

English - August 2020

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: Type 1190 Instruction Manual, D101644X012.

PED/PE(S)R Categories

This product may be used as a safety accessory with pressure equipment in the following categories. It may also be used outside of these Directives using Sound Engineering Practice (SEP) per table below. For information on the current PED/PE(S)R revision, see Bulletin: [D103053X012](#).

PRODUCT SIZES		CATEGORIES	FLUID TYPE
DN	NPS		
25	1	SEP	1
50, 80, 100, 150	2, 3, 4, 6	II	

Specifications

Body Size and End Connection Styles

See Table 1

Maximum Main Valve Inlet Pressures⁽¹⁾

27.6 bar / 400 psig

Maximum Operating Inlet Pressures⁽¹⁾

13.8 bar / 200 psig with Cast iron construction or
20.7 bar / 300 psig with a Steel or Stainless steel construction

Maximum Outlet (Casing) Pressure⁽¹⁾

Steel or Stainless steel: 5.2 bar / 75 psig

Outlet Pressure Ranges (Type T205P Pilot)⁽¹⁾

See Table 2

Maximum and Minimum Differential Pressures

See Table 3

Proof Test Pressure

All Pressure Retaining Components have been proof tested per Pressure Equipment Directive and Pressure Equipment (Safety) Regulation.

Main Valve Temperature Capabilities⁽¹⁾

Nitrile (NBR): -29 to 82°C / -20 to 180°F

Fluorinated Ethylene Propylene (FEP):

-29 to 82°C / -20 to 180°F

Fluorocarbon (FKM): 4 to 149°C / 40 to 300°F

Ethylene propylene (EPDM): -29 to 135°C / -20 to 275°F

Perfluoroelastomer (FFKM): -29 to 149°C / -20 to 300°F

Pilot Temperature Capabilities⁽²⁾

Nitrile (NBR): -29 to 82°C / -20 to 180°F

Fluorocarbon (FKM): 4 to 82°C / 40 to 180°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.

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.

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

Type 1190

Table 1. Body Sizes and End Connection Styles

BODY SIZE ⁽¹⁾		END CONNECTION STYLE	
DN	NPS	Cast Iron	WCC Steel or CF8M Stainless Steel
25, 50	1, 2	NPT, CL125 FF or CL250 RF flanged	NPT, SWE, BWE, CL150 RF, CL300 RF, CL600 RF or PN 16/25/40 flanged
80, 100, 150	3, 4, 6	CL125 FF or CL250 RF flanged	BWE, CL150 RF, CL300 RF, CL600 RF or PN 16 flanged
200 x 150, 300 x 150	8 x 6, 12 x 6	----	BWE, CL150 RF, CL300 RF, CL600 RF or PN 25 flanged

1. End connections for other than U.S. standard can usually be provided; consult your local Sales Office.

Table 2. Outlet Pressure Ranges (Type T205P Pilot)

OUTLET PRESSURE RANGE ⁽¹⁾	
mbar	In. w.c.
0.6 to 6 ⁽²⁾ 5 to 17 ⁽²⁾ 12 to 40	0.25 to 2.5 ⁽²⁾ 2 to 7 ⁽²⁾ 5 to 16
34 to 83 76 to 172 172 mbar to 0.31 bar 0.31 to 0.48 bar	0.5 to 1.2 psig 1.1 to 2.5 psig 2.5 to 4.5 psig 4.5 to 7.0 psig

1. Outlet pressure ranges based on pilot being installed with the spring case pointed down.

2. Do not use Fluorocarbon (FKM) diaphragm with this spring at diaphragm temperatures lower than 16°C / 60°F.

Table 3. Maximum and Minimum Differential Pressures for Type EGR Main Valve Spring Selection

