Introduction

Scope of the Manual

This manual provides instructions and maintenance for the following high-pressure regulators: Types 64, 64KB, 64SR, 67CW, 67CH, 67CD, and 67CN regulators.

Description

The 64 and 67C Series direct-operated regulators (Figure 1) are designed for high-pressure (pounds per square inch) service and can be used on either vapor applications in LP-Gas, Natural Gas, and Air or liquid LP-Gas applications. Depending upon type, outlet pressure ranges from 3 to 135 psig (0.21 to 9.3 bar). Type 64SR can be used as a First Stage LP-Gas regulator—reducing tank pressure to 10 psig (0.69 bar) for a Second Stage regulator. Type 64KB is the only regulator in this series suitable for anhydrous ammonia (NH₃) service. The regulators are normally painted red.

Table 1. Available Configurations

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>Basic regulator with four spring ranges from 3 to 100 psig (0.21 to 6.9 bar).</td>
</tr>
<tr>
<td>64SR</td>
<td>Internal relief version with three spring ranges from 3 to 35 psig (0.21 to 2.4 bar).</td>
</tr>
<tr>
<td>64KB</td>
<td>For use with anhydrous ammonia (NH₃) with handwheel adjustment and five spring ranges from 3 to 100 psig (0.21 to 6.9 bar). Includes a special diaphragm protector.</td>
</tr>
<tr>
<td>67CW</td>
<td>Basic regulator with wrench adjustment and four spring ranges from 3 to 135 psig (0.21 to 9.3 bar), no relief.</td>
</tr>
<tr>
<td>67CH</td>
<td>Basic regulator with handwheel adjustment.</td>
</tr>
<tr>
<td>67CD</td>
<td>Basic regulator with dial cap adjustment.</td>
</tr>
<tr>
<td>67CN</td>
<td>Basic regulator, factory set with no field adjustment.</td>
</tr>
</tbody>
</table>
### Specifications

#### Body Sizes, Inlet and Outlet Connection Style

- **64 Series**: 1/2-inch NPT, inlet and outlet
- **67C Series**: 1/4-inch NPT, inlet and outlet

#### Side Outlet Connection Style (Plugged)

1/4-inch NPT; pressure gauge can be installed

#### Maximum Inlet Pressure (Body Rating)\(^1\)

- 64 Series: 220 psig (15.2 bar)
- 67C Series: 50 psig (3.4 bar) over inlet pressure

#### Maximum Outlet Pressure (Body Rating)\(^1\)

- 64 Series: 220 psig (15.2 bar)
- 67C Series: 50 psig (3.4 bar) over outlet pressure

#### Pressure Registration

- Internal

### Table 2. Outlet Pressure Ranges

<table>
<thead>
<tr>
<th>SPRING RANGE, PSIG (bar)(^1)</th>
<th>67CW, 67CD, and 67CH</th>
<th>67CN</th>
<th>64SR</th>
<th>64 and 64KB</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 15 (0.21 to 1.0)</td>
<td>- - -</td>
<td>- - -</td>
<td>10 (0.69)</td>
<td>10 (0.69)</td>
</tr>
<tr>
<td>3 to 20 (0.21 to 1.4)</td>
<td>15 (1.0)</td>
<td>- - -</td>
<td>15 (1.0)</td>
<td>15 (1.0) 64KB only</td>
</tr>
<tr>
<td>5 to 35 (0.34 to 2.4)</td>
<td>20 (1.4)</td>
<td>10 (0.69); 15 (1.0); or 20 (1.4)</td>
<td>20 (1.4)</td>
<td>20 (1.4)</td>
</tr>
<tr>
<td>20 to 50 (1.4 to 3.4)</td>
<td>40 (2.8) 67CD only</td>
<td>- - -</td>
<td>- - -</td>
<td>- - -</td>
</tr>
<tr>
<td>30 to 60 (2.1 to 4.1)</td>
<td>40 (2.8) 67W and 67CH only</td>
<td>- - -</td>
<td>- - -</td>
<td>40 (2.8)</td>
</tr>
<tr>
<td>35 to 100 (2.4 to 6.9)</td>
<td>50 (3.4) 67CD only</td>
<td>- - -</td>
<td>- - -</td>
<td>50 (3.4)</td>
</tr>
<tr>
<td>35 to 135 (2.4 to 9.3)</td>
<td>50 (3.4) 67W and 67CH only</td>
<td>- - -</td>
<td>- - -</td>
<td>- - -</td>
</tr>
</tbody>
</table>

1. All springs can be backed off to 0 psig (0 bar) except Type 67CN. However, for the highest capacity and most accurate control, use the lowest spring that can be adjusted to the required setpoint.

### Installation

**WARNING**

Failure to follow these instructions and warnings could result in personal injury or property damage.

- All vents should be kept open to permit free flow of air into and out of the regulator.
- Protect openings against the entrance of rain, snow, ice formation, paint, mud, insects, or any other foreign material that could plug the vent or vent lines.
- LP-Gas may discharge to the atmosphere through the vent of a Type 64SR. The internal relief valve of the Type 64SR regulator does not provide full overpressure protection, but is designed for minor seat leakage only. An obstructed vent which limits air or gas flow can cause abnormally high outlet pressure. A vent line to a remote, safe location outdoors is required on permanent outdoor installations or on installations where there can be a hazardous accumulation of gas.

