

Introduction

This installation guide provides instructions for installation, startup, and adjustment. To receive a copy of the instruction manual, contact your local Fisher Sales Office or Sales Representative or view a copy at www.FISHERregulators.com. For further information refer to: Types 627W and 627WH Instruction Manual (form 5447, D102504X012).

P.E.D. Category

This product may be used as a safety 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 |
|----------------------------------|------------|
| DN 20-25 (3/4-1-inch) sizes only | SEP |
| DN 50 (2-inch) | I, II |

Specifications

Available Constructions

Type 627W: Direct operated pressure reducing liquid regulator.

Type 627WH: Type 627W with a diaphragm limiter to deliver a higher outlet pressure.

Control Line Option: Type 627W or Type 627WH with a stem seal between the body outlet pressure and diaphragm case. Pressure is measured under the diaphragm through the 6,4 mm (1/4-inch) NPT screwed downstream control line connection.

Body Sizes

DN 20, 25, or 50 (3/4, 1, or 2-inch)

End Connection Styles

NPT Screwed; ANSI Class 150, 300, and 600 RF flanged [DN 25 or 50 (1 and 2-inch sizes) only]; or PN 16/25/40 [DN 25 or 50 (1 and 2-inch sizes) only]

Maximum Inlet Pressures⁽¹⁾ (body rating)

140 bar (2000 psig) for screwed steel 70 bar (1000 psig) for ductile or body rating, whichever is lower

Maximum Operating Inlet and Differential Pressures⁽¹⁾

See table 1

Maximum Operating Outlet Pressures⁽¹⁾

See table 1

Outlet Pressure Ranges⁽¹⁾

See table 2

Orifice Diameters

Standard: 6,4 or 12,7 mm (1/4 or 1/2-inch)

Optional: 2,4; 3,2; 4,8; or 9,5 mm (3/32, 1/8, 3/16, or 3/8-inch)

Proof Test Pressure

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

Temperature Capabilities⁽¹⁾

Nitrile (NBR): -40 to 82°C (-40 to 180°F)

Fluoroelastomer (FKM): -18 to 149°C (0 to 300°F)

Ethylenepropylene (EPDM): -40 to 149°C (-40 to 300°F)

Perfluoroelastomer (FFKM): -18 to 149°C (0 to 300°F)

Nylon (PA): -40 to 93°C (-40 to 200°F)

Teflon (PTFE): -40 to 149°C (-40 to 300°F)

Installation



WARNING

Only qualified personnel should install or service a regulator. Regulators should be installed, operated, and maintained in accordance with international and applicable codes and regulations, and Fisher instructions.

If the regulator vents fluid or a leak develops in the system, it indicates that service is required. Failure to take the regulator out of service immediately may create a hazardous condition.

Personal injury, equipment damage, or leakage due to escaping fluid or bursting of pressure-containing parts may result if this 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 regulator could result in personal injury and property damage due to escaping fluid. To avoid such injury and damage, install the regulator in a safe location.

Clean out all pipelines before installation of the regulator and check to be sure the regulator has not been damaged or has collected foreign material during shipping. For NPT bodies, apply pipe compound to the male pipe threads. For flanged bodies, use suitable line gaskets and approved piping and bolting practices. Install the 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.

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



Types 627W and 627WH

Note

It is important that the regulator be installed so that the vent hole in the spring case is unobstructed at all times. For outdoor installations, the 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 regulator beneath eaves or downspouts, and be sure it is above the probable snow level.

Overpressure Protection

The recommended pressure limitations are stamped on the regulator nameplate. Some type of overpressure protection is needed if the actual inlet pressure exceeds the maximum operating outlet pressure rating. Overpressure protection should also be provided if the regulator inlet pressure is greater than the safe working pressure of the downstream equipment.

Regulator operation below the maximum pressure limitations does not preclude the possibility of damage from external sources or debris in the line. The regulator should be inspected for damage after any overpressure condition.

Startup

The 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.

Adjustment

To change the outlet pressure, remove the 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 the 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 regulator from all pressure before attempting disassembly.

