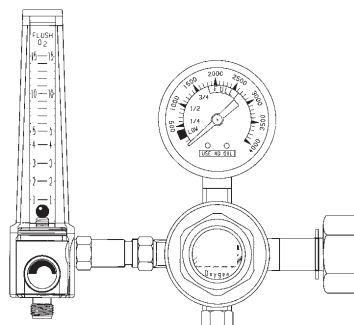
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Medical Gas Regulators

Instructions for Use

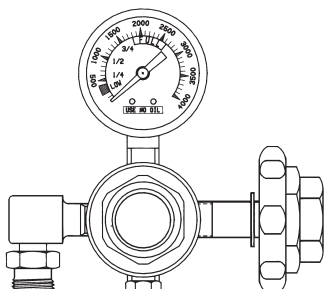
Reguladores de gas médico

Instrucciones de uso



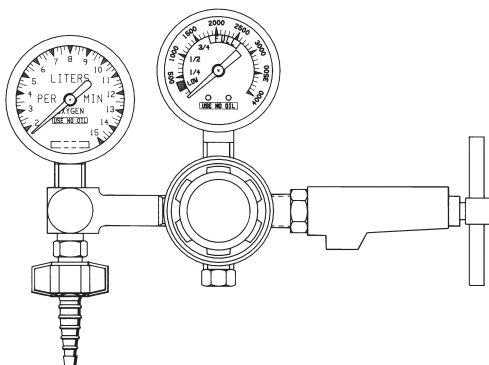
Flowmeter Regulator w/Nut & Gland Inlet Connection

Regulador de caudalímetro con conexión de entrada de tuerca y casquillo



Pre-set Regulator w/Hand-tight Inlet Connection

Regulador de preconfiguración con conexión de entrada de apriete manual



Flowgauge Regulator w/Yoke Inlet Connection

Regulador de indicador de flujo con conexión de entrada de horquilla de articulación

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Safety Instructions

This manual provides you with important information about the Medical Gas Regulators. To ensure the safe and proper use of this device, READ and UNDERSTAND all of the safety and operating instructions. IF YOU DO NOT UNDERSTAND THESE INSTRUCTIONS, OR HAVE ANY QUESTIONS, CONTACT YOUR SUPERVISOR, DEALER OR THE MANUFACTURER BEFORE ATTEMPTING TO USE THE DEVICE.

Intended Use:

The medical gas regulator is intended to be used to reduce medical gas pressure to the required pressure.

Receiving / Inspection:

Remove product from package and inspect for damage. If product is damaged, DO NOT USE and contact your dealer or equipment provider.

User Responsibility

This Product will perform as described in this operating manual and accompanying labels and/or inserts, when assembled, operated, maintained and repaired in accordance with the instructions provided. This product must be checked periodically. A malfunctioning Product should not be used. Parts that are broken, missing, worn, distorted or contaminated should be replaced immediately. Should repair or replacement become necessary, Ohio Medical recommends that a telephonic or written request for service advice be made to the nearest Ohio Medical Service Center. This product or any of its parts should not be repaired other than in accordance with written instructions provided by Ohio Medical and by Ohio Medical trained personnel. The Product must not be altered without the prior written approval of Ohio Medical's Safety Department. The user of this Product shall have the sole responsibility for any malfunction which results from improper use, faulty maintenance, improper repair, damage, or alteration by anyone other than Ohio Medical Corporation.

Precautions

Hand tighten the T-Handle ONLY! DO NOT use a wrench or any other tool to tighten the T-Handle. If leaking persists, check the fit and condition of the sealing washer.

NEVER pressurize a regulator that has loose or damaged parts, or that is in questionable condition.

NEVER use oxygen or oxygen equipment near ignition sources such as fire, sparks or electrical equipment.

⚠ WARNING: DO NOT SMOKE IN AREAS WHERE OXYGEN IS IN USE.

ALWAYS open the cylinder valve SLOWLY when pressurizing a regulator.

Flowgauge Regulators may not be accurate when a back-pressure exists downstream. Back-pressure is caused by flow restrictions in the apparatus connected to the flowgauge outlet (ie: valves, kinked hoses, or very long hoses).

