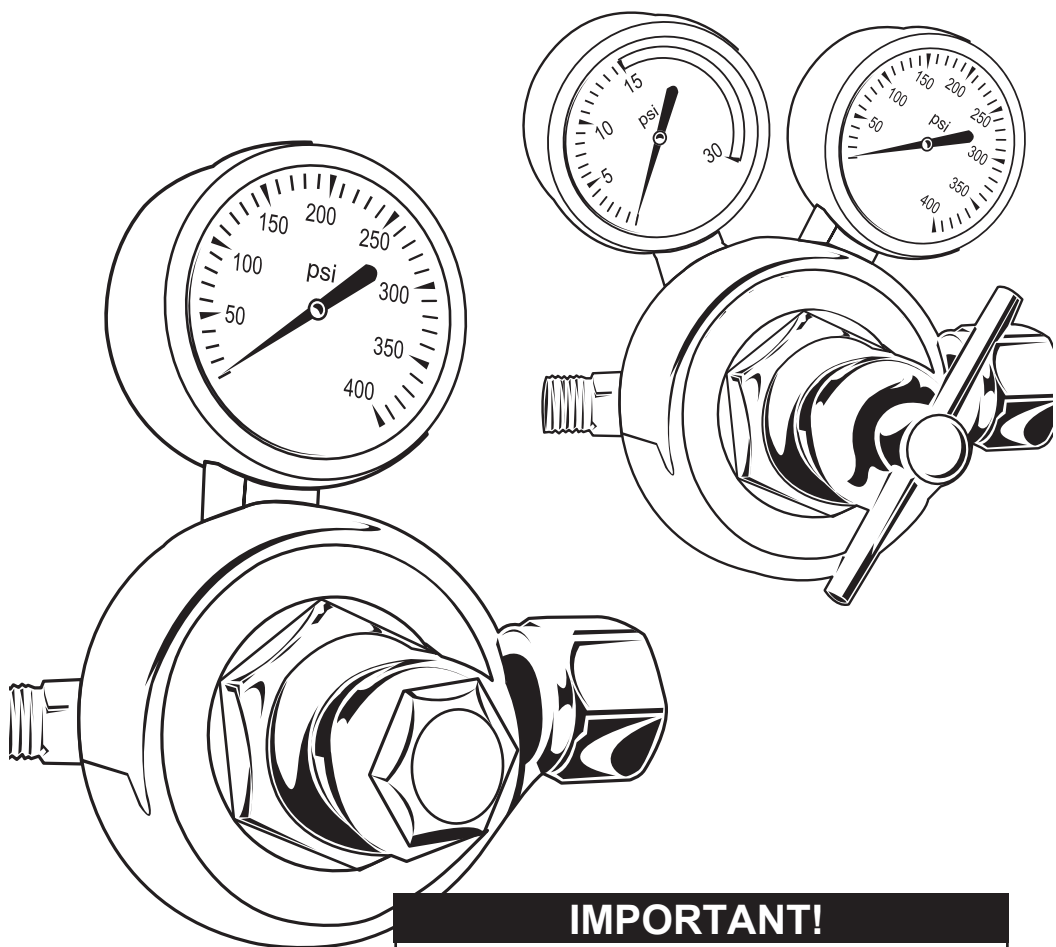




# Instruction Manual

Medical Single Stage Metering  
& Preset Regulators



## IMPORTANT!

For your own safety read these instructions.  
Failure to do so can lead to serious injury.

# Description

## Medical Metering Regulators and Preset Regulators

Note: Each type of regulator is designed and built for specific gases and for definite inlet pressures and delivery pressure settings.

Medical regulators reduce the source pressure of a cylinder, manifold or pipe line to the desired working pressure. A delivery pressure is maintained with varying inlet pressure.

Inlet connections are manufactured to <sup>1</sup>CGA Standard V-1. Outlet fittings are manufactured to <sup>2</sup>CGA Standard V-5.

All models have a sintered metal filter in the high pressure cavity, which filters out particles larger than 10 microns. Most models are equipped with Burst Discs to protect the regulator from excess pressure. This is not intended to be a protective device for the downstream system.

Two types of gas delivery are available: Flow Metering Regulators and Preset Pressure Regulators.

### Flow Metering Regulators

Flow is indicated on a gauge reading liters per minute. The flow gauge is measuring pressure upstream of an orifice in the outlet fitting, calibrated with the flow gauge.

