

Introduction

This installation guide provides instructions for installation, startup, and adjustment. To receive a copy of the instruction manual, contact your local Sales Office or view a copy at www.emersonprocess.com/regulators. For further information refer to: 289 Series Instruction Manual (form 1724, D100280X012).

P.E.D. Category

This product may be used as a pressure accessory with pressure equipment in the following Pressure Equipment Directive 97/23/EC categories. It may also be used outside of the Pressure Equipment Directive using sound engineering practice (SEP) per table below.

PRODUCT SIZE	CATEGORIES	FLUID TYPE
Types 289A, 289U, 289L, 289HH, and 289H - 1 NPT	SEP	1
Type 289H - 2 NPT	I	

Specifications

Available Configurations

Types 289A, 289H, 289HH, 289L, 289U

Body Sizes and End Connection Styles

Types 289A and 289U: 1/4 NPT

Type 289H: 1 or 2 NPT

Type 289HH: 1 NPT

Type 289L: 3/4 or 1 NPT

Maximum Allowable Inlet Pressure⁽¹⁾⁽²⁾

Type 289A: 3,1 bar (45 psig)

Type 289H (1 NPT): 6,9 bar (100 psig)

Type 289H 2 NPT: 1,7 bar (25 psig)

Type 289HH: 6,9 bar (100 psig)

Type 289L: 0,48 bar (7 psig)

Type 289U: 0,69 bar (10 psig)

Proof Test Pressure

All Pressure Retaining Components have been proof tested per Directive 97/23/EC - Annex 1, Section 7.4

Spring Range (Pressure Settings)⁽¹⁾

Type 289A: 0,20 to 0,90 bar (3 to 13 psig),

0,76 to 1,5 bar (11 to 22 psig)

Type 289H (DN 25 (NPS 1)): 69 to 310 mbar (1 to 4.5 psig),

0,28 to 1,03 bar (4 to 15 psig), 0,69 to 1,4 bar (10 to 20 psig),

1,03 to 3,4 bar (15 to 50 psig)

Type 289H (DN 50 (NPS 2)): 17 to 45 mbar (7 to

18-inches w.c.), 35 to 155 mbar (0.5 to 2.25 psig),

21 to 483 mbar (1.75 to 7 psig), 0,28 to 0,69 bar (4 to 10 psig)

Type 289HH: 3,1 to 5,2 bar (45 to 75 psig)

Type 289L: 7 to 20 mbar (3 to 8-inches w.c.),

12 to 45 mbar (5 to 18-inches w.c.),

25 to 45 mbar (10 to 18-inches w.c.),

30 to 100 mbar (12 to 40-inches w.c.)

Type 289U: 12 to 62 mbar (5 to 25-inches w.c.),

50 to 206 mbar (20-inches w.c. to 3 psig)

Temperature Capabilities⁽¹⁾

Nitrile (NBR) and Neoprene (CR) Elastomers:

-29° to 66°C (-20° to 150°F)

Fluorocarbon(FKM)⁽¹⁾:

-7° to 149°C (20° to 300°F); available with Types 289H and 289HH only

1. The pressure/temperature limits in this installation guide and any applicable standard or code limitation should not be exceeded.

Installation



WARNING

Only qualified personnel should install or service a backpressure regulator. Backpressure regulators should be installed, operated, and maintained in accordance with international and applicable codes and regulations, and Emerson Process Management Regulator Technologies, Inc. instructions.

If using a backpressure regulator on a hazardous or flammable fluid service, personal injury and property damage could occur due to fire or explosion of vented fluid that may have accumulated. To prevent such injury or damage, provide piping or tubing to vent the fluid to a safe, well-ventilated area or containment vessel. Also, when venting a hazardous fluid, the piping or tubing should be located far enough away from any buildings or windows so to not create a further hazard, and the vent opening should be protected against anything that could clog it.

Personal injury, equipment damage, or leakage due to escaping fluid or bursting of pressure-containing parts may result if this backpressure regulator is overpressured or is installed where service conditions could exceed the limits given in the Specifications section, or where conditions exceed any ratings of the adjacent piping or piping connections.

To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices (as required by the appropriate code, regulation, or standard) to prevent service conditions from exceeding limits.

Additionally, physical damage to the backpressure regulator could result in personal injury and property damage due to escaping fluid. To avoid such injury and damage, install the backpressure regulator in a safe location.