The outlet fitting of the flowgauge regulator contains a calibrated orifice which must be present to ensure flowgauge accuracy. The internal diameter of the orifice appears on the front of the gauge.

Never remove a regulator from a cylinder unless the cylinder contents gauge indicates zero.

Only competent individuals trained in the repair of this equipment should attempt to service it.

Use regulators with equipment suitable for and used only for medical gas service.

Before transporting cylinders, remove regulators and recap cylinders unless they are secured on a cart designed for such transport.

⚠ Cautions

DO NOT sterilize the Medical Gas Regulator.

Close the cylinder valve and follow the shut down procedure whenever the regulator will not be in use for more than 30 minutes.

Inspection, troubleshooting and repair of this equipment must be performed by a competent person having specific experience in the maintenance and repair of this equipment.

Submerging the regulator or allowing liquids (water, cleaning solutions, etc.) to leak into it causes severe damage.

Definitions/Abbreviations

WARNING = possible injury to patient or operator

CAUTION = possible damage to equipment

Note	= Additional information to clarify a point in the text.
Important	= Similar to a Note but of greater emphasis.
△	= Attention. Alerts you to a warning or caution in the text.
l/min	= liters per minute
lb	= pounds
in.	= inch
cm	= centimeters
DISS	= Diameter Index Safety System
▲	= Max Inlet 3000psi, Read instructions first
S/N	= Serial Number
REF	= Catalog Number

Specifications

Gas Service:

Medical Oxygen and Air

Maximum inlet pressure: 3000 psig

Outlet Pressure:

Pre-Set Regulator 50 ± 2 psig

Outlet pressure rise: Increase in outlet pressure for each 1000 psi decrease in cylinder (supply) pressure.

Pre-Set Regulator 4.2 psi

Set Point Drift: Increase in flow for each 1000 psi decrease in cylinder (supply) pressure.

Flowgauge Regulators:

0-15 l/min model	0.36 l/min
0-8 l/min model	0.19 l/min
0-1 l/min model	0.015 l/min

Flow Accuracy:

Flowgauge Regulators:

0-15 l/min model	± 0.5 l/min or 10% of reading whichever is greater.
0-8 l/min model	± 0.25 l/min or 10% of reading whichever is greater.
0-1 l/min model	0.1 to 0.5 l/min ± .03 l/min 0.6 to 0.7 l/min ± .06 l/min 0.8 to 1.0 l/min ± .08 l/min

Flowmeter Regulator ± 0.25 l/min or 10% of reading whichever is greater.

Weight: approx. 2.8 lb (1.3 Kg) depending on model.

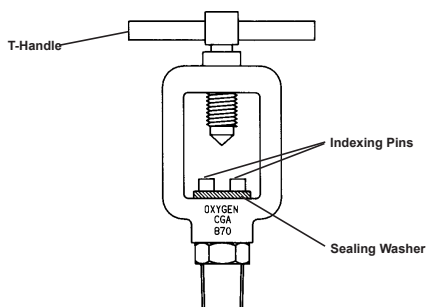
Dimensions: approx. depending on model

Width	8.5 in. (22 cm)
Depth	4.4 in. (11 cm)
Height	5.5 in. (14 cm)

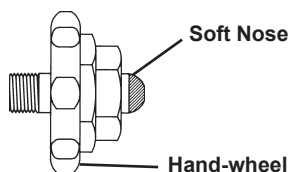
Equipment Set-up

WARNINGS

- ⚠ **All the steps in the Operation section must be performed before using this equipment on each patient. If the gas regulator fails any part of the Operation section, it must be removed from service and repaired by qualified service personnel.**
 - ⚠ **Check the cylinder valve outlet before attaching a regulator to a cylinder. DO NOT use the cylinder if oil, grease or dirt is present.**
 - ⚠ **DO NOT allow oil, grease or other combustibles to contaminate oxygen equipment or areas where oxygen is in use. Do not place a contaminated regulator into service.**
 - ⚠ **The regulator relief valve only protects the regulator. Downstream equipment may require additional pressure relief devices.**
1. Secure the gas cylinder to a wall, stand or cart.
 2. Check the cylinder valve outlet before attaching a regulator to the cylinder. Do not use the cylinder if oil, grease or dirt is present.
 3. Briefly open the cylinder valve to clean the outlet. Point the cylinder outlet away from people and sources of ignition.
 4. Check the inlet connections:



- a. Regulators with a **Yoke (CGA 870 or 950) inlet connection:**
Ensure that one sealing washer is in place.

