

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.emerson.com. For further information refer to: Type SR5 instruction manual, D103099X012.

PED Categories

This product may be used as a pressure 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	FLUID TYPE
DN 15, 20 and 25 / NPS 1/2, 3/4 and 1	SEP	1
DN 40 x 25, 40 and 50 / NPS 1-1/2 x 1, 1-1/2 and 2	I	
DN 80 / NPS 3	II	

Specifications

Body Sizes, Inlet and Outlet Connection Style

15, 20, 25, 40, 40 x 25, 50 and 80 mm /
1/2, 3/4, 1, 1-1/2, 2 and 3 in.

End Connection⁽³⁾

Tri-Clamp® Sanitary connections

Maximum Operating Pressures⁽¹⁾⁽²⁾

See Table 1

Set Pressure Ranges

See Table 2

Maximum Differential Pressures⁽¹⁾

See Table 3

Vacuum Protection Option

Maximum Vacuum Pressure

0.96 bar / 14 psig (vacuum)

Proof Test Pressure

All Pressure Retaining Components have been proof tested per Directive

Temperature Capabilities⁽¹⁾

See Table 4

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. Use suitable line gaskets and approved piping and bolting practices. Install the regulator in any position desired. However, to ensure self-draining (from outlet to inlet) the regulator should be installed with the spring case in the upright vertical position. The arrow on the body indicates flow direction.

Note

It is important that the regulator be installed so that the vent hole in the spring case is unobstructed at all times.

Tri-Clamp® is a mark owned by Tri-Clover Incorporated.

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

2. Maximum pressure to prevent damage to internal parts and leakage to atmosphere.

3. End connection clamps and gaskets to be supplied by the user.

Type SR5

Table 1. Maximum Operating Pressures

BODY SIZE		MAXIMUM TEMPERATURE		MAXIMUM INLET PRESSURE		MAXIMUM OUTLET PRESSURE	
DN	NPS	°C	°F	bar	psig	bar	psig
15, 20, 25, 40	1/2, 3/4, 1, 1-1/2	65	150	14.5	210	14.5	210
		135	275	12.4	180	12.4	180
		204	400	11.0	160	11	160
50 and 80	2 and 3	65	150	14.5	210	10.3	150
		135	275	12.4	180	8.6	125
		204	400	11.0	160	7.6	110

Table 2. Outlet Pressure Ranges and Control Spring Data

BODY SIZE		OUTLET PRESSURE RANGE		COLOR
DN	NPS	bar	psig	
15, 20	1/2, 3/4	0.14 to 0.55 ⁽¹⁾	2 to 8 ⁽¹⁾	Blue
		0.34 to 1.7	5 to 25	Silver
		0.69 to 3.4	10 to 50	Green
		1.7 to 6.2	25 to 90	Red
		2.4 to 9.3	35 to 135	Red Yellow
25, 40 x 25	1, 1-1/2 x 1	0.14 to 0.55 ⁽¹⁾	2 to 8 ⁽¹⁾	Blue
		0.34 to 1.7	5 to 25	Silver
		0.69 to 3.4	10 to 50	Green
		1.7 to 6.2	25 to 90	Red
		2.4 to 9.3	35 to 135	Red Yellow
40 full port	1-1/2 full port	0.34 to 1.7	5 to 25	Silver
		0.69 to 3.4	10 to 50	Green
		1.7 to 5.2	25 to 75	Red
		2.4 to 6.9	35 to 100	Green Yellow
50 and 80	2 and 3	0.69 to 1.7	10 to 25	Silver
		1.0 to 3.4	15 to 50	Green
		1.7 to 5.2	25 to 75	Red

1. The 0.14 to 0.55 bar / 2 to 8 psig spring is not available with the metal diaphragm.

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. **Make sure the CIP/SIP Pin (key 30, Figure 1) is**

not installed in the spring case. With proper installation completed and relief valves properly adjusted, slowly open the upstream and downstream shutoff valves.



WARNING

The CIP/SIP pin must be removed before regulator is placed in operation. The pin will inhibit the proper operation and function of the regulator and result in overpressure of the downstream system.

Adjustment

To change the outlet pressure, remove the closing cap or loosen the locknut and turn the adjusting screw or handwheel 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.