BODY SIZE		TYPE EGR MAIN VALVE SPRING PART NUMBER	SPRING COLOR	MAXIMUM ALLOWABLE DIFFERENTIAL PRESSURE		MINIMUM DIFFERENTIAL PRESSURE REQUIRED FOR FULL STROKE	
DN	NPS			bar	psig	bar	psig
25	1	14A9687X012	Green	4.1	60	0.17	2.5
		14A9680X012	Blue	8.6	125	0.28	4
		14A9679X012	Red	20.7 bar / 300 psig or body rating limit, whichever is lower		0.34	5
50	2	14A6626X012	Green	4.1	60	0.21	3
		14A6627X012	Blue	8.6	125	0.34	5
		14A6628X012	Red	20.7 bar / 300 psig or body rating limit, whichever is lower		0.69	10
80	3	14A6629X012	Green	4.1	60	0.28	4
		14A6630X012	Blue	8.6	125	0.41	6
		14A6631X012	Red	20.7 bar / 300 psig or body rating limit, whichever is lower		0.76	11
100	4	14A6632X012	Green	4.1	60	0.34	5
		14A6633X012	Blue	8.6	125	0.55	8
		14A6634X012	Red	20.7 bar / 300 psig or body rating limit, whichever is lower		0.90	13
150, 200 x 150, 300 x 150	6, 8 x 6, 12 x 6	14A9686X012	Green	4.1	60	0.66	9.5
		14A9685X012	Blue	8.6	125	1.0	14
		15A2615X012	Red	20.7 bar / 300 psig or body rating limit, whichever is lower		1.3	19

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 shut-off 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

Type EGR Main Valve

Key	Description	Key	Description
1	Valve Body	21	Indicator Fitting O-ring
2	Body Flange	22	Flange Nut, Plated steel
3	Cap Screw	23	E-Ring
4*	Gasket	24	Drive Screw
5	Lower Indicator Fitting	25	Flow Arrow
6	O-ring Retainer	27	Plug
7*	Stem O-ring	28	Spring Seat
8	Hex Nut, Plated steel	29	Hex Nut (with Stainless steel body)(not shown)
9	Spring	31	Pipe Plug
10	Indicator Stem	32	Travel Stop
11	Cage	33	NACE Tag,
12*	Port Seal		Stainless steel (not shown)
13*	Seat Ring	34	Tag Wire, Stainless steel (NACE) (not shown)
14*	Piston Ring	35	Indicator Fitting
15*	Upper Seal	36	Back-up Ring
16*	Valve Plug, Heat-treated	37	O-ring
17*	Cage O-ring	38	Pipe Plug
18	Indicator Scale, Plastic		
19	Indicator Protector, Zinc-plated steel		
20	Plug O-ring		

* Recommended spare part

Type 1098 Actuator, Size 40

Key Description

1	Lower Diaphragm Case
2	Upper Diaphragm Case
3	Bonnet
4	Cap Screw (4 required)
5*	Case O-ring
6*	Stem O-ring (2 required)
7*	Diaphragm
8	Diaphragm Plate
9	Stem Cap Screw
10	Cap Screw (16 required)
11	Hex Nut (16 required)
12	Stem
13	Nameplate, Stainless steel
27	Vent Insert
28	Grease Fitting, Steel
54	NACE Tag, 18-8 Stainless steel (not shown)
55	NACE Tag Wire, 303 Stainless steel (not shown)
56	Bearing (2 required)
57	Wiper, Ring

Type T205P Pilot

Key Description

1	Body, 3/4 NPT
2	Cap Screw (2 required) (not shown)
3	Spring Case Assembly
4	Lower Diaphragm Casing
5	Orifice
6	Spring
7	Upper Diaphragm Head, 304 Stainless steel
8	Pusher Post
9*	Diaphragm Gasket
10*	Diaphragm
11*	Body Seal O-ring
12*	Insert Seal
13*	Disk Assembly
14	Stem
15*	Cotter Pin, 302 Stainless steel
16	Lever Assembly, 302 Stainless steel
17	Machine Screw (2 required), 18-8 Stainless steel
18	Guide Insert, 316 Stainless steel