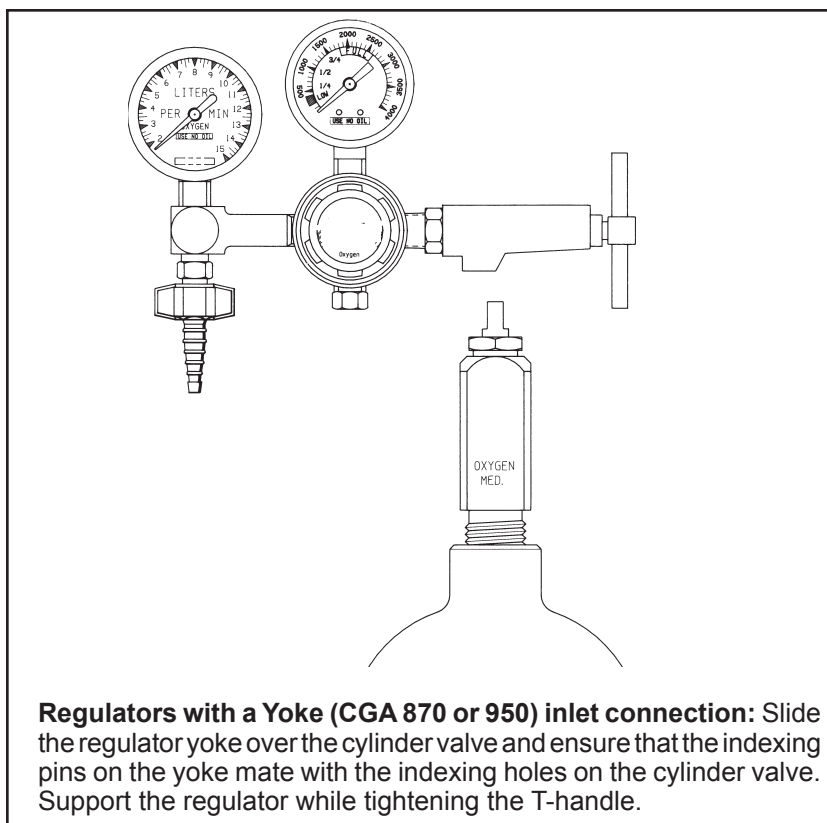


- b. For regulators with a **Hand-tight inlet connection (CGA 540-H or 346-H):** Ensure that the soft nose is in place, and that it is in good working condition.

