

March 2009

Type H800 Relief Valve

WARNING

Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion, fire and/or chemical contamination causing property damage and personal injury or death.

Fisher® relief valves must be installed, operated and maintained in accordance with federal, state, and local codes, rules and regulations, and manufacturer's instructions.

If a leak develops or if the outlet continually vents gas, service to the unit may be required.

Failure to correct trouble could result in a hazardous condition. Only a qualified person must install or service the unit

Installation, operation, and maintenance procedures performed by unqualified personnel may result in improper adjustment and unsafe operation. Either condition may result in equipment damage or personal injury. Use qualified personnel when installing, operating, and maintaining the Type H800 relief valve.

Introduction

Scope of the Manual

This manual provides installation, maintenance, and parts ordering information for the Type H800 relief valve. Information for other equipment used with this relief valve is contained in separate manuals.

Product Description

The Type H800 relief valve⁽¹⁾ (See Figure 1) is a compact, Direct-Operated relief valve. It is used primarily between a pneumatic instrument and its supply pressure regulator to limit the instrument supply pressure to 50 psig (3,4 bar) should the supply pressure regulator fail open. The Type H800 relief valve can also be mounted on other equipment, such as an air compressor, where limited relief capacity is desired.

1. Relief valve defined in ANSI Standard B95.1-1972. Not all codes or regulations permit these valves to be used as final overpressure protection devices.



Figure 1. Type H800 Relief Valve

Specifications

Specifications for the Type H800 relief valve are given on page 2. Additional specifications for 67 Series regulators used with Type H800 relief valves are shown in Table 1.

Installation

Upon receipt, inspect the relief valve to be sure it is free of foreign material.

WARNING

Installing a Type H800 relief valve where its capabilities can be exceeded or where proper operation might be impaired may cause personal injury, property damage, or leakage due to bursting of pressure-containing parts or explosion of accumulated gas. To avoid such conditions, install a Type H800 relief valve where:

- Service conditions are within the unit capabilities are specified in specifications section and Table 1, and
- The relief valve is protected from exposure to physical damage and/or corrosive substances.

Type H800

Specifications

Body Size and End Connection Style NPS 1/4, NPT (internal)	Maximum Temperature Capabilities⁽¹⁾ -20° to 150°F (-29° to 66°C)
Maximum Allowable Inlet (Relief) Pressure⁽¹⁾ 250 psig (17,2 bar)	IEC Sizing Coefficients X_T : 0.775 F_D : 0.50 F_L : 0.89
Relief Pressure Ranges Non-adjustable, Start-to-discharge between 39 and 44 psig (2,7 and 3,0 bar)	Vent Connection 1/2 NPT (internal)
Reseat Pressure⁽¹⁾ 35 psig (2,4 bar) or higher	Approximate Weight 5 ounces (140 grams)
Wide-Open Flow Coefficients for Relief Valve Sizing C_g : 55	

1. The pressure/temperature limits in this Instruction Manual or any applicable standard limitation should not be exceeded.

Table 1. Maximum Allowable Inlet Pressure to 67 Series Regulators (with Type H800 Relief Valve) to Prevent Instrument Supply Pressure from Exceeding 50 psig (3,4 bar)

TYPE H800 INSTALLATIONS FROM FIGURE 2	SUPPLY PRESSURE REGULATOR TYPES	REMOTE VENT PIPING ⁽¹⁾	MAXIMUM ALLOWABLE INLET PRESSURE TO SUPPLY PRESSURE REGULATOR, PSIG (bar)
A	67, 67R, 67R, 67FR, 67CF, or 67CFR	Yes	250 (17,2)
		No	
B	67, 67R, 67CF, or 67CFR	Yes	100 (6,9)
		No	250 (17,2)
	67FR or 67F	Yes	100 (6,9)
		No	200 (13,8)

1. Limit vent piping to 30 equivalent feet (9,14 equivalent meters) of 1/2-inch (13 mm) piping. Lower vent piping may reduce the maximum allowable inlet pressure to supply pressure regulator.

The relief valve may be shipped already mounted on other equipment; if so, install that equipment by referring to its Instruction Manual.



WARNING

This relief valve vents gas from the connection marked “vent”. In hazardous or flammable gas service, the vented gas may accumulate, causing personal injury or equipment damage due to fire or explosion. Provide piping or tubing to vent the gas to a safe, well-ventilated location, and protect all vent openings from condensation, freezing, or any substance that could clog the vents.