Key Description

19	Upper Spring Seat (not shown)
20	Lock Nut (not shown)
22	Closing Cap
23	Hex Nut (not shown)
24	Cap Screw (not shown)
25*	Closing Cap Gasket
26*	Vent Assembly (not shown)
31*	Throat Seal O-ring
33	Lower Diaphragm Head
34	Machine Screw, Stainless steel
35	Adjusting Screw
36	Washer
38	Cap Screw
45*	Diaphragm Head Gasket
46	Nameplate (not shown)
47	Drive Screw (not shown)
48	Flow Arrow (not shown)
49	Backup Ring
50	Lower Spring Seat
51	Lower Diaphragm Head Assembly (not shown)

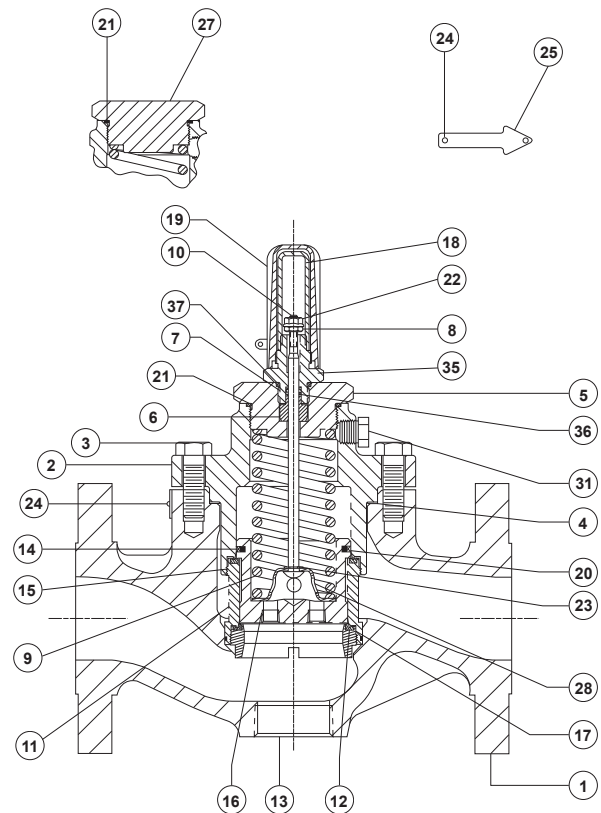
Type MR95H Regulator

Key Description

1	Body
2	Spring Case
3*	Orifice
4*	Valve Plug, Metal seat
4*	Disk Holder Assembly, Composition seat
4a	Disk Holder
4b	Disk
5	Valve Plug Guide
6	Stem/Stem Assembly
6a	Stem
6b	Pusher Plate
7	Stem Guide Bushing
8	Lower Spring Seat, NACE ⁽¹⁾
9	Upper Spring Seat, NACE ⁽¹⁾
11	Control Spring, 1.0 to 2.1 bar / 15 to 30 psi, NACE ⁽¹⁾⁽²⁾

Key Description

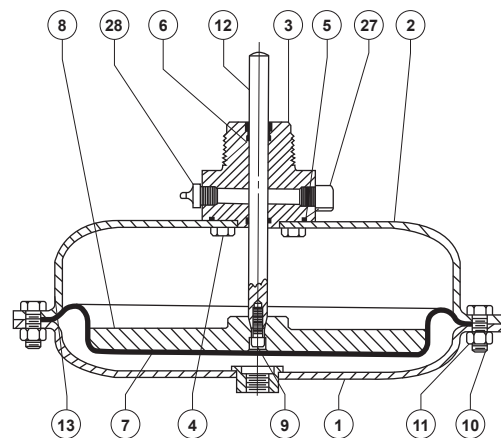
12*	Diaphragm
14*	Diaphragm Protector, PTFE, NACE ⁽¹⁾
15	Adjusting Screw
16	Cap Screw, NACE ⁽¹⁾⁽²⁾
17	Lock Nut, NACE ⁽¹⁾⁽²⁾
18	Nameplate Drive Screw, Stainless steel (4 required)
19*	Diaphragm Gasket
20	Pitot Tube (for constructions without control line)
26	Inner Valve Spring
47	NACE Tag
48	Tag Wire
63*	Bottom Plug Seal



