630 Series

English – December 2015

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. For further information refer to: 630 Series Instruction Manual, D100300X012.

PED Categories

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 25 / NPS 1	SEP

Specifications

Available Configurations
Type 630: Spring-loaded reducing regulators
Type 630R: Spring-loaded relief valves

Body Size and End Connection Style
DN 25 and 50 / 1 and 2 in.

End Connection Style
NPT, ASME CL150 RF, CL300 RF or CL600 RF

Maximum Allowable Inlet Pressures(1)
Type 630 Regulators: See Table 1
Type 630R relief Valves: See Table 3

Type 630 Outlet Pressure Ranges(1)
0.21 to 34.5 bar / 3 to 500 psig with intermediate values shown in Table 2

Type 630R Relief Pressure Ranges(1)
0.21 to 17.2 bar / 3 to 250 psig
See Table 3

Maximum Allowable Outlet Pressures(1)
See Table 2

Maximum Allowable Pressure Drops(1)
See Table 1

Temperature Capabilities(1)
Standard: -29 to 82°C / -20 to 180°F
Optional: -29 to 149°C / -20 to 300°F

Orifice Sizes
3.2 mm / 1/8 in., 4.8 mm / 3/16 in., 6.4 mm / 1/4 in., 9.5 mm / 3/8 in. or 13 mm / 1/2 in.

Installation

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.

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.

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

Table 1. *Maximum Allowable Inlet Pressures and Pressure Drops*

ORIFICE SIZE		MAXIMUM ALLOWABLE INLET PRESSURE[1]		MAXIMUM ALLOWABLE PRESSURE DROP					
				Nylon (PA)[2] and Polytetrafluoroethylene (PTFE) Disk		Fluorocarbon (FKM) Disk		Nitrile (NBR)[2] Disk	
mm	In.	bar	psig	bar	psig	bar	psig	bar	psig
3.2 and 4.8	1/8 and 3/16	103	1500	103	1500	13.8	200	41.4	600
6.4	1/4			69	1000				
9.5	3/8	69	1000	34.5	500			34.5	500
13	1/2	51.7	750	17.2	250			17.2	250

Note: Maximum inlet pressure not exceeded 103 bar / 1500 psig.
1. Inlet pressure must not exceed the sum of the actual outlet pressure setting and the maximum allowable pressure drop. For example, with an outlet pressure setting of 13.8 bar / 200 psig and a 9.5 mm / 3/8 in. orifice with a maximum allowable pressure drop of 500 psid / 34.5 bar d, the maximum inlet pressure is 48.3 bar / 700 psig.
2. Nitrile (NBR) valve disks are normally furnished for pressure drops to 13.8 bar / 200 psi, differential. For better erosion resistance, Nylon (PA) valve disks are normally furnished for higher pressure drops. Some erosion of valve disks occurs at all pressure drops due to solid particles in the flow stream. The rate of erosion is higher with large amounts of impurities in the flow stream and with high pressure drops. Valve disks and other regulator parts must be inspected periodically for erosion and damage and must be replaced as necessary.

Table 2. *Type 630 Regulator Outlet Pressure Ranges and Maximum Outlet Pressures*

REGULATOR CONSTRUCTION	OUTLET PRESSURE RANGE		MAXIMUM OPERATING OUTLET PRESSURE		MAXIMUM OUTLET PRESSURE OVER SETPOINT[1]		MAXIMUM EMERGENCY OUTLET (CASING) PRESSURE[4]	
	bar	psig	bar	psig	bar	psig	bar	psig
Low-Pressure	0.21 to 0.69	3 to 10	0.69	10	1.4	20	4.6	66
	0.55 to 1.4	8 to 20	1.4	20				
	1.2 to 2.1	17 to 30	2.1	30	1.4[2]	20[2]		
	1.9 to 2.8	27 to 40	2.8	40	Limited by Maximum Emergency Outlet Pressure			
High-Pressure	1.9 to 3.5 3.2 to 6.6 6.2 to 10.3 10.3 to 13.8 13.8 to 19.0	27 to 50 46 to 95 90 to 150 150 to 200 200 to 275	3.5 6.6 10.3 13.8 19.0	50 95 150 200 275	13.8	200	37.9	550
	19.0 to 34.5	275 to 500	34.5	500	13.8[3]	200[3]		

1. Damage to internal parts of the regulator may occur if outlet pressure exceeds the actual pressure setting by amounts greater than those shown in this column.
2. For outlet pressure settings to 1.7 bar / 25 psig only. For pressure settings over 1.7 bar / 25 psig, outlet pressure is limited by maximum emergency outlet pressure of 3.1 bar / 45 psig.
3. For outlet pressure settings to 24.1 bar / 350 psig only. For pressure settings over 24.1 bar / 350 psig, outlet pressure is limited by maximum emergency outlet pressure of 37.9 bar / 550 psig.
4. Leakage or bursting of pressure-containing parts may occur if outlet pressure exceeds these values.

