**Avoid Overpressurization**

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**Warning**

Do not exceed the regulator’s pressure ratings. Over-pressuring the regulator could damage it internally, cause leaks, or even result in personal injury by bursting a pressure containing part.

1. Refer to the appropriate REGULATOR INSTALLATION AND MAINTENANCE INSTRUCTIONS bulletin for pressure ratings. The regulator outlet has a lower pressure rating than the inlet. Do not expose the regulator outlet or control line to inlet pressure.

2. Regulators manufactured for use with a control line and having a diaphragm chamber sealed from the body outlet chamber may be used as the upstream regulator in a monitor set. The sealed body outlet chamber can be exposed to pressure higher than the normal outlet pressures. Do not use a regulator manufactured for internal control nor a regulator having a control line with an open throat as the upstream regulator in a monitor set. Doing so could result in a system failure where damage could occur along with personal injury.

3. Overpressure protection such as relief valves, automatic shutoff valves, monitors, etc., are recommended to protect both the inlet and outlet side of the regulator. If the inlet pressure is, or could be, greater than the emergency pressure rating for the regulator outlet or diaphragm chamber, install suitable overpressure protection to prevent regulator damage and possible personal injury (see “Maximum Emergency Pressures” in the applicable Regulator Installation and Maintenance Instructions). The use of an internal or external relief valve is recommended for installations subjected to no-flow for extended periods of time, such as pilotless ignition systems.

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**Prior to Installation**

1. Examine the regulator for shipping damage.

2. Check the name plate data. Make sure the regulator conforms with what was ordered.

3. Provide suitable shut-off valves, conveniently located.

4. Protect the regulator from damage by vehicles or other outside sources.

5. The inside of the regulator and piping must be clean. Remove all dirt and debris before installing the regulator. Failure to do this could result in regulator damage and improper operation.

6. Remove all shipping plugs and covers from the regulator before installing. Do not let dirt get inside.

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**Installation and Start-Up**

1. Follow the appropriate REGULATOR INSTALLATION AND MAINTENANCE INSTRUCTIONS bulletin for the regulator when installing, operating, maintaining and servicing it. KEEP THE BULLETIN FOR FUTURE REFERENCE. If any of these instructions are not understood or there are any questions, contact your Sensus distributor.

2. Installation, operation, maintenance, and service must be done only by qualified persons.

3. Comply with all pertinent rules, regulations and codes (federal, state, local and insurance).

4. Make sure the inlet and outlet connections are correct. High pressure connects to the regulator inlet. The flow arrow on the body must point downstream.

5. Screwed connections must conform with good piping practice and be free of excess thread engagement (per ANSI B1.20.1 Apply pipe joint sealant to male threads only.

6. Tighten flanged joints evenly.

7. Before start-up, make sure the regulator is correctly connected, adequately supported and pipe joints are tight. Verify no leaks by using a soap and water solution or other utility-approved method.

8. Check the regulator “set-point” and “lock-up” pressure. (Set point is the outlet pressure the regulator is adjusted to deliver Lock-up is the pressure where tight shutoff is achieved). (continued)
**IMPORTANT:** During start-up, a pressure gauge must be connected to the outlet piping between the regulator outlet and the downstream shutoff valve to closely monitor the outlet pressure. When checking the regulator for set-point and lock-up, provision must be made to PERMIT FREE FLOW of gas beyond the outlet valve.

The regulator set-point is factory adjusted as specified on the order. Set-point should be checked with small gas flow (10% of maximum regulator capacity or less). Open the valve downstream of the regulator before turning on gas. Slowly open the inlet valve while monitoring the outlet pressure gauge. Small flow should be set by adjusting the outlet valve.

**Monitor Regulators and External Control Lines**

When bypassing a regulator with an external control line, the control line valve must be closed before the bypass valve is opened. Failure to do so could result in the diaphragm being exposed to the inlet pressure.

**Use With Other Gases**

1. Do not use regulators with corrosive gases unless it is authorized for a specific corrosive condition.

2. Where the gas is propane or butane (LPG) and the regulator has an internal relief valve (IRV), special care is required with the regulator vent. Because propane and butane are heavier than air, they do not disperse readily in the atmosphere. Instead, they tend to collect in low places. Small flows can discharge from the regulator vent at times of emergency, care must be taken to pipe any such discharge to atmosphere at a safe place to prevent any gathering or migration of explosive mixtures in low areas.

**General Inspection and Service Instructions**

1. Regulators are pressure control devices with numerous moving parts subject to wear that is dependent upon particular operating conditions. To assure continuous satisfactory operation, a periodic inspection schedule must be adhered with the frequency of inspection determined by the severity of service and applicable laws and regulations. Additional guidance regarding recommendations of frequency of inspection can be found in 49CFR Part 192; ASME B31.8, and NFPA 54 dependent upon installation location and product usage profile.

2. If the regulator is to be moved to another location, make sure its construction is compatible with the new pressure and flow conditions.

**Comparison of Conventional and Diaphragm Regulators:**

Comparison of Conventional and Diaphragm Regulators

3. Carefully note the location and position of all disassembled parts to be certain reassembly is correct. Inspect each part carefully and replace any that are worn, damaged or otherwise unsatisfactory.

4. Adjustment screw lubrication should be checked whenever the regulator is serviced. Make sure the threads are fully coated with lubricant. Where there is evidence of thread wear, such as coarse or excessive sideplay, the worn parts must be replaced.

**Warning**

Before any disassembly of the regulator, make sure it is completely depressurized. Pressure must be fully released from the inlet, the outlet, and any control line connections. Failure to adequately depressurize could result in serious injury.

**Warning**

Failure from worn threads can result in serious personal injury. Even at 10 psig outlet pressure, the force exerted on the adjustment screw by spring compression can be great. Therefore, adjustment screw lubrication and thread condition must be given careful attention.

**Warning**

Failure from worn threads can result in serious personal injury. Even at 10 psig outlet pressure, the force exerted on the adjustment screw by spring compression can be great. Therefore, adjustment screw lubrication and thread condition must be given careful attention.

5. Upon completion of servicing, verify no leaks by using a soap and water solution or other utility-approved method.

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