Table 1. Maximum Spring and Diaphragm Casing Pressure⁽¹⁾

| | SPRING AND DIAPHRAGM CASING STYLE | TYPE 627W bar (psig) | TYPE 627WH psig (bar) |
|---|-----------------------------------|----------------------|-----------------------|
| Maximum pressure to spring and diaphragm casings to prevent leak to atmosphere (internal parts damage may occur) | Ductile Iron | 17,2 (250) | --- -- |
| | Steel or Stainless Steel | 17,2 (250) | 55,2 (800) |
| Maximum pressure to spring and diaphragm casings to prevent burst of casings during abnormal operation (leak to atmosphere and internal parts damage may occur) | Ductile Iron | 32,1 (465) | --- -- |
| | Steel or Stainless Steel | 103 (1500) | 103 (1500) |
| Maximum diaphragm casing overpressure (above setpoint) to prevent damage to internal parts. | All Styles | 4,1 (60) | 8,3 (120) |

1. If the spring case is pressurized, a metal adjusting screw cap is required.

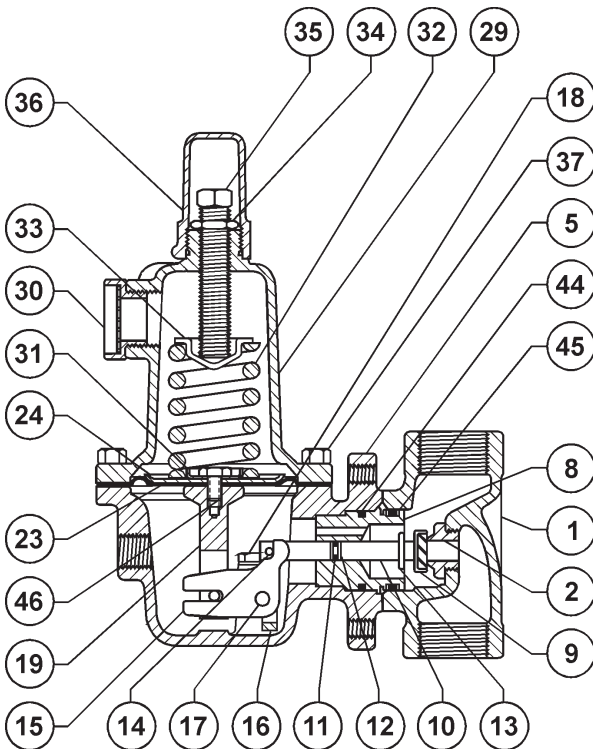
Table 2. Maximum Inlet Pressure, Differential Pressure, and Outlet Pressure Ranges

| TYPE | OUTLET PRESSURE RANGE, SPRING PART NO., AND COLOR, BAR (psig) | ORIFICE DIAMETER | MAXIMUM INLET PRESSURE BAR (psig) | | MAXIMUM DIFFERENTIAL PRESSURE BAR (psig) | |
|-------|---|------------------|-----------------------------------|------------|--|------------|
| | | | elastomer disk | nylon disk | elastomer disk | nylon disk |
| 627W | 0,69 to 1,4 (10 to 20) 10B3076X012 yellow | 6,4 (1/4) | 15,2 (220) | 29,0 (420) | 13,8 (200) | 27,6 (400) |
| | | 12,7 (1/2) | 15,2 (220) | 17,2 (250) | 13,8 (200) | 17,2 (250) |
| | 1,0 to 2,8 (15 to 40) 10B3077X012 green | 6,4 (1/4) | 16,6 (240) | 30,3 (440) | 13,8 (200) | 27,6 (400) |
| | | 12,7 (1/2) | 16,6 (240) | 20,7 (300) | 13,8 (200) | 20,7 (300) |
| | 2,4 to 5,5 (35 to 80) 10B3079X012 blue | 6,4 (1/4) | 19,3 (280) | 33,1 (480) | 13,8 (200) | 27,6 (400) |
| | | 12,7 (1/2) | 19,3 (280) | 33,1 (480) | 13,8 (200) | 27,6 (400) |
| | 4,8 to 10,3 (70 to 150) 10B3078X012 red | 6,4 (1/4) | 24,1 (350) | 37,9 (550) | 13,8 (200) | 27,6 (400) |
| | | 12,7 (1/2) | 24,1 (350) | 37,9 (550) | 13,8 (200) | 27,6 (400) |
| 627WH | 9,7 to 17,2 (140 to 250) 10B3078X012 blue | 6,4 (1/4) | 31,0 (450) | 44,8 (650) | 13,8 (200) | 27,6 (400) |
| | | 12,7 (1/2) | 31,0 (450) | 34,5 (500) | 13,8 (200) | 17,2 (250) |
| | 16,6 to 34,5 (240 to 500) 10B3079X012 red | 6,4 (1/4) | 48,3 (700) | 62,1 (900) | 13,8 (200) | 27,6 (400) |
| | | 12,7 (1/2) | 48,3 (700) | 51,7 (750) | 13,8 (200) | 17,2 (250) |

