

April 1999

Y690A Series Pressure Reducing Regulators

Introduction

Scope of Manual

This manual provides instructions for installation, startup, maintenance, and parts information for the Y690A Series pressure reducing regulators. Instructions and parts lists for other equipment used with these regulators are found in separate manuals.

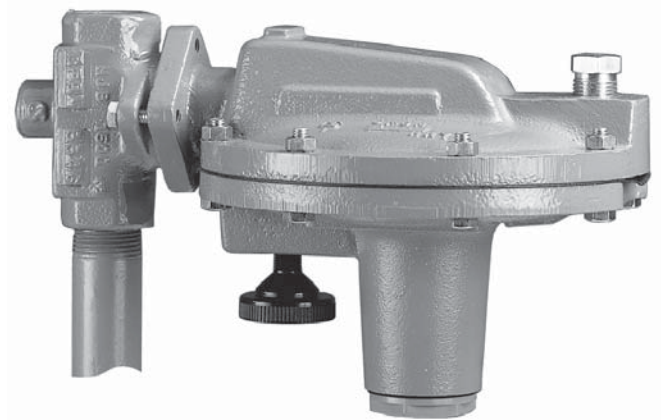
Product Description

The Y690A Series pressure reducing regulator (figure 1) is ideally suited to control gas supply to in-plant processing equipment. The rugged casings and sliding pusher post design withstands the full 150 psig (10,3 bar) inlet pressure at both the inlet and outlet connections. Because these regulators can withstand the full inlet pressure, a downstream relief valve is not required to protect the downstream side of the regulator unless full capacity relief is required. These pressure reducing regulators may be applied in a variety of commercial and industrial applications. Available type numbers are described as follows:

Type Y690A—Low-pressure, 1 to 7-inches w.c. (2 to 17 mbar), direct-operated regulator with internal registration requiring no downstream control line.

Type Y690AH—Low-pressure, 5-inches w.c. to 7 psig (12 to 480 mbar), direct-operated regulator with internal registration requiring no downstream control line.

Type Y690AM—Low-pressure, 1 to 7-inches w.c. (2 to 17 mbar), direct-operated regulator. The Type Y690AM has a blocked throat and O-ring stem seal for use when



W7293

Figure 1. Types Y690A and Y690AH Pressure Reducing Regulators

external registration is required. Lower diaphragm casing assembly is tapped for 1/2-inch NPT for control line connection.

Type Y690AHM—Low-pressure, 5-inches w.c. to 7 psig (12 to 480 mbar), direct-operated regulator with a blocked throat and O-ring stem seal for use when external registration is required. Lower diaphragm casing assembly is tapped for 1/2-inch NPT for control line connection.

Specifications

The Specifications section on page 2 provides the ratings and other specifications for the Y690A Series. Individual regulator data is stamped on the nameplate as it comes from the factory.



Y690A Series

Specifications

<p>Body Sizes 3/4 (DN 20) or 1-inch (DN 25)</p> <p>End Connection Styles See table 3</p> <p>Maximum Allowable Inlet Pressure⁽¹⁾ 150 psig (10,3 bar)</p> <p>Maximum Operating Inlet Pressure⁽¹⁾ See table 2</p> <p>Maximum Outlet (Casing) Pressure⁽¹⁾ 150 psig (10,3 bar)</p> <p>Maximum Emergency Outlet Pressure to Avoid Internal Parts Damage⁽¹⁾ 150 psig (10,3 bar)</p> <p>Outlet Pressure Ranges⁽¹⁾ See table 1</p>	<p>Regulator Temperature Capabilities⁽¹⁾</p> <p>With Nitrile (NBR): -20° to 180°F (-29° to 82°C)</p> <p>With Fluoroelastomer (FKM): 40° to 300°F (4° to 149°C)</p> <p>With Ethylenepropylene (EPDM): -20° to 300°F (-29° to 149°C)</p> <p>With Perfluoroelastomer (FFKM): -20° to 300°F (-29° to 149°C)</p> <p>Pressure Registration Y690A and Y690AH: Internal Y690AM and Y690AHM: External</p> <p>Spring Case Connection 1/4-inch NPT Screwed</p> <p>Diaphragm Case Connection 1/2-inch NPT Screwed</p> <p>Approximate Weight 19 pounds (8,6 kg)</p>
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1. The pressure/temperature limits in this manual and any applicable standard or code limitation should not be exceeded.