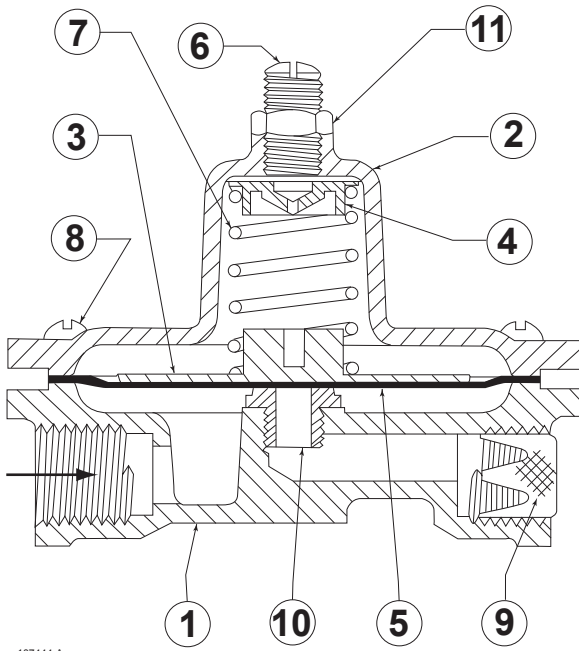
Clean out all pipelines before installation of the backpressure regulator and check to be sure the backpressure regulator has not been damaged or has collected foreign material during shipping. For NPT bodies, apply pipe compound to the external pipe threads. For flanged bodies, use suitable line gaskets and approved piping and bolting practices. Install the backpressure regulator in any position desired, unless otherwise specified, but be sure flow through the body is in the direction indicated by the arrow on the body.

Note

It is important that the backpressure regulator be installed so that the vent hole in the spring case is unobstructed at all times. For outdoor installations, the backpressure regulator should be located away from vehicular traffic and positioned so that water, ice, and other foreign materials cannot enter the spring case through the vent. Avoid placing the backpressure regulator beneath eaves or downspouts, and be sure it is above the probable snow level.

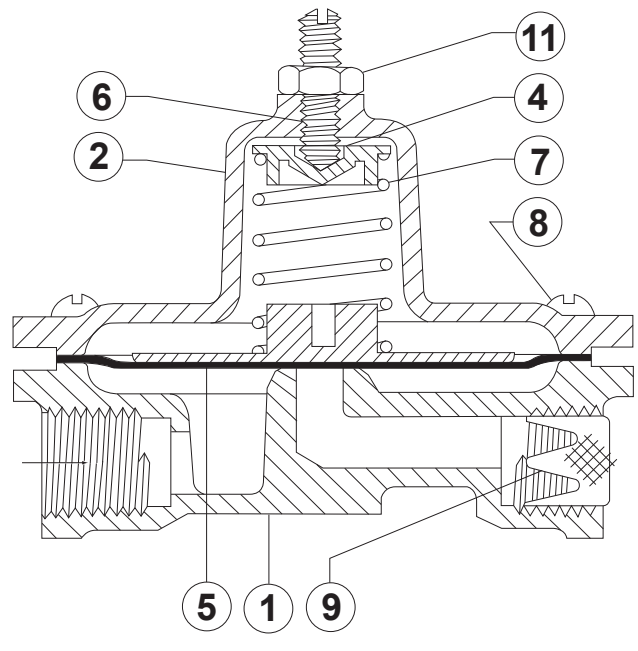


289 Series



107444-A

Figure 1. Type 289A Backpressure Regulator



18A2816-A

Figure 2. Type 289U Backpressure Regulator

For installation of Types 289H, 289HH, and 289L backpressure regulators, the vent in the spring case must remain plugged or undrilled in order for the pitot tube to function properly.

Overpressure

Maximum inlet pressures depend upon body materials and temperatures. Refer to the nameplate for the maximum inlet pressure of the valve. The valve should be inspected for damage after any overpressure condition. **Fisher® backpressure regulators are NOT ASME safety relief valves.**

Startup

The backpressure regulator is factory set at approximately the midpoint of the spring range or the pressure requested, so an initial adjustment may be required to give the desired results. With proper installation completed and relief valves properly adjusted, slowly open the upstream and downstream shutoff valves (if applicable).