**Caution:** The Metering Regulator is not a flowmeter. It will indicate flow when there is pressure at the regulator outlet and in the downstream system. Check for flow at the exit of the downstream appliance or with a flowmeter.

### Preset Pressure Regulators

Preset regulators have a non-adjustable delivery pressure, set at the factory. Medical Preset Regulators are usually set for a delivery pressure of 50 PSI (pounds per square inch gauge).

This is the required inlet pressure for downstream appliances which are equipped with flow indicators.

**Caution:** Always close inlet valves before

disconnecting the downstream appliances. Preset Regulators are designed to deliver gas when inlet pressure is supplied to the Regulator.

Compressed Gas Association  
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Chantilly, VA 20151-2923

<sup>1</sup>CGA Standard V-1 "Compressed Gas Cylinder Valve Inlet"

<sup>2</sup>CGA Standard V-5 "Diameter Indexed Safety System"

## Safety Instructions

1. Handle Cylinder with care. Chain or otherwise secure cylinders to a permanent fixture. To transport cylinders (except when in cylinder carts), remove regulators and replace with valve cap. Never use cylinders in other than an upright position.

2. Do not oil or grease equipment. The equipment does not require lubrication. Oil or grease is easily ignited and burns violently in the presence of oxygen.

3. "Crack" cylinder valve before installing regulator. Open valve slightly and then close. This will clear valve of dust or dirt which may be carried to regulator and cause damage or accident. Do not discharge flow of gas at any person or flammable material.

4. Be sure all connections are tight. Don't force connections. Never test for leaks with a flame. Use a leak detector solution and check for bubbles.

5. Use recommended pressure settings only.

6. Do not work with damaged or leaking equipment. Use leak detector solution when checking for leaks. Do not use frayed or damaged hose or tubing.

7. Handle equipment with care. Its continued good service and your safety depend on it.

8. Keep work area well ventilated. Flammable materials burn violently in an oxygen atmosphere. Flames and glowing materials must be avoided. Smoking in or around an oxygen atmosphere can be extremely hazardous and must be avoided.

9. Do Not Force connections and threads. The differences are intentional for various gases.



**Medical Metering Regulator**



**Medical Metering Regulator**



**Medical Single-Stage Preset Regulator**

## Set-Up Instructions

1. Secure gas cylinder in a vertical position; valve end up.
2. Remove cylinder valve cap.
3. Open cylinder valve momentarily to blow out any dust or dirt. Do not discharge flow of gas at any person, flames or flammable material.
4. Attach regulator to cylinder using proper CGA connection or pin-indexed yoke.
5. Properly connect appliance to outlet connection of regulator.
6. Slowly open cylinder valve until it is fully open.
7. Metering Regulator Only. Slowly turn regulator adjusting knob or key clockwise until flow gauge registers the desired flow.
8. Tests for gas leakage should be made at this time. Use a leak detector solution at all connections and check for bubbles. Tighten connections as required and wipe

off solution.

## Functional Test of Regulator

1. Close regulator by turning adjusting knob counter-clockwise.
2. Close cylinder valve.
3. The cylinder pressure gauge should read full pressure. Any pressure drop will indicate a leakage in the system. If leakage is found in the regulator, remove from service.

## Shut Down

1. Close supply valve and bleed down systems. The flow and pressure gauges will drop to zero.
2. **Metering Regulators.** Temporary short time shut downs may be made by turning regulator adjusting knob or key counter clockwise to stop. Flow will be indicated unless system is bled down to atmospheric pressure. (0 PSIG)

**Preset Regulator.** Close the downstream valve when changing cylinders or regulators.

# Maintenance

## Instruction

1. Gauge, orifice and regulator are sized for each other. Only original equipment parts should be used in replacement, making sure they match.

2. Inspect and perform functional test after each use.

3. Inspect for damaged connectors. NEVER use a regulator with damaged components.

4. If leaks or defects are found in the regulator DO NOT USE. Contact the manufacturer or gas distributor for further instructions.

5. Use ONLY thread sealants that are compatible with oxygen. (Such as Teflon® tape)

6. Sterilization shall be done in a manner that is compatible with all the materials in the regulator.

7. Suggested Reference: <sup>1</sup>CGA Pamphlet G4.1 Cleaning Equipment For Oxygen Service.

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Extra copies of these instructions are available.

**NOTE: SAVE THESE INSTRUCTIONS**

**MAKE SURE THAT EACH OPERATOR READS AND UNDERSTANDS THESE INSTRUCTIONS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN SERIOUS PERSONAL INJURY.**