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COMPLETE CAST IRON FULL-CAPACITY MAIN VALVE ASSEMBLY

Figure 1. Type EGR Main Valve



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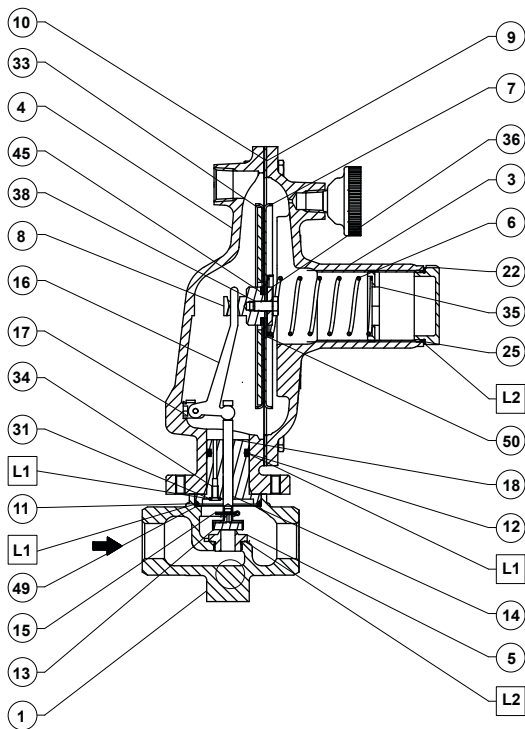
Figure 2. Type 1098 Actuator

* Recommended spare part

1. NACE MR0175-2002 and MR0103.

2. Part meets NACE requirements only for applications in which the part is not exposed to sour gas.

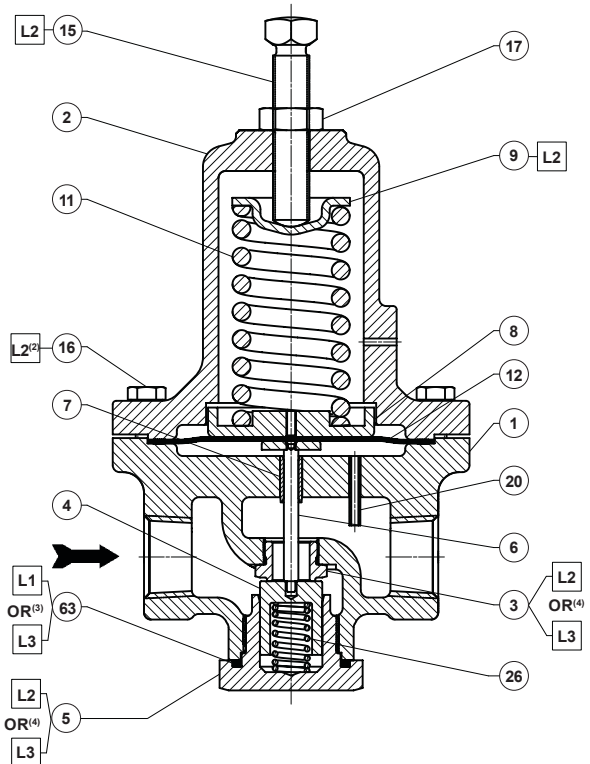
Type 1190



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□ APPLY LUBRICANTS (L)
L1 = SILICONE COMPOUND
L2 = ANTI-SEIZE COMPOUND

Figure 3. Type T205P Pilot Interior Assembly



GF04914

□ APPLY LUBRICANTS (L)⁽¹⁾:
L1 = GENERAL PURPOSE PTFE OR LITHIUM GREASE
L2 = ANTI-SEIZE COMPOUND
L3 = GRAPHITE SEALANT

Figure 4. Type MR95H Supply Pressure Regulator

1. Lubricants and sealant must be selected such that they meet the temperature requirements.
2. Apply L2 (anti-seize compound) on key 16 for stainless steel bolts.
3. Apply L3 (graphite sealant) instead of L1 (general purpose PTFE or lithium grease) on key 63 for graphite ring.
4. Apply L3 (graphite sealant) instead of L2 (anti-seize compound) on keys 3 and 5 for Type MR95HT.

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