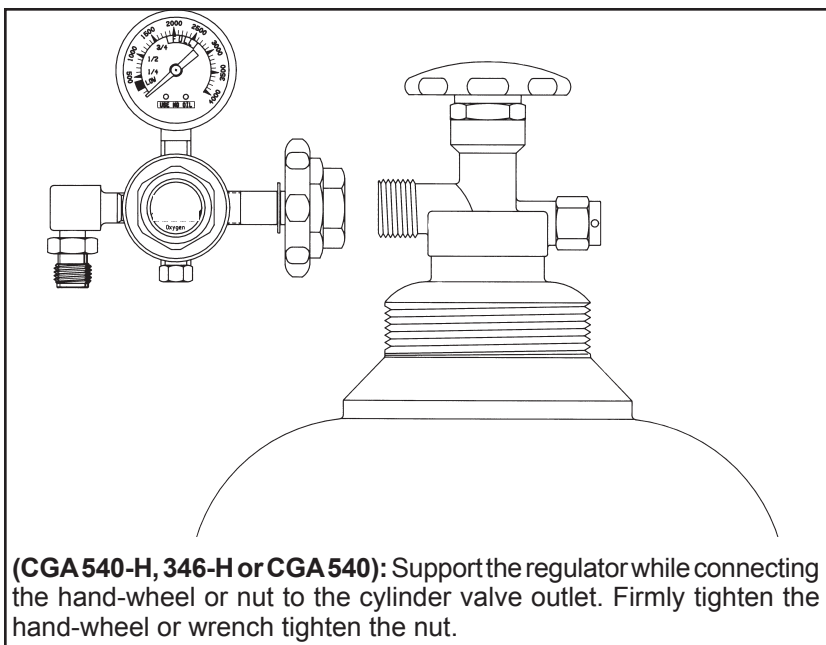
WARNINGS

- ⚠ For yoke inlet connections, ensure that **ONLY ONE** flat sealing washer is used between the yoke inlet connection and the cylinder valve outlet. If a second washer is provided with the cylinder, discard it. Using more than one washer may cause gas leakage and/or a fire hazard.
- ⚠ Hand tighten the T-handle only! **DO NOT** use a wrench or any other tool to tighten the T-handle. If leaking persists, check the fit and condition of the sealing washer.

5. Connect the regulator inlet connection to the cylinder as follows:



Regulators with a Hand-tight or nut & gland inlet connection



Note: Replacement sealing washers and soft noses are available. Please refer to the “Ordering Information” section.

Operation

Pressurizing the Regulator

WARNINGS

- ⚠ **Never pressurize a regulator that has loose or damaged parts.**
- ⚠ **Never use oxygen or oxygen equipment near ignition sources such as fire, sparks or any electrical equipment. DO NOT SMOKE IN AREAS WHERE OXYGEN IS IN USE.**

Important: Keep the cylinder hand-wheel or wrench available at all times in case an emergency shutoff is required.

Connect the regulator to the cylinder and prepare for operation as follows:

1. Perform step a, step b, or step c depending on the type of regulator:
 - a. Flowmeter Regulators: Turn the flowmeter knob fully in the decrease direction (clockwise).
 - b. Flowgauge Regulators: Turn the adjusting knob fully in the decrease direction (counter-clockwise).
 - c. Preset Regulators: Go to step 2.

-
2. Stand with the cylinder between you and the regulator.

⚠WARNING: ALWAYS open the cylinder valve SLOWLY when pressurizing a regulator.

3. Open the cylinder valve VERY SLOWLY to prevent a rapid pressure build up inside the regulator. Wait for the cylinder contents gauge reading to stabilize before fully opening the cylinder valve.

Leak Testing

1. Install and pressurize the regulator according to the “Equipment Set-up” and “Pressurizing the Regulator” sections of this manual.
2. Check for leaks in the system by closing the cylinder valve and observing the cylinder contents gauge for two minutes:
 - a. If the pressure remains stable, the regulator passed the leak test.
 - b. If the pressure decreases, indicating a leak, continue to the next step.
3. Vent the regulator:

Flowmeter Models:

- a. Turn the flowmeter knob in the increase direction (counter-clockwise) until the cylinder contents gauge indicates zero.
- b. Turn the flowmeter knob fully in the decrease direction (clockwise).

Flowgauge Models:

- a. Turn the adjusting knob in the increase direction (clockwise) until the cylinder contents gauge indicates zero.
- b. Turn the adjusting knob fully in the decrease direction (counter-clockwise).

Pre-Set Models:

- a. Depress the DISS outlet fitting’s demand check valve until the cylinder contents gauge indicates zero.
4. Remove the regulator from the cylinder.
 5. Inspect the sealing washer on yoke inlet connections or the soft nose on hand-tight inlet connections. Replace them if damaged.
 6. Reconnect the regulator to the cylinder and pressurize the regulator according to the “Equipment Set-Up” and the “Pressurizing the Regulator” sections of this manual.
 7. Repeat the leak test. If a leak still exists, remove the regulator according to the “Shut Down Procedure” section and return the regulator for service.

Setting the Gas Flow

Flowmeter Regulator: Turn the flowmeter knob in the increase (counter-clockwise) direction until the center of the ball lines up with the required flow-rate marking. The flowmeter must be used in the upright (vertical) position.

Flowgauge Regulator: Turn the adjusting knob in the increase (clockwise) direction until the required flow-rate is indicated on the flowgauge. The flowgauge regulator may be used in any position.