Adjustment

To change the outlet pressure, remove closing cap or loosen the locknut and turn the adjusting screw clockwise to increase outlet pressure or counterclockwise to decrease pressure. Monitor the outlet pressure with a test gauge during the adjustment. Replace closing cap or tighten the locknut to maintain the desired setting.

Taking Out of Service (Shutdown)



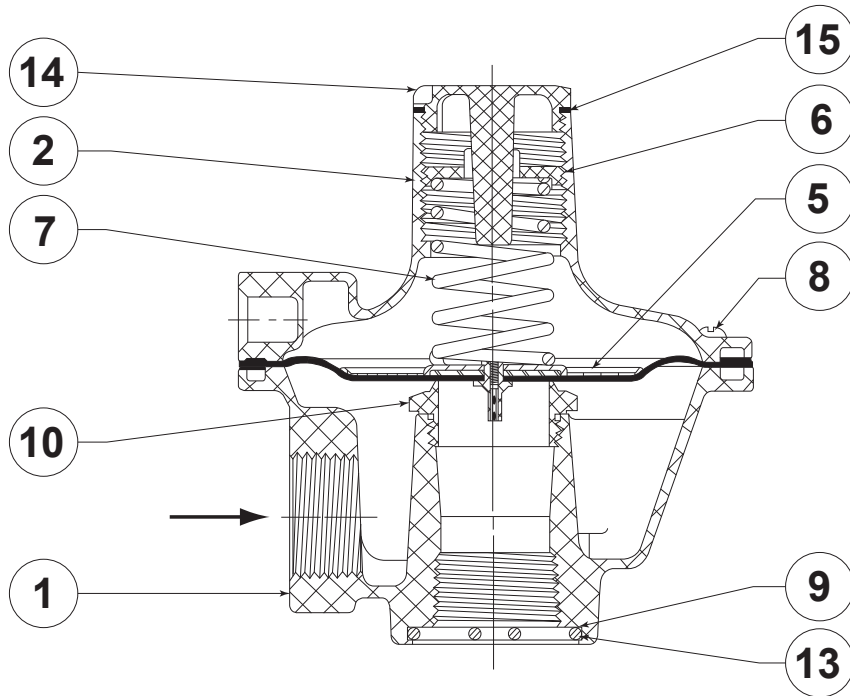
WARNING

To avoid personal injury resulting from sudden release of pressure, isolate the backpressure regulator from all pressure before attempting disassembly.

For the 2 NPT Type 289H backpressure regulators, when changing from one spring range to another, it is recommended that a new spring case be used so that the travel stop drive screw will be positioned correctly for the corresponding spring range.