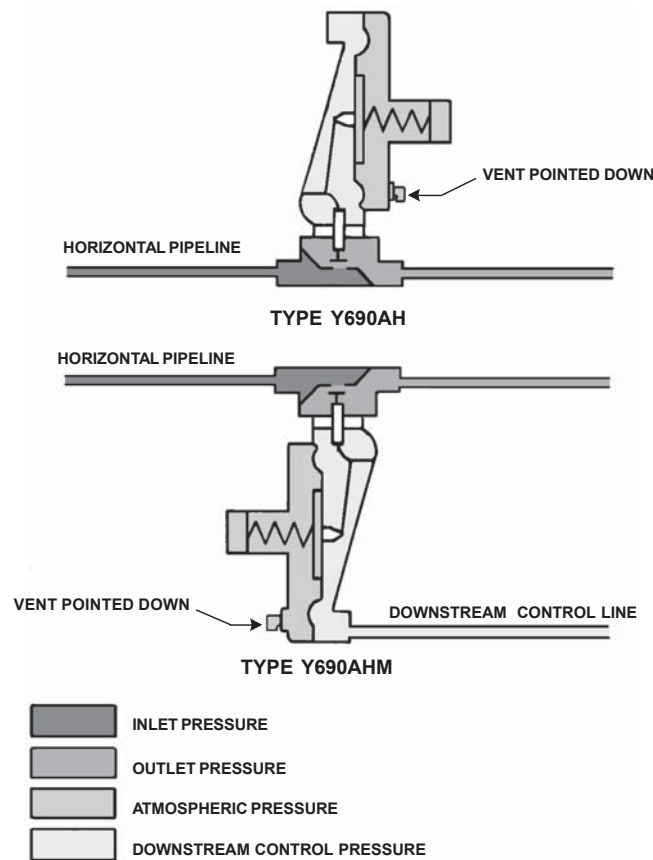
Table 1. Outlet Pressure Ranges (Spring, key 6)

TYPE	OUTLET CONTROL PRESSURE RANGE	SPRING PART NUMBER	SPRING COLOR	SPRING WIRE DIAMETER
Y690A and Y690AM	1 to 2-1/2-inches w.c. (2 to 6 mbar)	1B558527052 ⁽¹⁾⁽²⁾	Orange	0.072-inch (1,83 mm)
	2-1/2 to 7-inches w.c. (6 to 17 mbar)	1B653827052 ⁽¹⁾	Red	0.085-inch (2,2 mm)
Y690AH and Y690AHM	5 to 10-inches w.c. (12 to 25 mbar)	1B653827052	Red	0.085-inch (2,2 mm)
	7 to 15-inches w.c. (17 to 37 mbar)	1B653927022	Olive drab	0.105-inch (2,7 mm)
	0.5 to 1.2 psig (34 to 83 mbar)	1B537027052	Yellow	0.114-inch (2,9 mm)
	1.2 to 2.5 psig (83 to 172 mbar)	1B537127022	Light green	0.156-inch (4,0 mm)
	2.5 to 4.5 psig (0,17 to 0,31 bar)	1B537227022	Light blue	0.187-inch (4,8 mm)
	4.5 to 7 psig (0,31 to 0,48 bar)	1B537327052	Black	0.218-inch (5,5 mm)

1. To achieve the published outlet pressure range the spring case must be installed pointing down.
2. Do not use fluoroelastomer (FKM) diaphragm with these springs at diaphragm temperatures lower than 60°F (16°C).

Table 2. Maximum Operating Inlet Pressures

ORIFICE SIZE, INCHES (mm)	OUTLET PRESSURE RANGE							
	Type Y690A		Types Y690AH, Y690AM, and Y690AHM					
	1 to 2.5-In. w.c. (2,5 to 6,0 mbar)	2.5 to 7-In. w.c. (6,0 to 17 mbar)	5 to 10-In. w.c. (12 to 25 mbar)	7 to 15-In. w.c. (17 to 37 mbar)	0.5 to 1.2 Psig (34 to 83 mbar)	1.2 to 2.5 Psig (83 to 172 mbar)	2.5 to 4.5 Psig (0,17 to 0,31 bar)	4.5 to 7 Psig (0,31 to 0,48 bar)
1/8 (3,2)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)	150 (10,3)
1/4 (6,4)	40 (2,8)	60 (4,1)	75 (5,2)	75 (5,2)	75 (5,2)	150 (10,3)	150 (10,3)	150 (10,3)
3/8 (9,5)	20 (1,4)	20 (1,4)	35 (2,4)	35 (2,4)	35 (2,4)	60 (4,1)	60 (4,1)	60 (4,1)
1/2 (12,7)	10 (0,69)	10 (0,69)	8 (0,55)	8 (0,55)	8 (0,55)	10 (0,69)	12 (0,83)	12 (0,83)
9/16 (14,3)	5 (0,34)	5 (0,34)	5 (0,34)	5 (0,34)	5 (0,34)	6 (0,41)	8 (0,55)	8 (0,55)



W6187

Figure 2. Types Y690AH and Y690AHM Actuator Casing Drainage Schematic

Installation



WARNING

Personal injury, property damage, equipment damage, or leakage due to escaping gas or bursting of pressure-containing parts may result if this regulator is overpressured or installed where service conditions could exceed the limits given in the Specifications section (page 2), 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 those limits.

