

## Introduction

This installation guide provides instructions for installation, startup, and adjustment. To receive a copy of the instruction manual, contact your local Fisher Sales Office or Sales Representative or view a copy at [www.FISHERregulators.com](http://www.FISHERregulators.com). For further information refer to: Y690A Series Instruction Manual (form 5463, D102587X012).

## P.E.D. Category

This product may be used as a safety accessory with pressure equipment in the following Pressure Equipment Directive 97/23/EC categories. It may also be used outside of the Pressure Equipment Directive using sound engineering practice (SEP) per table below.

| PRODUCT SIZE          | CATEGORIES | FLUID TYPE |
|-----------------------|------------|------------|
| DN 20-25 (3/4-1-inch) | SEP        | 1          |

## Specifications

### Available Configurations

- Type Y690A:** Low-pressure, 2 to 17 mbar (1 to 7-inches w.c.), direct-operated regulator with internal registration requiring no downstream control line.
- Type Y690AH:** Low-pressure, 12 to 480 mbar (5-in. w.c. to 7 psig), direct-operated regulator with internal registration requiring no downstream control line.
- Type Y690AM:** Low-pressure, 2 to 17 mbar (1 to 7-inches w.c.), direct operated regulator with a blocked throat and O-ring stem seal for use if external registration is required. Lower diaphragm casing assembly is tapped for 12,7 mm (1/2-inch) NPT for downstream control line connection.
- Type Y690AHM:** Low-pressure, 12 to 480 mbar (5-inches w.c. to 7 psig), 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 12,7 mm (1/2-inch) NPT for downstream control line connection.

### Body Sizes

DN 20 or 25 (3/4 or 1-inch)

### Body Material and End Connection Styles

- Ductile Iron:** NPT
- Stainless Steel with Stainless Steel Flanges:** NPT, ANSI Class 150 RF, ANSI Class 300 RF, and PN 16/25/40
- Stainless Steel with Carbon Steel Flanges:** ANSI Class 150 RF, ANSI Class 300 RF, and PN 16/25/40
- Hastelloy C:** ANSI Class 150 RF

### Maximum Allowable Inlet Pressure<sup>(1)</sup>

10,3 bar (150 psig)

### Maximum Operating Inlet Pressure<sup>(1)</sup>

See table 1

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

10,3 bar (150 psig)

### Maximum Emergency Outlet Pressure to Avoid Internal Parts Damage<sup>(1)</sup>

10,3 bar (150 psig)

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

See table 1

### Proof Test Pressure

All Pressure Retaining Components have been proof tested per Directive 97/23/EC - Annex 1, Section 7.4

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

- Nitrile (NBR):* -29 to 82°C (-20 to 180°F)
- Fluoroelastomer (FKM):* 4 to 149°C (40 to 300°F)
- Ethylene propylene (EPDM):* -29 to 149°C (-20 to 300°F)
- Perfluoroelastomer (FFKM):* -20 to 300°F (-29 to 149°C)

## 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 Fisher 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 male 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.

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



# Y690A Series

## 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.**

Table 1. Maximum Operating Inlet Pressure and Outlet Pressure Ranges

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

## Parts List

| Key Description        | Key Description          |
|------------------------|--------------------------|
| 1 Body                 | 23 Hex Nut               |
| 2 Cap Screw            | 24 Diaphragm Case Screw  |
| 3 Spring Case Assembly | 25 Closing Cap Gasket    |
| 4 Diaphragm Casing     | 26 Vent Assembly         |
| 5 Orifice              | 27 Pipe Plug             |
| 6 Spring               | 30 Stem Seal             |
| 7 Diaphragm Head       | 31 Throat Seal           |
| 8 Pusher Post          | 32 Pitot Tube            |
| 10 Diaphragm           | 33 Machine Screw         |
| 11 Body Seal O-Ring    | 35 Adjusting Screw       |
| 12 Insert Seal         | 37 Spring Holder         |
| 13 Disk Assembly       | 38 Machine Screw         |
| 14 Stem                | 39 Overpressure Spring   |
| 15 Cotter Pin          | 40 Pusher Post Connector |
| 16 Lever Assembly      | 46 Nameplate             |
| 17 Machine Screw       | 47 Drive Screw           |
| 18 Guide Insert        | 48 Post Seal             |
| 21 Hex Nut             | 49 Connector Seal        |
| 22 Closing Cap         | 50 Backup Ring           |