Table 3. Maximum Differential Pressures

BODY SIZE		PRESSURE RANGE		COLOR	MAXIMUM DIFFERENTIAL PRESSURE	
DN	NPS	bar	psig		bar d	psid
1/2, 3/4, 1 and 1-1/2 x 1	15, 20, 25 and 40 x 25	0.14 to 0.55	2 to 8	Blue	3.4	50
		0.34 to 1.7	5 to 25	Silver	5.2	75
		0.69 to 3.4	10 to 50	Green	6.9	100
		1.7 to 6.2	25 to 90	Red	8.6	125
		2.4 to 9.3	35 to 135	Red/Yellow	8.6	125
1-1/2 full port	40 full port	0.34 to 1.7	5 to 25	Silver	5.2	75
		0.69 to 3.4	10 to 50	Green	6.9	100
		1.7 to 5.2	25 to 75	Red	8.6	125
		2.4 to 6.9	35 to 100	Green/Yellow	8.6	125
2 and 3	50 and 80	0.69 to 1.7	10 to 25	Silver	4.1	60
		1.0 to 3.4	15 to 50	Green	8.3	120
		1.7 to 5.2	25 to 75	Red	9.0	130

Table 4. Temperature Capabilities

SEAT TYPE	DIAPHRAGM MATERIAL	O-RING MATERIAL	TEMPERATURE RANGE	
			°C	°F
Metal (Stainless Steel)	EPDM/SST	EPDM	-28 to 135	-20 to 275
	SST	PTFE/FKM ⁽¹⁾	-6 to 204	20 to 400
	PTFE/FKM	PTFE/FKM	-6 to 204	20 to 400
Soft (PTFE/Stainless Steel)	EPDM/SST	EPDM	-28 to 65	-20 to 150
	SST	PTFE/FKM ⁽¹⁾	-6 to 65	20 to 150
	PTFE/FKM	PTFE/FKM	-6 to 65	20 to 150
Soft (PEEK/Stainless Steel)	EPDM	EPDM	-28 to 135	-20 to 275
	SST	PTFE/FKM ⁽¹⁾	-6 to 204	20 to 400
	PTFE/FKM	PTFE/FKM	-6 to 204	20 to 400

1. O-ring material is PTFE for the DN 15 and 20 / NPS 1/2 and 3/4 sizes. Temperature range is the same.

Pressure-Loaded Construction

The spring case can be pressure loaded to adjust outlet pressure. An optional tapped spring case, guide ring seal and sealing washer on the adjusting screw must be used for these applications. The loading pressure is connected to the 1/4 NPT connection in the spring case allowing registration on the spring side of the diaphragm. Adjusting loading pressure will proportionally change the outlet pressure setting of the regulator. A small amount of mechanical spring load, in addition to the pressure load, is recommended. Regulator set pressure achieved from the combination of spring load and pressure load should not exceed the outlet pressure ranges listed on Table 2.

Taking Out of Service (Shutdown)