Additionally, physical damage to the regulator could cause personal injury or property damage due to escaping gas. To avoid such injury or damage, install the regulator in a safe and well-ventilated location.

Regulator operation within ratings does not preclude the possibility of damage from debris in the lines or from external sources. A regulator should be inspected for damage periodically and after any overpressure condition beyond the emergency outlet pressure limit specified in the Specifications section (page 2). Key numbers referenced in this section are shown in figures 4, 5, and 6.

Y690A Series

Note

If the regulator is shipped mounted on another unit, install that unit according to the appropriate instruction manual.

1. Only personnel qualified through training and experience should install, operate, and maintain a regulator. For a regulator that is shipped separately, make sure there is no damage to, or foreign material in the regulator. Also ensure that all tubing and piping are free of debris.

2. The regulator may be installed in any position as long as the flow through the body is in the direction indicated by the arrow on the body. Normal installation is with the spring case barrel vertical above or below the diaphragm case. However, when using a Type Y690A or Y690AM regulator, for proper operation to achieve the published capacities, the spring case barrel should be installed pointed down as shown in figure 1. For complete actuator drainage of Types Y690AH and Y690AHM, the regulator should be installed as shown in figure 2. If continuous operation of the system is required during inspection or maintenance, install a three-valve bypass around the regulator.



WARNING

A regulator may vent some gas to the atmosphere. In hazardous or flammable gas service, vented gas may accumulate and cause personal injury, death, or property damage due to fire or explosion. Vent a regulator in hazardous gas service to a remote, safe location away from air intakes or any hazardous area. The vent line or stack opening must be protected against condensation or clogging.

3. To keep the spring case vent from being plugged or the spring case from collecting moisture, corrosive chemicals, or other foreign material, point the vent down or otherwise protect it. The diaphragm casing (key 4) may be rotated in order to obtain desired positioning.

4. To remotely vent the regulator, remove the vent (key 26) and install obstruction-free tubing or piping into the 1/4-inch NPT vent tapping. Provide protection on a remote vent by installing a screened vent cap into the remote end of the vent pipe.

5. The Types Y690AM and Y690AHM require a downstream control line. Be sure to install the control line

before putting the regulator into operation. The control line pipe should be at least 1/2-inch in diameter and connected to a straight section of outlet piping 5 to 10 pipe diameters downstream of the regulator. If turbulence exists, a hand valve can be installed in a straight section of the control line. This hand valve can be throttled down to dampen out pulsations which may cause instability or cycling of the regulator.

Startup and Adjustment



WARNING

To avoid personal injury, property damage, or equipment damage caused by bursting of pressure containing parts or explosion of accumulated gas, never adjust the control spring to produce an outlet pressure higher than the upper limit of the outlet pressure range for that particular spring. If the desired outlet pressure is not within the range of the control spring, install a spring of the proper range according to the Diaphragm and Spring Case Area section of the maintenance procedure.

Y690A Series regulators can be placed in operation by slowly introducing inlet pressure. The regulator takes control when downstream pressure is established. The regulator has been adjusted at the factory to provide approximately the reduced pressure requested on the order. With a spring-loaded regulator, the pressure setting may be adjusted to a value within the spring range shown in table 2. To adjust the pressure setting, perform the following steps (key numbers are referenced in figures 4, 5, and 6):

1. Remove the closing cap (key 22).
2. Use a 1-inch (25,4 mm) hex rod or flat screwdriver to turn the adjusting screw (key 35) either clockwise to increase outlet pressure or counterclockwise to decrease outlet pressure.

Shutdown

First close the nearest upstream shutoff valve and then close the nearest downstream shutoff valve to vent the regulator properly. Next, open the vent valve between the regulator and the downstream shutoff valve nearest to it. All pressure between these shutoff valves is

released through the open vent valve, since a Y690A Series remains open in response to the decreasing downstream pressure. For a regulator with a control line, the valve in the control line must also be closed and the diaphragm casing vented to the atmosphere.

Maintenance

Regulator parts are subject to normal wear and must be inspected and replaced as necessary. The frequency of inspection and replacement of parts depends upon the severity of service conditions or the requirements of local, state, and federal regulations. Due to the care Fisher takes in meeting all manufacturing requirements (heat treating, dimensional tolerances, etc.), use only replacement parts manufactured or furnished by Fisher.