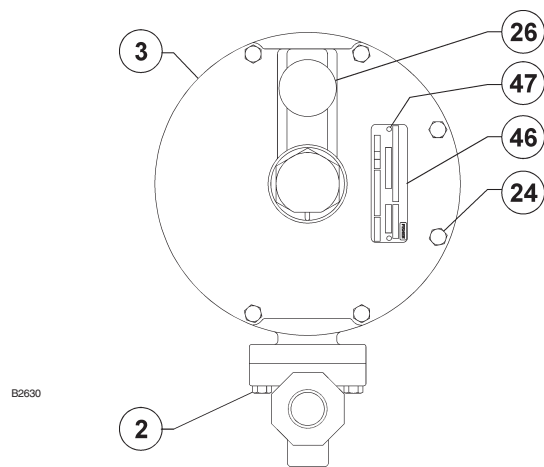
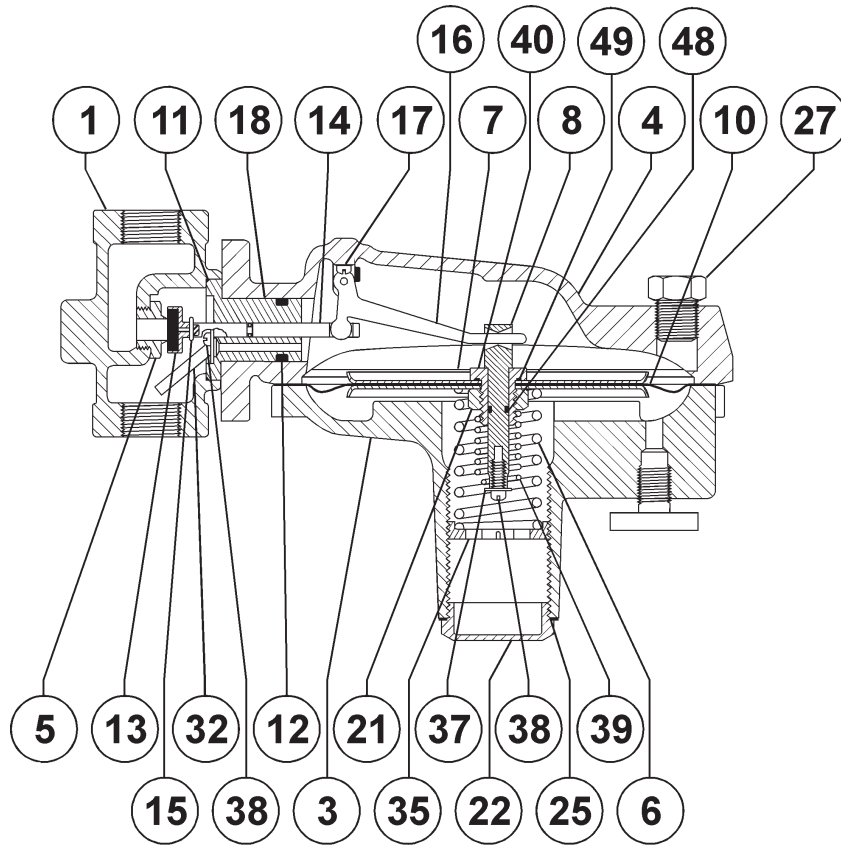
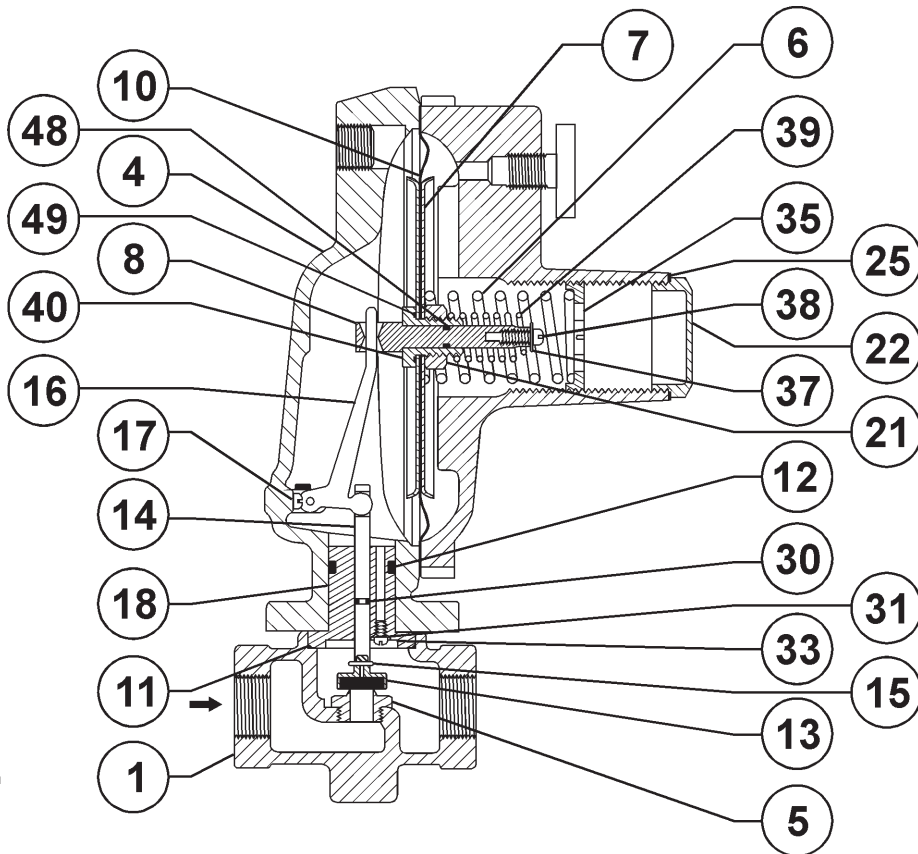


Figure 1. Type Y690Am or Y690AHM Regulator Assembly



B2628\_1

Figure 2. Type Y690A or Y690AH Regulator Assembly



B2629\_1

Figure 3. Type Y690AM or Y690AHM Regulator Assembly

# Y690A Series

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*For information, contact Fisher Controls, International:*

Within USA (800) 588-5853 – Outside USA (972) 542 0132

France – (33) 23-733-4700

Singapore – (65) 770-8320

Mexico – (52) 57-28-0888

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