Vents

When the unit is installed in an enclosed area or indoors, escaping gas may accumulate and be an explosion hazard. Under these conditions the vent should be piped away from the unit to a freely ventilated outdoor location away from air intakes, windows, etc. Protect all vent openings against weather or the entrance of any foreign material that may plug the vent or affect operation of the regulator or relief valve. Inspect all vent openings periodically to be sure they are not plugged. If the vent is in the environment where freezing rain, ice or snow could clog the vent, it is recommended that a weatherproof vent be used.

Spring-loaded constructions have a screened vent assembly (key 27, Figures 1, 2 and 3) installed in the 1/4 NPT spring case vent opening. If a remote vent is required, remove the vent assembly and install a remote vent line.

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.

Regular 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.

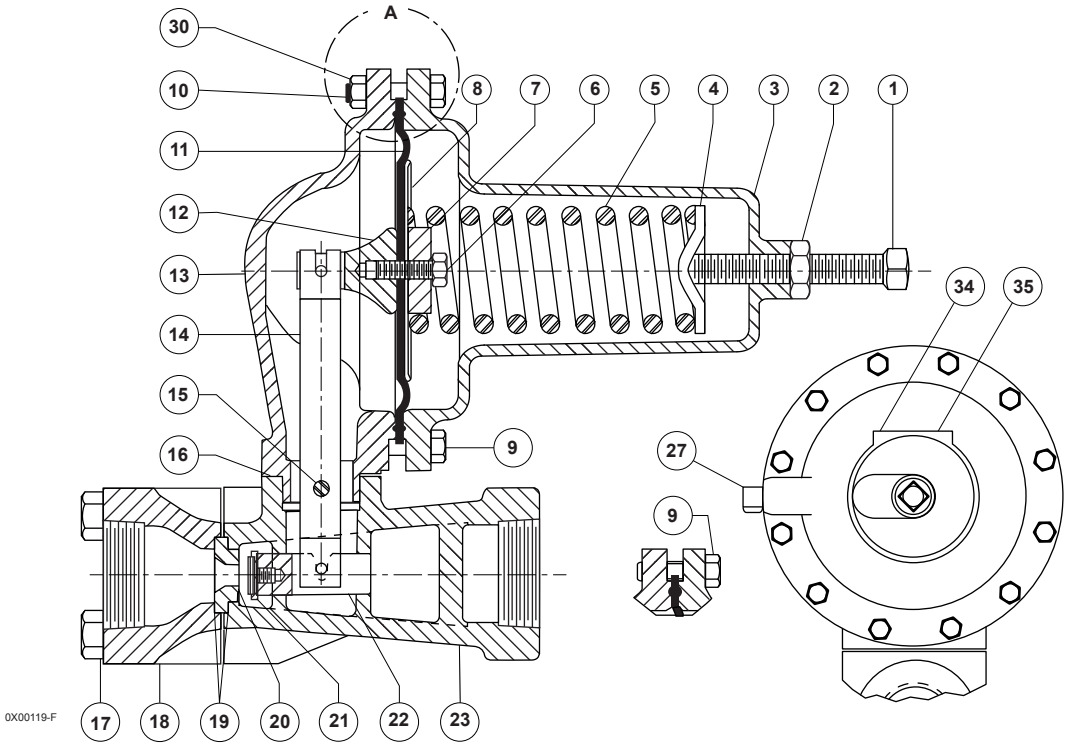

Figure 1. *Spring-Loaded Type 630 Regulator - Low-Pressure Construction*

Table 3. *Type 630R Relief Pressure Ranges*

REGULATOR CONSTRUCTION	RELIEF (INLET) PRESSURE SETTINGS		MAXIMUM ALLOWABLE RELIEF (INLET) PRESSURE	MAXIMUM EMERGENCY INLET (CASING) PRESSURE(1)	
	bar	psig		bar	psig
Low-Pressure	0.21 to 0.55 0.41 to 1.2 1.0 to 1.5 1.4 to 2.4 2.4 to 3.5	3 to 8 6 to 17 15 to 22 20 to 35 35 to 50	Relief Pressure Setting Plus Maximum Allowable Build-up of 1.7 bar / 25 psig	5.2	75
High-Pressure	2.1 to 4.8 3.5 to 6.6 5.2 to 12.1 10.3 to 17.2	30 to 70 50 to 95 75 to 175 150 to 250	Relief Pressure Setting Plus Maximum Allowable Build-up of 17.2 bar / 250 psig	37.9	550

1. Leakage or bursting of pressure-containing parts may occur if inlet pressure exceeds these values.