WARNING

To avoid personal injury, property damage, or equipment damage caused by sudden release of pressure or explosion of accumulated gas, do not attempt any maintenance or disassembly without first isolating the regulator from system pressure and relieving all internal pressure from the regulator.

Body Area

This procedure is for gaining access to the disk assembly, orifice, body O-ring, and pitot tube if used. All pressure must be released from the diaphragm casing, and the disk assembly must be open, before these steps can be performed. Key numbers are referenced in figures 4, 5, and 6.

1. Remove the cap screws (key 2, figure 6) and separate the diaphragm casing (key 4) from the body (key 1).
2. Remove and inspect the body seal O-ring (key 11) and the backup ring (key 50). See figure 3.
3. Inspect and replace the orifice (key 5) if necessary. Protect the orifice seating surface during disassembly and assembly. Lubricate the threads of the replacement orifice with a good grade of light grease and install with 29 to 37 foot-pounds (39 to 50 N•m) of torque.
4. Remove the cotter pin (key 15) to replace the disk assembly (key 13) or to inspect the throat seal O-ring (key 31, figure 5) on the Types Y690AM and Y690AHM.

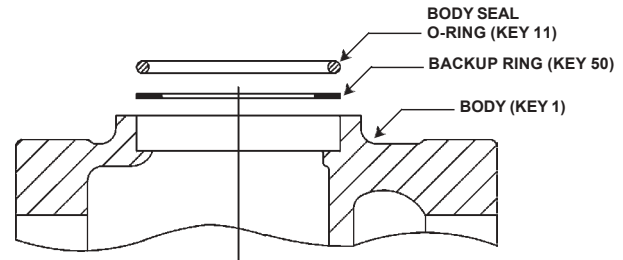


Figure 3. Expanded View of the Body Area Showing the O-ring and Backup Ring Placement

5. To replace the pitot tube (key 32, figure 4) on the Types Y690A and Y690AH, remove the pitot tube screws (key 33), install the new pitot tube, and secure with the pitot tube screws (key 33). Position the pitot tube so that it points into the outlet of the body by rotating the guide insert (key 18).
6. To inspect the throat seal O-ring (key 31, figure 5) on the Types Y690AM and Y690AHM, remove the machine screw (key 33, figure 5). Replace if necessary, and reassemble.
7. Install the disk assembly (key 13) and secure it with the cotter pin (key 15).
8. Place back-up ring (key 50) into the body (key 1). Then place the body seal O-ring (key 11) into the body. See figure 3.
9. Place the diaphragm casing (key 4) on the body (key 1). Secure the the diaphragm casing to the body with the cap screws (key 2, figure 6).

Diaphragm and Spring Case Area

This procedure is for gaining access to the spring, diaphragm, lever assembly, and stem. All pressure must be released from the diaphragm casing before these steps can be performed.

To Change the Control Spring:

Note

Any remote control drive unit used with a Y690A Series regulator must be removed from the spring case (key 3) before these steps can be performed.

1. Remove the closing cap (key 22), and turn the adjusting screw (key 35) counterclockwise to remove all the compression from the control spring (key 6).

Y690A Series

2. Change the control spring (key 6) to match the desired spring range.
3. Replace the adjusting screw (key 35).
4. Install a replacement closing cap gasket (key 25), if necessary, and reinstall the closing cap (key 22).
5. If the spring range was changed, be sure to change the stamped spring range on the nameplate.

To Disassemble and Reassemble Diaphragm Parts:

Key numbers are referenced in figures 4, 5, and 6.

1. Remove the closing cap (key 22), and turn the adjusting screw (key 35) counterclockwise to remove the adjusting screw and the control spring (key 6).
2. Remove the spring case hex nuts (key 23, not shown), cap screws (key 24), and spring case (key 3).
3. Remove the diaphragm (key 10) plus attached parts by tilting them so that the pusher post (key 8) slips off the lever assembly (key 16). To separate the diaphragm (key 10) from the attached parts, unscrew the spring holder screw (key 38) from the pusher post (key 8).
4. Inspect the pusher post (key 8) and the post seal O-ring (key 48), replace if required.
5. Remove hex nut (key 21) to separate the diaphragm (key 10) and attached parts.
6. To replace the lever assembly (key 16), remove the machine screws (key 17). To replace the stem (key 14) or access the stem seal O-ring (key 30, Types Y690AM and Y690AHM only), perform Body Area Maintenance procedure steps 1 and 4. Then pull the stem out of the diaphragm casing (key 4).
7. Install the stem (key 14) into the diaphragm casing (key 4) and perform Body Area Maintenance procedure steps 6 through 9 as necessary.
8. Install the lever assembly (key 16) into the stem (key 14) and secure the lever assembly with the machine screws (key 17).
9. Install the parts on the pusher post in the order listed below:
 - Pusher Post (key 8)
 - Pusher Post Connector (key 40)
 - Connector Seal O-Ring (key 49)
 - Diaphragm Head (key 7)
 - Diaphragm (key 10), pattern side up
 - Diaphragm Head (key 7)

