

English - March 2009

## 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.fisher.com](http://www.fisher.com). For further information refer to: Types 627W and 627WH Instruction Manual, D102504X012.

## PED Category

This product may be used as a safety accessory with pressure equipment in the following Pressure Equipment Directive categories. It may also be used outside of the Pressure Equipment Directive using sound engineering practice (SEP) per table below. For information on the current PED revision see Bulletin: [D103053X012](#).

PRODUCT SIZE	CATEGORIES
DN 20 and 25 / NPS 3/4 and 1	SEP
DN 50 / NPS 2	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 627WH with a stem seal between the body outlet pressure and diaphragm case. Pressure is measured under the diaphragm through the 1/4 NPT downstream control line connection.

### Body Sizes and End Connection Styles

**NPT:** DN 20, 25 or 50 / NPS 3/4, 1 or 2

**CL150, CL300, CL600 RF Flanged:**

DN 25 or 50 / NPS 1 or 2

**PN 16/25/40:** DN 25 or 50 / NPS 1 or 2

### Maximum Spring and Diaphragm

#### Casing Pressure<sup>(1)</sup>

See Table 1

#### Body Pressure Shell Rating<sup>(1)</sup>

**NPT (Steel):** 138 bar / 2000 psig

**NPT (Ductile Iron):** 68.9 bar / 1000 psig

**CL600 RF Flanged (Steel):** 103 bar / 1500 psig

### Maximum Operating Inlet and Outlet

#### Pressure Ranges<sup>(1)</sup>

See Table 2 for pressures by orifice and spring range

### Outlet Pressure Ranges

See Table 2

### Orifice Diameters

**Standard:** 6.4 or 13 mm / 1/4 or 1/2 in.

**Optional:** 2.4, 3.2, 4.8 or 9.5 mm / 3/32, 1/8, 3/16 or 3/8 in.

### Proof Test Pressure

All Pressure Retaining Components have been proof-tested per Directive.

### Temperature Capabilities<sup>(1)(2)</sup>

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

**Fluorocarbon (FKM):** -18 to 149°C / 0 to 300°F

**Ethylenepropylene (EPDM):** -40 to 135°C / -40 to 275°F

**Perfluoroelastomer (FFKM):** -18 to 204°C / 0 to 400°F

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

**Polytetrafluoroethylene (PTFE):** -40 to 204°C / -40 to 400°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 Emerson Process Management Regulator Technologies, Inc. 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.

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

2. Stainless steel body is rated to -40°C / -40°F. Steel and ductile iron bodies are rated to -29°C / -20°F.

# Types 627W and 627WH

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 external 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.

## 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

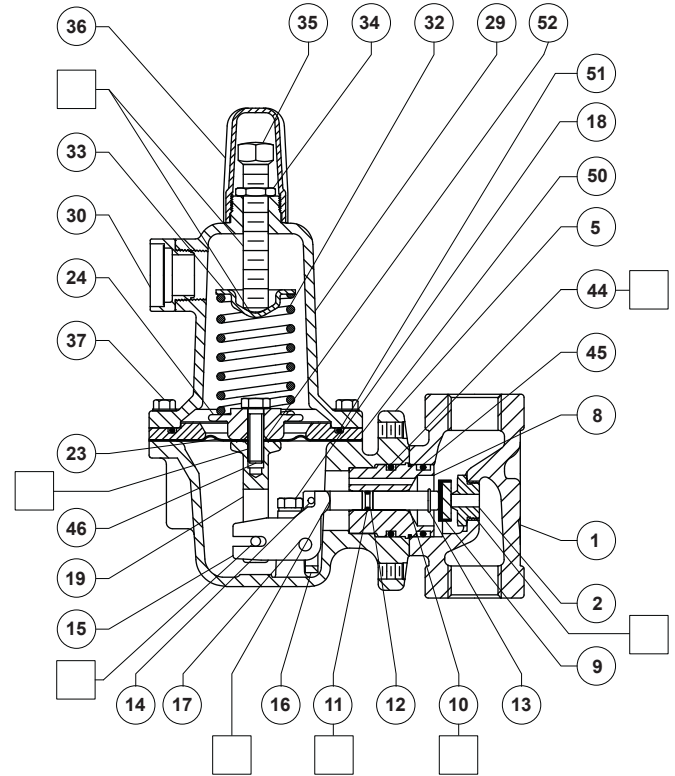
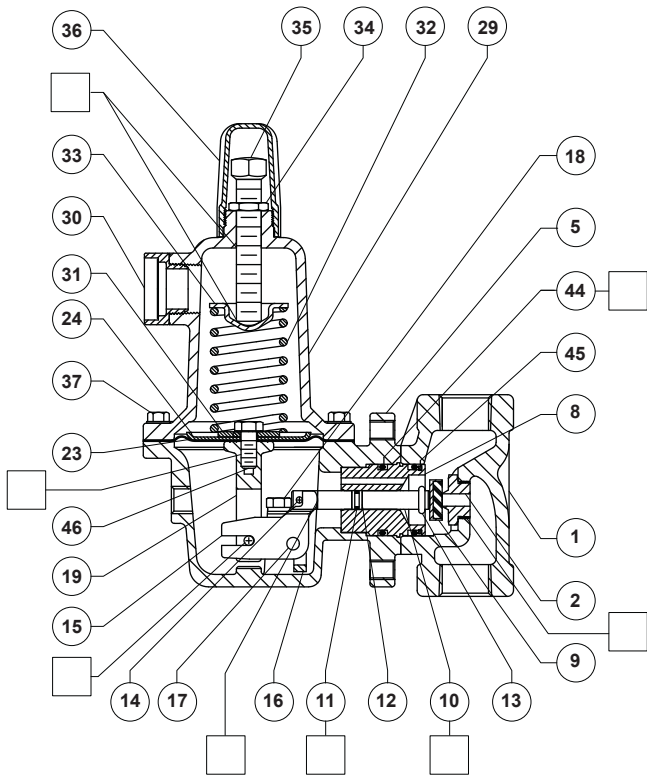
To avoid personal injury resulting from sudden release of pressure, isolate the regulator from all pressure before attempting disassembly.