The 1/2 NPT vent connection must face down in any installation. Also, the screen (key 7) and disk restriction (key 6) must either remain in the relief valve body (key 1) or be replaced by remote vent piping or tubing that is as short and as straight as practical. The piping or tubing should be 1/2-inch (13 mm) in diameter to avoid the effects of backpressure build-up on relief performance. Provide a screened vent for the open end of the remote vent piping or tubing.

Figure 2 illustrates two typical methods of connecting a Type H800 relief valve to a 67 Series regulator. A yoke-mounted supply pressure regulator and pneumatic instrument are shown in

Figure 2; however, the two methods of connecting a Type H800 relief valve to a 67 Series regulator also apply to pneumatic instruments mounted on other equipment in other orientations.

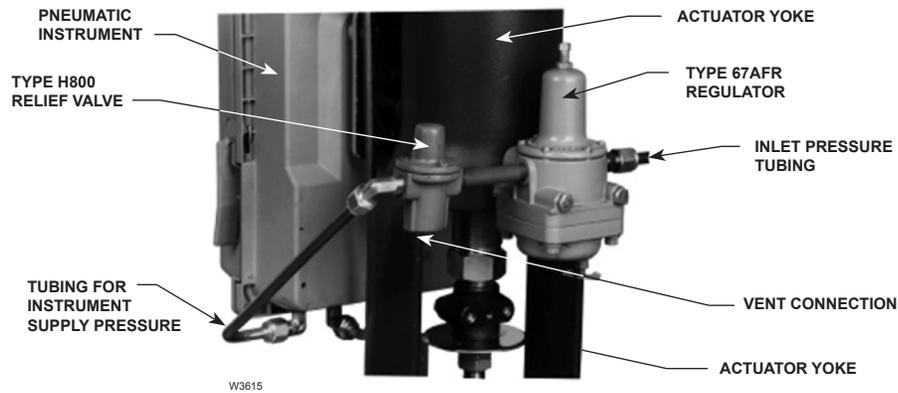
Table 1 lists the conditions for the two typical methods of installing a Type H800 relief valve. Whenever possible, use installation A since a Type H800 relief valve with or without remote vent piping will limit instrument supply pressure to 50 psig (3,4 bar) when a 67 Series regulator fails open with 250 psig (17,2 bar) inlet pressure.

For installation A, install the relief valve in the instrument supply tubing between the supply pressure regulator and the pneumatic instrument. Apply pipe compound to the male threads of the pipe nipple and the fitting for the instrument supply pressure tubing.

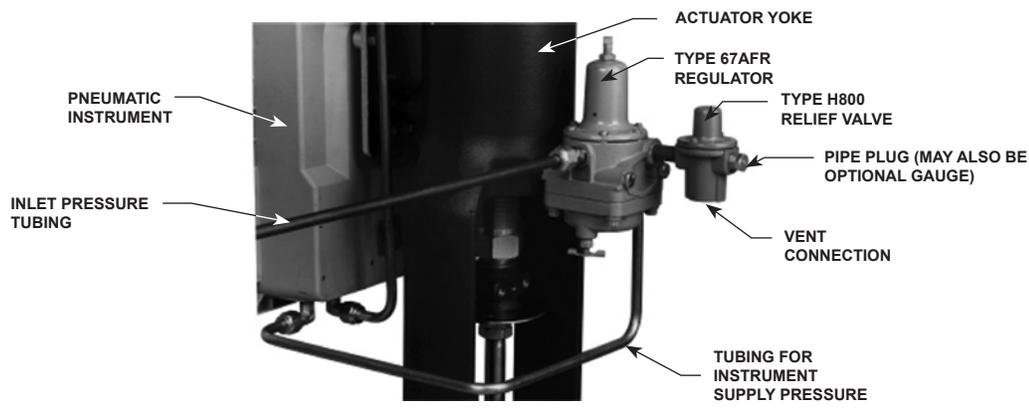
For installation B, connect the relief valve with a pipe nipple to the outlet pressure gauge connection of the 67 Series regulator. Install a pipe plug or pressure gauge as shown in Figure 2. Apply pipe compound to the male threads of the pipe nipple and pipe plug or pressure gauge.