- Hex Nut (key 21) — Torque the hex nut 9 to 11 foot-pounds (12 to 15 N•m) to secure parts to the pusher post connector (key 40)
- Overpressure Spring (key 39)
- Spring Holder (key 37)
- Machine Screw (key 38)

10. Insert and tighten the machine screw (key 38) with a torque of 1 to 3 foot-pounds (1 to 4 N•m) to secure the diaphragm parts to the pusher post (key 8).

11. Install the assembled parts in the diaphragm casing (key 4). Make sure that the lever (key 16) fits in the pusher post (key 8) and that the holes in the diaphragm (key 10) align with the holes in the diaphragm casing.

12. Install the spring case (key 3) on the diaphragm casing (key 4) so that the vent assembly (key 26) is correctly oriented, and secure with the cap screws (key 24, figure 6) and hex nuts (key 23, not shown) fingertight only.

13. Insert the control spring (key 6) into the spring case (key 3), followed by the adjusting screw (key 35).

14. Turn the adjusting screw (key 35) clockwise until there is enough spring (key 6) force to provide proper slack to the diaphragm (key 10). Using a crisscross pattern, finish tightening the cap screws (key 24) and hex nuts (key 23) to 14 to 17 foot-pounds (19 to 23 N•m) of torque. To adjust the outlet pressure, refer to the Startup and Adjustment section.

15. Install a replacement closing cap gasket (key 25) if necessary, and then install the closing cap (key 22).

To Convert Constructions

The Type Y690A to the Type Y690AM:

New parts required: keys 30, 31, and 33

1. Remove pipe plug (key 27, figure 4) from the diaphragm casing (key 4).
2. Refer to steps 1 and 5 in the Body Area Maintenance section to remove the four machine screws (key 33) and pitot tube (key 32, figure 4).
3. Insert the throat seal O-ring (key 31, figure 5) and one machine screw (key 33).
4. Insert the stem seal O-ring (key 30, figure 5) by following steps 1 through 6 in the Diaphragm and Spring Case Area Maintenance Section

The Type Y690AM to the Type Y690A:

New parts required: keys 27, 32, and 33

1. Insert pipe plug (key 27, figure 4) in the diaphragm casing (key 4).

2. Follow steps 1 through 6 in the Diaphragm and Spring Case Area Maintenance Section to remove one machine screw (key 33, figure 5), the stem seal O-ring (key 30, figure 5), and the throat seal (key 31, figure 5) blocking the registration port.

3. Insert pitot tube (key 32) and four machine screws (key 33) as outlined in step 5 of the Body Area Maintenance section.

Parts Ordering

When corresponding with the Fisher Sales Office or Sales Representative about this regulator, include the type number and all other pertinent information stamped on the nameplate. Specify the eleven-character part number when ordering new parts from the following parts list.

Parts List

Key	Description	Part Number
	Spare Parts Kit (Included are keys 10, 11, 12, 13, 15, 30, 31, 33, 48, and 49)	RY690AX0012
1	Body	See Table 3
2	Cap Screw	
	Ductile Iron	1C856228992
	Stainless Steel	18B3456X012
3	Spring Case Assembly	
	Ductile iron	13B0109X042
	Stainless steel	13B0109X032