WARNINGS

△ **Flowgauge Regulators may not be accurate when a back-pressure exists downstream. Back-pressure is caused by flow restrictions in the apparatus connected to the flowgauge outlet (ie: valves, kinked hoses, or very long hoses).**

△ **The outlet fitting of the flowgauge regulator contains a calibrated orifice which must be present to ensure flowgauge accuracy. The internal diameter of the orifice appears on the front of the gauge.**

Pre-Set Regulator: Gas will be delivered at 50 psig as soon as a connection is made to the DISS demand check outlet fitting. Use fittings and hoses appropriate for use with 50 psig gas.

Shut Down Procedure

△ **CAUTION:** Close the cylinder valve and follow the shut down procedure whenever the regulator will not be in use for more than 30 minutes.

1. Close the cylinder valve.
2. Vent the regulator and any downstream equipment. Open the downstream equipment valves. Then:

Flowmeter Regulators:

- a. Turn the flowmeter knob in the increase direction (counter-clockwise) until the cylinder contents gauge indicates zero.
- b. Turn the flowmeter knob fully in the decrease direction (clockwise).

Flowgauge Regulators:

- a. Turn the adjusting knob in the increase direction (clockwise) until the cylinder contents gauge indicates zero.
- b. Turn the adjusting knob fully in the decrease direction (counter-clockwise).

Pre-Set Regulators:

- a. Remove the outlet connections.

-
- b. Depress the demand check located in the DISS outlet fitting until the cylinder contents gauge indicates zero.

⚠WARNING: Never remove a regulator from a cylinder unless the cylinder contents gauge indicates zero.

3. If you are going to remove the regulator, remember to support the regulator while loosening the hand-wheel, nut or T-handle.

Cleaning

⚠CAUTION: DO NOT sterilize the Medical Gas Regulator.

Clean the regulator after each use or in accordance with hospital policy.

⚠CAUTION: Submerging the regulator or allowing liquids (water, cleaning solutions, etc.) to leak into it will cause severe damage to the regulator.

Routine Exterior Cleaning

Wipe all exterior surfaces with a solution of water and mild detergent.

Service

A unit which is not functioning properly should not be used until all required repairs have been completed. Once the unit has been repaired, it must be tested to ensure it is in proper working condition.

⚠WARNING: Only competent individuals trained in the repair of this equipment should attempt to service it.

⚠CAUTION: Inspection, troubleshooting and repair of this equipment must be undertaken by a competent individual having specific experience in the maintenance and repair of equipment of this nature.

Listed below are typical symptoms which indicate the regulator is not functioning properly and must be repaired. Remove the malfunctioning regulator from service and replace immediately.

- On Flowgauge Regulators — Gas leakage at the regulator outlet when the adjusting knob is turned fully in the decrease direction.
- Outlet pressure increasing steadily above the set pressure with no flow from the regulator (i.e. downstream valves closed).
- Gas leakage from any part of the regulator, gauge, flowmeter or fittings.
- Excessive drop in the outlet pressure.
- Popping or hissing sound (gas leakage) from the relief valve.
- Gauge needle not returning to zero.
- Gauge needle is jumpy or sticking.

Ordering Information

Replacement sealing washers for yoke (CGA 870 or 950) inlet fittings:	6700-0079-200
Replacement soft nose for Hand-tight (CGA) 540 inlet fittings:	6700-0088-200
for Hand-tight (CGA) 346 inlet fittings:	6700-0346-200

If technical assistance is required, contact Ohio Medical Technical Support listed on the back cover.

Return Instructions

1. Call for a Return Material Authorization (RMA) number before sending any items for warranty and/or non-warranty repair (1-866-549-6446 or 1-847-855-0500)
2. Clean the regulator.
3. Securely package the regulator to protect against shipping damage. If possible, use the original container.
4. Include a letter describing in detail any difficulties experienced with the regulator. Include the person, title, and telephone number to contact for additional information.
5. If the regulator is under warranty, include the warranty information that came with the device and a copy of the invoice.
6. Include a purchase order to cover repair of a regulator not under warranty
7. Ship the regulator prepaid. Write your return address and billing address information on the package or letter that comes with the package.

For Warranty and Non-Warranty repairs, mail the package to:

Ohio Medical Corporation
1111 Lakeside Drive
Gurnee, IL 60031 USA
RMA # _____

In other locations contact your nearest Ohio Medical office or authorized Ohio Medical distributor.



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