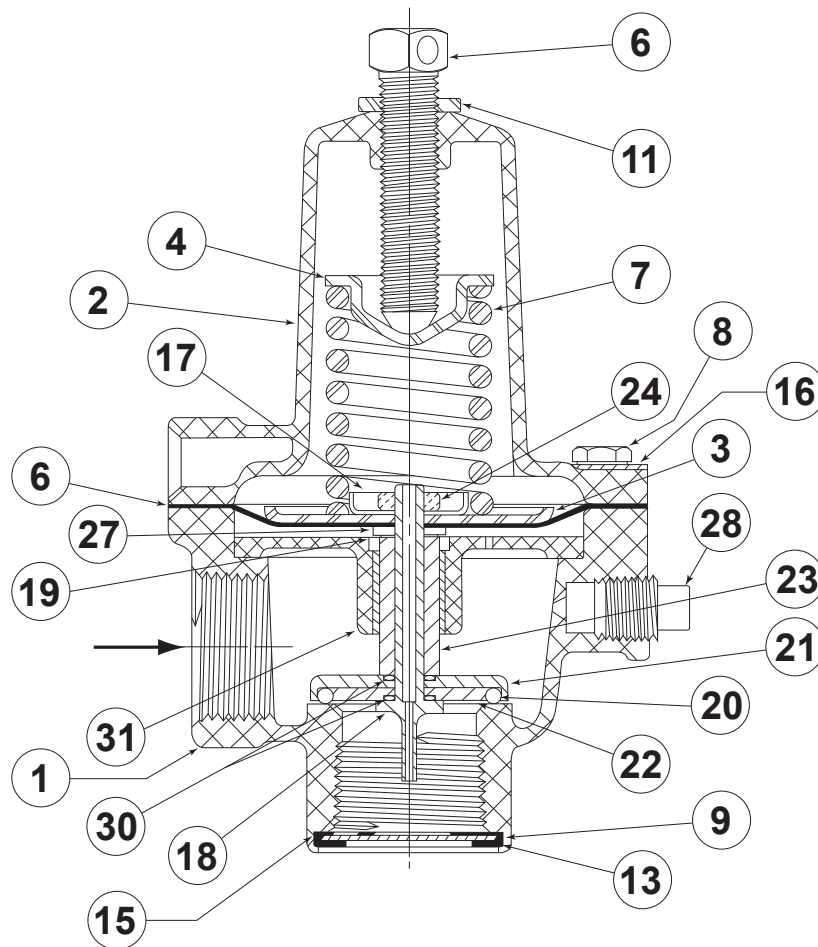
Parts List

Key	Description
1	Valve Body
2	Spring Case/Spring Case Assembly
3	Diaphragm Head
4	Spring Seat
5	Diaphragm/Diaphragm Assembly
6	Adjusting Screw
7	Spring
8	Machine Screw
9	Screen
10	Orifice
11	Hex Nut
13	Snap Ring
14	Closing Cap
15	Gasket
16	Nameplate
17	Lower Spring Seat
18	Pitot Tube
19	Gasket
20	O-Ring
21	O-Ring Holder
22	O-Ring Washer
23	Spacer
24	Hex Nut
25	Lifting Stem
26	Lower Diaphragm Head
27	Washer
28	Pipe Plug
29	Machine Screw
30	O-Ring
31	Stem Guide Assembly
38	Gasket



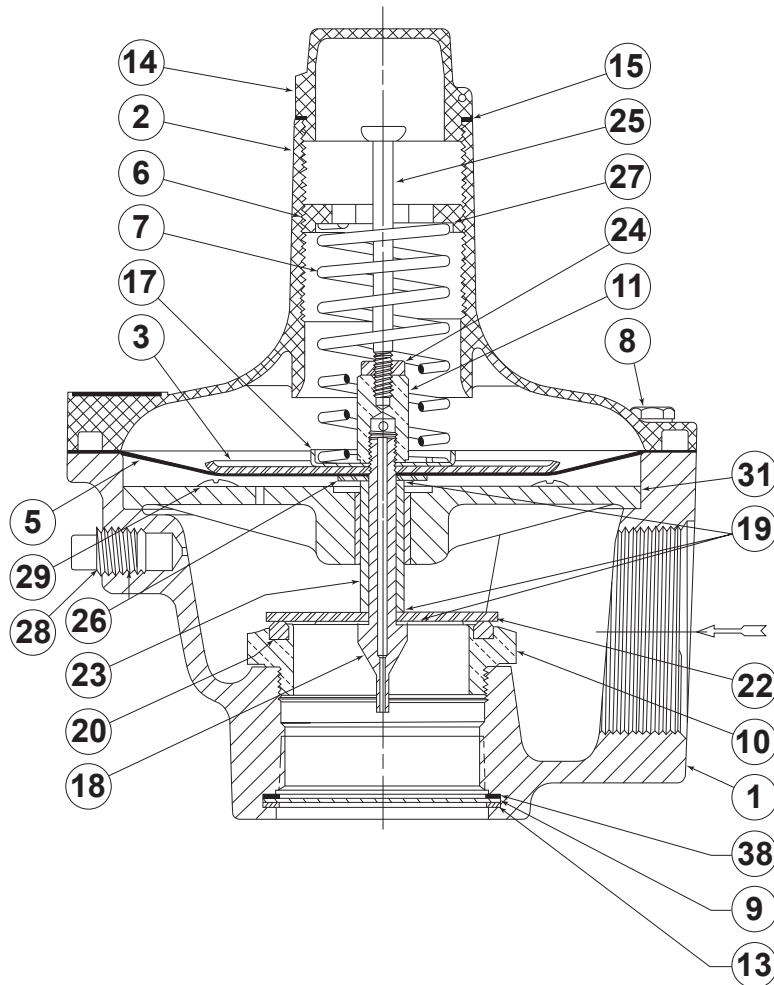
BL4063-E

Figure 3. Type 289L Backpressure Regulator



AF8260-F

Figure 4. Typical of Type 289HH and 1 NPT Type 289H Backpressure Regulators



BE7030-J

Figure 5. 2 NPT Type 289H Backpressure Regulator

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For further information visit www.emersonprocess.com/regulators

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