Key	Description	Part Number
4	Diaphragm Casing	
	Ductile iron	47B3063X012
	Stainless steel	47B3064X012
	Hastelloy C	47B3064X022
5	Orifice	
	S30300 Stainless Steel (Standard)	
	1/8-inch (3,2 mm)	1A936735032
	1/4-inch (6,4 mm)	0B042035032
	3/8-inch (9,5 mm)	0B042235032
	1/2-inch (12,7 mm)	1A928835032
	9/16-inch (14,3 mm)	1C425235032
	S31600 Stainless steel (NACE)	
	1/8-inch (3,2 mm)	1A9367X0022
	1/4-inch (6,4 mm)	0B0420X0012
	3/8-inch (9,5 mm)	0B0422X0012
	1/2-inch (12,7 mm)	1A9288X0012
	9/16-inch (14,3 mm)	1C4252X0022
	Hastelloy C	
	3/8-inch (3,2 mm)	0B0422X0022
6	Spring	
	Y690A and Y690AM	
	1 to 2-1/2-inches w.c. (2 to 6 mbar)	1B558527052
	2-1/2 to 7-inches w.c. (6 to 17 mbar)	1B653827052
	Y690AH and Y690AHM	
	5 to 10-inches w.c. (12 to 25 mbar)	1B653827052
	7 to 15-inches w.c. (17 to 37 mbar)	1B653927022
	0.5 to 1.2 psig (34 to 83 mbar)	1B537027052
	1.2 to 2.5 psig (83 to 172 mbar)	1B537127022
	2.5 to 4.5 psig (0,17 to 0,31 bar)	1B537227022
	4.5 to 7 psig (0,31 to 0,48 bar)	1B537327052
7	Diaphragm Head	
	Stainless Steel	17B9723X032
	Hastelloy C	17B9723X022
8	Pusher Post	
	S30300 Stainless Steel (Standard)	27B5354X012
	S31600 Stainless Steel (NACE)	27B5354X022
	Hastelloy C	27B5354X032
10*	Diaphragm	
	Nitrile (NBR)	37B9720X012
	Fluoroelastomer (FKM)	23B0101X052
	Nitrile (NBR) with PTFE	34B4375X012
11*	Body Seal O-Ring	
	Nitrile (NBR)	1H993806992
	Fluoroelastomer (FKM)	1H9938X0012
	Perfluoroelastomer (FFKM)	1H9938X0042
	Ethylene propylene (EPDM)	1H9938X0022

* Recommended spare part

Table 3. Body Materials and Part Numbers (Body, key 1)

BODY MATERIAL	END CONNECTION STYLE ⁽¹⁾	PART NUMBER	
		3/4-Inch (DN 20) Body	1-Inch (DN 25) Body
Ductile iron	NPT Screwed	17B5351X012	17B5351X022
Stainless steel with Stainless steel flanges	NPT Screwed	17B5351X032	17B5351X042
	ANSI Class 150 RF	17B9733X072	17B9733X082
	ANSI Class 300 RF	17B9733X092	17B9733X102
	PN 16/25/40	17B9733X112	17B9733X122
Stainless steel with Carbon steel flanges	ANSI Class 150 RF	17B9733X012	17B9733X022
	ANSI Class 300 RF	17B9733X032	17B9733X042
	PN 16/25/40	17B9733X052	17B9733X062
Hastelloy C	ANSI Class 150 RF	- - -	17B9732X012

1. All flanges are welded on except Hastelloy C. Weld-on flange dimension is 14-inches (356 mm) face-to-face.

Y690A Series

Key	Description	Part Number	Key	Description	Part Number
12*	Insert Seal Nitrile (NBR) Fluoroelastomer (FKM) Perfluoroelastomer (FFKM) Ethylene propylene (EPDM)	1B885506992 1B8855X0012 1B8855X0062 1B8855X0022	26	Vent Assembly Spring Case Down (Type Y602-1) Spring Case Up (Type Y602-11) Spring Case Sideways (Type Y602-12)	17A6570X012 17A5515X012 27A5516X012
13*	Disk Assembly S30300 Stainless Steel with Nitrile (NBR) Fluoroelastomer (FKM) Ethylene propylene (EPDM) S31600 Stainless Steel with Nitrile (NBR) Fluoroelastomer (FKM) Perfluoroelastomer (FFKM) Ethylene propylene (EPDM) Hastelloy C with PTFE	1C4248X0202 1C4248X0052 1C4248X0302 1C4248X0252 1C4248X0192 1C4248X0332 1C4248X0152 1C4248X0382	27	Pipe Plug (Types Y690A and Y690AH only) Steel Stainless Steel Hastelloy C	1A369224492 1A369235072 1A3692X0042
14	Stem S30300 Stainless steel (Standard) S31600 Stainless steel (NACE) Hastelloy C	17B3423X012 17B3423X022 17B3423X032	30*	Stem Seal (Types Y690AM and Y690AHM only) Nitrile (NBR) Fluoroelastomer (FKM) Perfluoroelastomer (FFKM) Ethylene propylene (EPDM)	1H2926G0012 1H2926X0022 1H2926X0042 1H2926X0012
15*	Cotter Pin Stainless Steel Hastelloy C	1A866537022 14B7990X012	31	Throat Seal (Types Y690AM and Y690AHM only) Nitrile (NBR) Fluoroelastomer (FKM) Perfluoroelastomer (FFKM) Ethylene propylene (EPDM)	1D682506992 1D6825X0012 1D6825X0032 1D6825X0042
16	Lever Assembly Stainless steel Hastelloy C	1B5375000B2 1B5375X0092	32	Pitot Tube (Types Y690A and Y690AH only)	17B4479X012
17	Machine Screw (2 required) Stainless Steel Hastelloy C	19A7151X022 17B9736X012	33	Machine Screw (4 required) Types Y690A and Y690AH Stainless Steel	19A7151X022
18	Guide Insert Stainless Steel Hastelloy C	27B4028X022 27B4028X032	33	Machine Screw (1 required) Types Y690AM and Y690AHM Stainless Steel Hastelloy C	18A0703X022 18A0703X032 1B537944012
21	Hex Nut Stainless Steel	1A354024122	35	Adjusting Screw	1R982025072
22	Closing Cap Plastic (Standard) Steel Stainless Steel	T13524T0062 1E422724092 1E422735072	37	Spring Holder	10B6189X022
23	Hex Nut (8 required) Ductile Iron Stainless Steel	1A352724122 1E9440X0352	38	Machine Screw	1B541327022
24	Diaphragm Case Cap Screw (8 required) Ductile Iron Stainless Steel	1A352524052 18B3455X012	39	Overpressure Spring	27B7982X012 27B7982X022 27B7982X032
25	Closing Cap Gasket, Steel and Stainless Steel Closing Cap Only	1P753306992	40	Pusher Post Connector S30300 Stainless Steel (Standard) S31600 Stainless Steel (NACE) Hastelloy C	----- 1A368228982
			46	Nameplate	1D687506992
			47	Drive Screw (2 required)	1N430406382
			48	Post Seal Nitrile (NBR) Fluoroelastomer (FKM) Perfluoroelastomer (FFKM) Ethylene propylene (EPDM)	1D6875X0082 1D6875X0032
			49*	Connector Seal Nitrile (NBR) Fluoroelastomer (FKM) Perfluoroelastomer (FFKM) Ethylene propylene (EPDM)	13A1584X012 13A1584X022 13A1584X032 13A1584X042
			50	Backup Ring, Stainless Steel	18B3446X012