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 set pressure, remove the closing cap or loosen the locknut and turn the adjusting screw clockwise to increase set pressure or counterclockwise to decrease pressure. Monitor the set 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)

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

Parts List

Key	Description
1	Adjusting Screw
2	Hex Nut
3	Spring Case
4	Upper Spring Seat
5	Spring
6	Cap Screw
7	Lower Spring Seat
8	Diaphragm Plate, Low-Pressure only
9	Cap Screw, For use with steel diaphragm adaptor
10	Cap Screw, For use with cast iron diaphragm adaptor
11*	Diaphragm
12	Connector Head Assembly
13	Diaphragm Adaptor
14	Lever Assembly
15	Pin
16*	Gasket
17	Cap Screw
18	Inlet Adaptor
19*	Inlet Body Gasket
20*	Orifice
21*	Valve Disk Assembly Type 630 only
21	O-ring Holder (Type 630R only)
22	Valve Carrier
23	Body
27	Vent Assembly, Type Y602-12
30	Hex Nut, For use with cast iron diaphragm adaptor
31	Cap Screw (not shown)
32	O-ring Washer (Type 630R only)
33	Plug, For DN 50 / 2 in. bodies only (not shown)
34	Nameplate
35	Drive Screw
36	Machine Screw (Type 630R only)
37*	O-ring (Type 630R only)
43	Diaphragm protector, use only when specified (not shown)
52	NACE Tag (not shown)
53	Tag Wire (not shown)

*Recommended spare part.

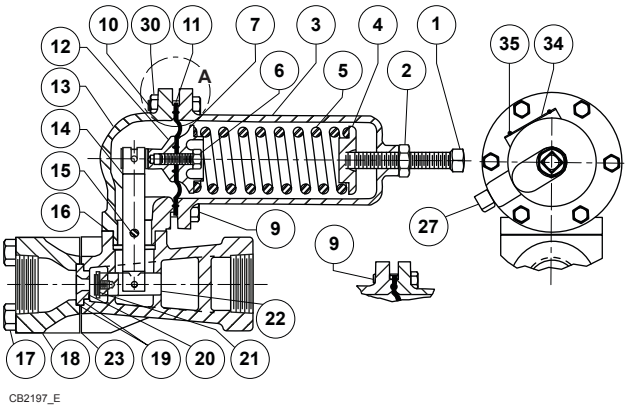

Figure 2. *Spring Loaded Type 630 Regulator - High-Pressure Construction*

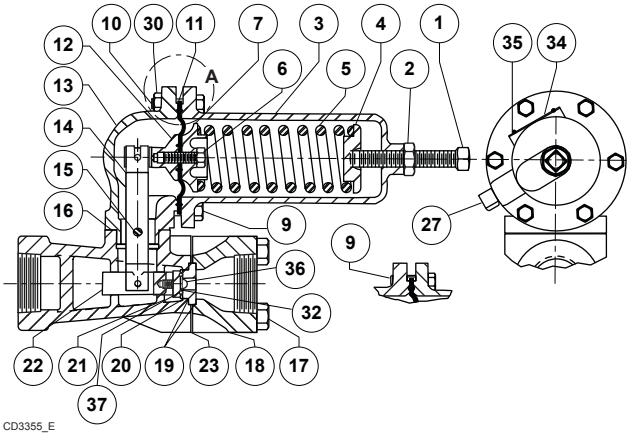

Figure 3. *Spring Loaded Type 630R Relief Valve High-Pressure Construction*

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For further information on the current PED revision see Bulletin: *D103053X012* or scan the QR code.

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