Types 627W and 627WH

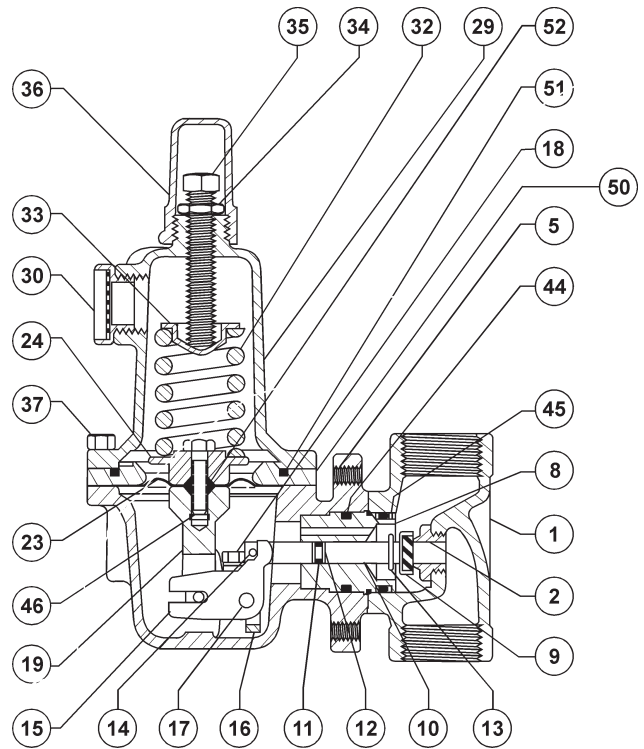
Parts List

| Key | Description | Key | Description |
|-----|----------------------|-----|-----------------------------------|
| 1 | Body | 29 | Spring Case |
| 2 | Orifice | 30 | Vent |
| 3 | Diaphragm Casing | 31 | Lower Spring Seat (627W only) |
| 8 | Stem Guide | 32 | Spring |
| 9 | Valve Plug Assembly | 33 | Upper Spring Seat |
| 10 | Stem | 34 | Locknut |
| 11 | Stem O-Ring | 35 | Adjusting Screw |
| 12 | Stem Backup Ring | 36 | Adjusting Screw Cap |
| 13 | Hair Pin Clip | 37 | Cap Screw |
| 14 | Drive Pin | 44 | O-Ring |
| 15 | Lever | 45 | Backup Ring |
| 16 | Lever Retainer | 46 | Cap Screw |
| 17 | Lever Pin | 50 | Diaphragm Limiter (627WH only) |
| 18 | Cap Screw | 51 | O-Ring |
| 19 | Pusher Post Assembly | 52 | O-Ring |
| 23 | Diaphragm | | |
| 24 | Diaphragm Head | | |



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Figure 1. Type 627W Regulator Components



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Figure 2. Type 627WH Regulator Components

Types 627W and 627WH

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For information, contact Fisher Controls, International:

Within USA (800) 588-5853 – Outside USA (972) 542-0132

France – (33) 23-733-4700

Singapore – (65) 770-8320

Mexico – (52) 57-28-0888

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