## Parts List

Key	Description	Key	Description
1	Body	31	Lower Spring Seat
2*	Orifice		(Type 627W only)
3	Cap Screw (not shown)	32	Spring
5	Lower Diaphragm Casing	33	Upper Spring Seat
8	Stem Guide	34	Locknut
9*	Valve Plug Assembly	35	Adjusting Screw
10	Stem	36	Adjusting Screw Cap
11*	Stem O-ring	37	Cap Screw
12*	Stem Backup Ring	44*	O-ring
13	Hair Pin Clip	45*	Backup Ring
14	Drive Pin	46	Cap Screw
15	Lever	50	Diaphragm Limiter
16	Lever Retainer		(Type 627WH only)
17	Lever Pin	51*	O-ring (Type 627WH only)
18	Cap Screw	52*	O-ring
19	Pusher Post Assembly	67	Drive Screw (not shown)
23*	Diaphragm	68*	Diaphragm Protector
29	Spring Case		(not shown)
30	Vent Assembly	72	Pipe Plug for 1/4 NPT Tap
24	Diaphragm Head		(not shown)

\* Recommended spare part

# Types 627W and 627WH



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□ APPLY LUBRICANT

Figure 1. Type 627W Regulator Assembly

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□ APPLY LUBRICANT

Figure 2. Type 627WH Regulator Assembly

Table 1. Maximum Spring and Diaphragm Casing Pressure<sup>(1)</sup>

MAXIMUM PRESSURE DESCRIPTION	DIAPHRAGM CASING STYLE	TYPE 627W		TYPE 627WH	
		bar	psig	bar	psig
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 materials	4.1	60	8.3	120

1. If the spring case is pressurized, a metal adjusting screw cap is required. Contact your Local Sales Office for details.

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

TYPE	OUTLET PRESSURE RANGE AND COLOR, bar / psig	ORIFICE SIZE		MAXIMUM INLET PRESSURE				MAXIMUM DIFFERENTIAL PRESSURE			
				Elastomer Disk		Nylon Disk		Elastomer Disk		Nylon Disk	
		mm	In.	bar	psig	bar	psig	bar	psig	bar	psig
627W	0.69 to 1.4 / 10 to 20, Yellow	6.4	1/4	15.2	220	29.0	420	13.8	200	27.6	400
		13	1/2	15.2	220	17.2	250	13.8	200	17.2	250
	1.0 to 2.8 / 15 to 40, Green	6.4	1/4	16.5	240	30.3	440	13.8	200	27.6	400
		13	1/2	16.5	240	20.7	300	13.8	200	20.7	300
	2.4 to 5.5 / 35 to 80, Blue	6.4	1/4	19.3	280	33.1	480	13.8	200	27.6	400
		13	1/2	19.3	280	33.1	480	13.8	200	27.6	400
4.8 to 10.3 / 70 to 150, Red	6.4	1/4	24.1	350	37.9	550	13.8	200	27.6	400	
	13	1/2	24.1	350	37.9	550	13.8	200	27.6	400	
627WH	9.7 to 17.2 / 140 to 250, Blue	6.4	1/4	31.0	450	44.8	650	13.8	200	27.6	400
		13	1/2	31.0	450	34.5	500	13.8	200	17.2	250
	16.5 to 34.5 / 240 to 500, Red	6.4	1/4	48.3	700	62.1	900	13.8	200	27.6	400
		13	1/2	48.3	700	51.7	750	13.8	200	17.2	250

# Types 627W and 627WH

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For further information on the current PED revision see Bulletin: [D103053X012](#) or scan the QR code.