Never use a 64 or 67C Series (pounds to pounds) regulator on low-pressure (inches of water column) service.

1. Regulator operation within ratings does not preclude the possibility of damage from debris in the lines or from external sources. Regulators should be inspected for damage periodically and after any overpressure condition.

2. Only personnel qualified through training and experience should install, operate, and maintain a regulator. Make sure that there is no damage to or foreign material in the regulator. Also, ensure that all tubing and piping is free of debris.

3. Install the regulator so that flow is from the IN to the OUT connection as marked on the regulator body.

4. Protect the regulator from vehicular traffic or damage from other external sources.

5. Install the regulator high enough above ground level, at least 18-inches (457 mm), so that rain splatter cannot freeze in the vent. Do not install the regulator in a location where there can be excessive water accumulation or ice formation, such as directly beneath a downspout, gutter, or roof line or a building.

6. A regulator installed outdoors without a protective hood must have its vent pointed vertically down to prevent clogging and moisture accumulation. A clogged spring case vent hole may cause the regulator to function improperly. To keep this vent hole from being plugged (and to keep the spring case
Large volumes of gas may discharge through the Type 64SR regulator vent during internal relief valve operation, which can result in fire or explosion from accumulated gas.

A relief valve is required downstream of all these regulator to provide overpressure protection to prevent damage to downstream equipment and systems or when used in liquid service. The Type 64SR has an internal relief valve that opens when downstream pressure reaches approximately 125% to 250% of the setpoint. Gas discharge is through the regulator vent. The Type 64SR gives overpressure protection against excessive buildup resulting from seat leakage due to worn parts or chips of foreign material on the orifice. Additional external relief valves may be required to prevent overpressure damage to downstream equipment or systems.

**Startup and Adjustment**

1. With proper installation completed and downstream equipment properly adjusted, slowly open the upstream and downstream shutoff valve (when used) while using pressure gauges to monitor pressure.

To avoid personal injury, property damage, or equipment damage caused by bursting of pressure-containing parts or explosion of accumulated gas, never adjust the control spring to produce an outlet pressure higher than the upper limit of the outlet pressure range for that particular spring. If the desired outlet pressure is not within the range of the control spring, install a spring of the proper range according to the Diaphragm Parts Maintenance procedure.

2. If outlet pressure adjustment is necessary, monitor outlet pressure with a gauge during the adjustment procedure. The regulator, except for the Type 67CN which is not field
adjustable, is adjusted by loosening the locknut, if used, and turning the adjusting screw or handwheel clockwise to increase or counterclockwise to decrease the outlet pressure setting. Re-tighten the locknut to maintain the adjustment position.

**Shutdown**

First, close the nearest upstream block valve and then close the nearest downstream block valve (when used). Next, open the downstream vent valve. Since the regulator remains open in response to the decreasing downstream pressure, pressure between the closed block valves will be released through the open vent valve.

**Maintenance**

**WARNING**

To avoid personal injury or equipment damage, do not attempt any maintenance or disassembly without first isolating the regulator from system pressure and relieving all internal pressure.

Regulators that have been disassembled for repair must be tested for proper operation before being returned to service. Only parts manufactured by Emerson Process Management Regulator Technologies, Inc. should be used for repairing Fisher® regulators. Relight pilot lights according to normal startup procedures.

Due to normal wear or damage that may occur from external sources, these regulators must be inspected and maintained periodically. The frequency of inspection and replacement of the regulators depends upon the severity of service conditions or the requirements of local, state, and federal regulations. Even under ideal conditions, these regulators should be replaced after 15 years from date of manufacture or sooner should inspection reveal the need.

**Failure to do the following could result in personal injury or property damage.** Visually inspect the regulator each time a gas delivery is made for:

1. Improper installation;
2. Plugged or frozen vent;
3. Wrong regulator or no regulator in the system;
4. Internal or external corrosion;
5. Age of the regulator;
6. Any other condition that could cause the uncontrolled escape of gas.

Make sure the regulator vent, vent assembly, or vent tube does not become plugged by mud, insects, ice, snow, paint, etc. The vent screen aids in keeping the vent from becoming plugged, and the screen should be clean and properly installed.

Replace any regulators that have had water in their spring case or show evidence of external or internal corrosion. Checking for internal corrosion may require complete removal of the adjusting screw and shutdown of the gas system. Closely examine regulators directly connected to the container valve by means of a solid POL adaptor (horizontal mounting) for signs of corrosion. Correct any improper installations.

Older regulators are more likely to catastrophically fail because of worn or corroded parts. Replace regulators over 15 years of age; other service or environmental conditions may dictate replacement of the regulator before it becomes 15 years old, refer to Fisher Bulletin LP-32.

**Regulator Repair**

Regulators that have been disassembled for repair must be tested for proper operation before being returned to service. Only parts manufactured by Emerson Process Management Regulator Technologies, Inc. should be used to repair Fisher regulators. Be sure to give the complete type number of the regulator when corresponding with the factory.