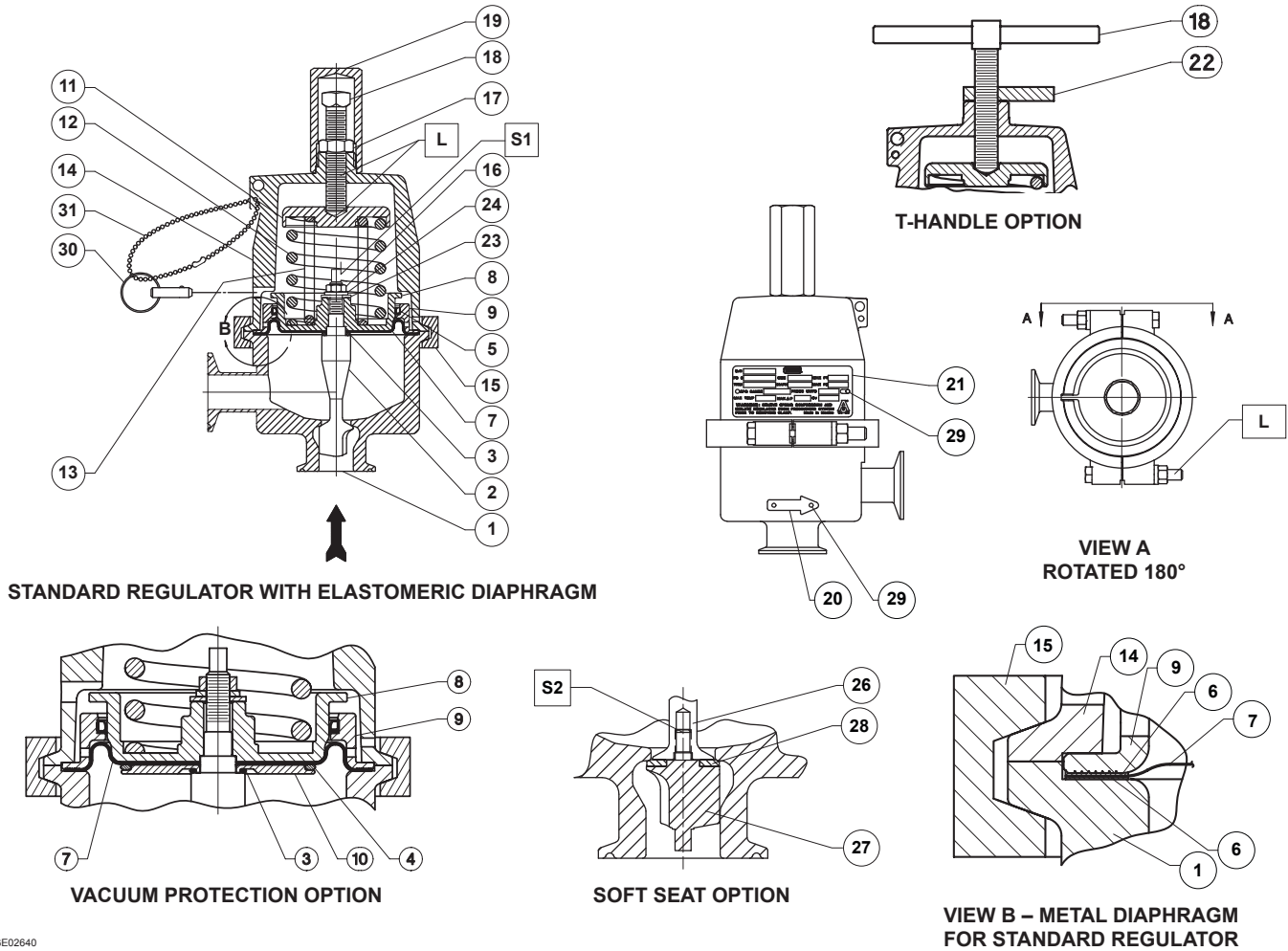
WARNING

To avoid personal injury resulting from sudden release of pressure, isolate the regulator from all pressure before attempting disassembly. Relieve all spring compression and isolate regulator from the pressurized system prior to removing the clamp (key 15, Figure 1).

Parts List

Key	Description
1	Body
2	Plug (metal seat)
3	Plug O-ring
4	Diaphragm Plate O-ring
5	Piston Ring
6	Diaphragm Gasket
7	Diaphragm
8	Lower Spring Seat
9	Guide Ring
10	Diaphragm Plate
11	Upper Spring Seat
12	Spring
13	Inner Spring
14	Spring Case
15	Bolted Clamp
16	Hex Nut
17	Hex Nut
18	Adjusting Screw
19	Closing Cap
20	Arrow, Flow
21	Nameplate
22	Locking Lever
23	Flat Washer
24	Lock Washer
25	Sealing Washer (not shown)
26	Upper Plug
27	Lower Plug
28	Soft Seat
29	Drive Screw
30	Ring Grip Pin
31	Bead Chain
32	Guide Ring Seal (not shown)

Type SR5



GE02640

APPLY LUBRICANT (L) / SEALANT (S)⁽¹⁾:

L = ANTI-SEIZE LUBRICANT

S1 = THREADLOCKER MEDIUM/HIGH STRENGTH SEALANT

S2 = HIGH TEMPERATURE AND MEDIUM STRENGTH THREADLOCKER SEALANT

1. Lubricant and sealant must be selected such that they meet the temperature requirements.

Figure 1. Type SR5 Sanitary Regulator Assembly DN 15 through 40 / NPS 1/2 through 1-1/2 Sizes

Webadmin.Regulators@emerson.com

Facebook.com/EmersonAutomationSolutions

Fisher.com

LinkedIn.com/company/emerson-automation-solutions

Twitter.com/emr_automation

Emerson Automation Solutions

Americas

McKinney, Texas 75070 USA
T +1 800 558 5853
+1 972 548 3574

Asia Pacific

Singapore 128461, Singapore
T +65 6777 8211

Europe

Bologna 40013, Italy
T +39 051 419 0611

Middle East and Africa

Dubai, United Arab Emirates
T +971 4 811 8100



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

D103099X014 © 2004, 2019 Emerson Process Management Regulator Technologies, Inc. All rights reserved. 02/19.

The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their prospective owners. Fisher™ is a mark owned by Fisher Controls International LLC, a business of Emerson Automation Solutions.

The contents of this publication are presented for information purposes only, and while effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.

Emerson Process Management Regulator Technologies, Inc does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson Process Management Regulator Technologies, Inc. product remains solely with the purchaser.