* Recommended spare part

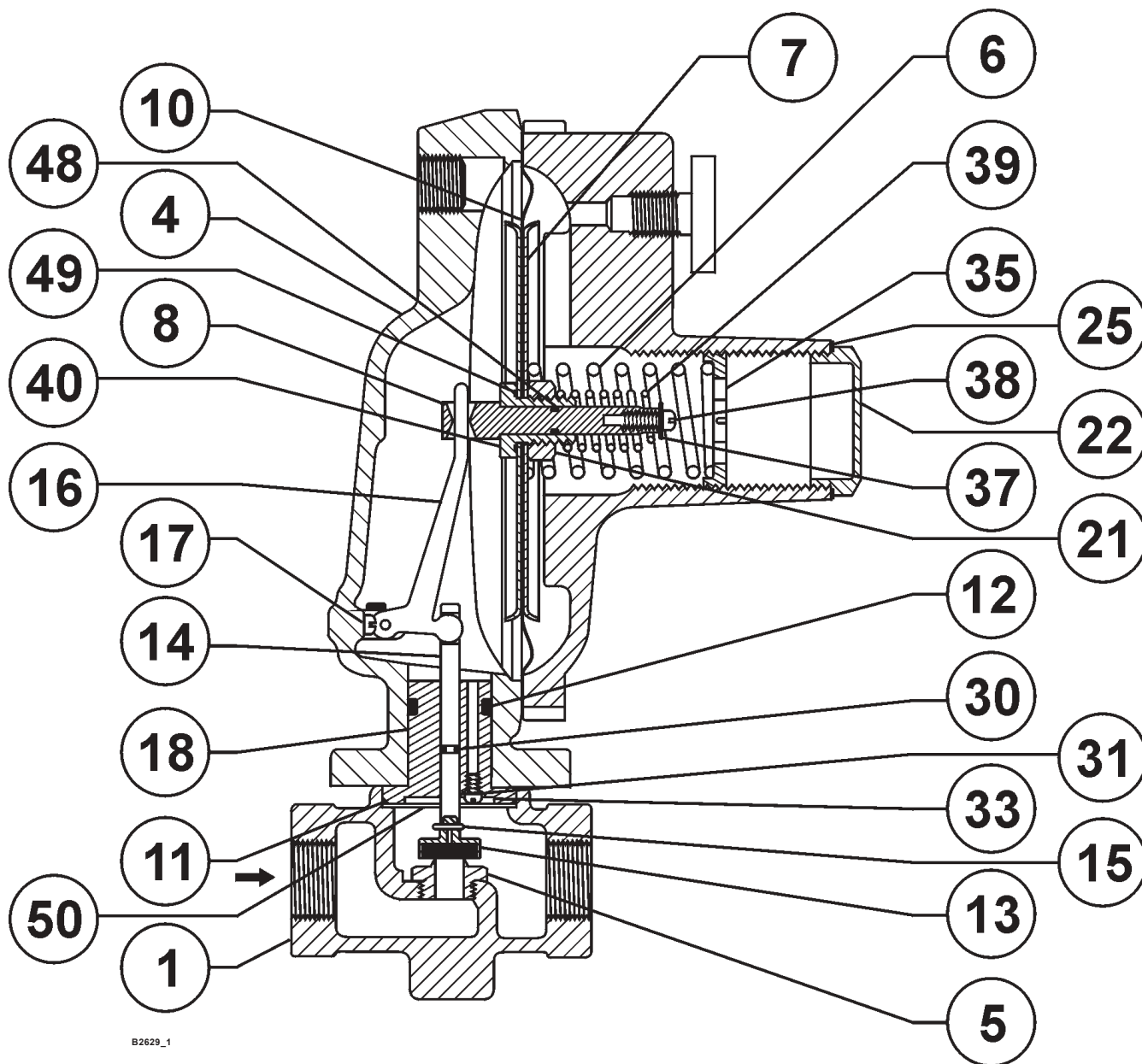
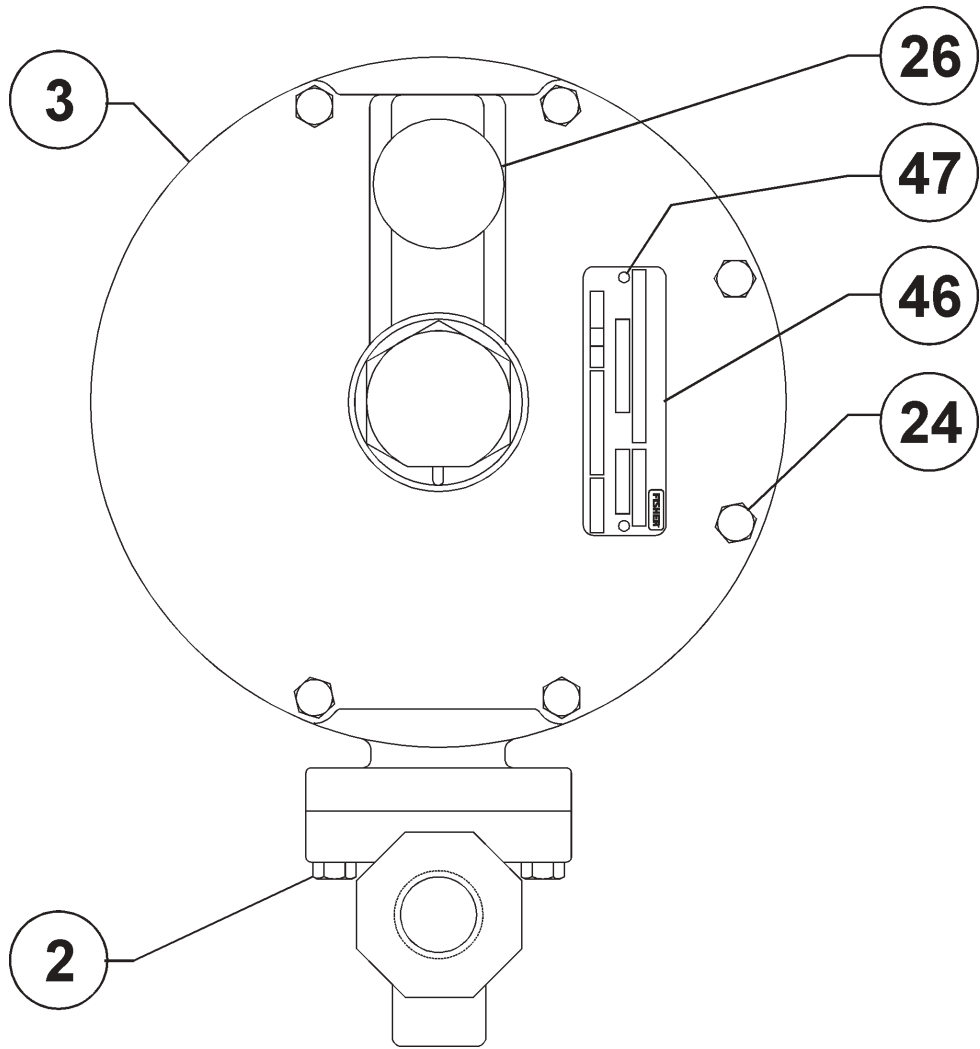


Figure 5. Type Y690AM or Y690AHM Regulator Assembly



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Figure 6. Type Y690AM or Y690AHM Regulator Assembly

Y690A Series

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For information, contact Fisher:
Marshalltown, Iowa 50158 USA
McKinney, Texas 75070 USA
28320 Gallardon, France
40013 Castel Maggiore (BO), Italy
Sao Paulo 05424 Brazil
Singapore 128461