Maintenance

Relief valve parts are subject to normal wear and must be inspected and replaced as necessary. The frequency of inspection and parts replacement depends on the severity of service conditions and the requirements of local, state, and federal rules and regulations.



INSTALLATION A



INSTALLATION B

Figure 2. Typical Installation Orientations

The relief valve body may remain installed during maintenance or inspection unless it is to be replaced. Instructions are given below for disassembly and assembly of parts.



WARNING

To avoid personal injury or equipment damage from sudden release of pressure or explosion of accumulated gas, do not attempt any maintenance or disassembly without first isolating the relief valve and associated equipment from system pressure and relieving all internal pressure from the relief valve and associated equipment.

Disassembly

The following procedure describes the complete disassembly of the Type H800 relief valve. When parts replacement or inspection is required, complete only those steps necessary to accomplish the job. Key numbers refer to Figure 3.

1. Vent any pressure in the relief valve.
2. Unscrew the machine screws (key 9), and remove the spring case (key 2).

3. Remove the spring (key 3), spring cup (key 4), diaphragm disk (key 11), and diaphragm (key 5).
4. If necessary, remove the retaining ring (key 8), the screen (key 7), and disk restriction (key 6).

Assembly

This procedure describes complete assembly. If the relief valve has been only partially disassembled, start these instructions at the appropriate step. Key numbers refer to Figure 3.

1. Insert the diaphragm (key 5) so that the raised, circular ridge faces toward the spring cup (key 4) as shown in Figure 3.
2. Slide the spring (key 3) into the spring cup (key 4).
3. Place the diaphragm disk (key 11), spring cup, and spring on the diaphragm. Orient the diaphragm disk so that its raised, circular lip faces toward the spring cup as shown in Figure 3.
4. Position the spring case (key 2) on the body (key 1). Insert and tighten the machine screws (key 9).
5. Insert the disk restriction (key 6), screen (key 7), and retaining ring (key 8).

Type H800

Parts Ordering

When ordering replacement parts for a Type H800 relief valve, refer to the following parts list, and specify the complete 11-character part number of each needed part.

Parts List

Key	Description	Part Number
1	Relief Valve Body, Aluminum	26A9050X012
2	Spring Case, Aluminum	26A9051X012
3	Spring, Steel	16A9052X012
4*	Spring Cap, Valox® 730 plastic	26A9053X012
5*	Diaphragm, Nitrile (NBR)	16A9054X012
6	Disk Restriction, 302 Stainless steel	16A9055X012
7	Screen, 304 Stainless steel	16A9056X012
8	Internal Retaining Ring, Plated steel	16A9057X012
9	Machine Screw, Plated steel (2 required)	1B7839X0012
10	Pipe Nipple (not shown), for use in installation B, Galvanized steel	1C678926232
11	Diaphragm Disk, Plated steel	17A7753X012

*Recommended spare part.
Valox® 730 is a mark owned by General Electric Co.

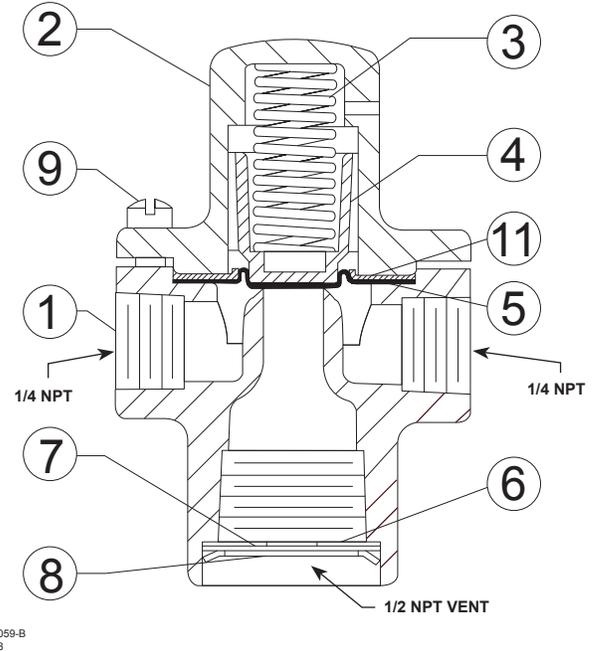


Figure 3. Type H800 Relief Valve Assembly

Industrial Regulators

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