

# EZH and EZHSO Series Pressure Reducing Regulators

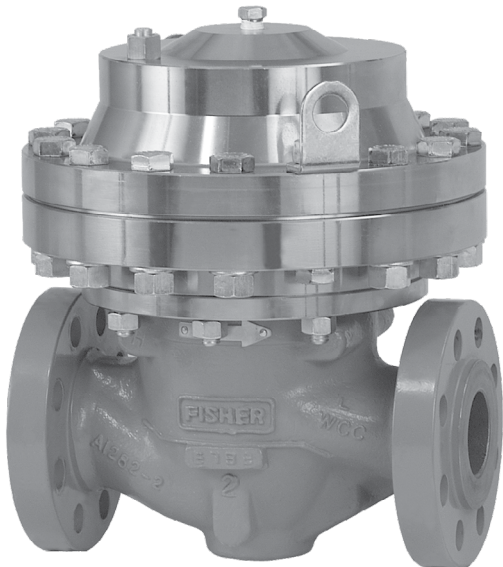


Figure 1. EZH Series Pressure Reducing Regulator

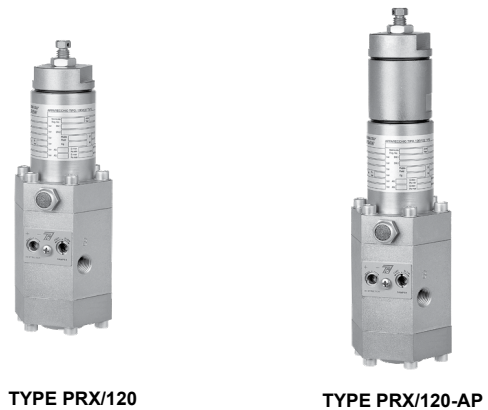


Figure 2. PRX Series Pressure Reducing Pilots

## **WARNING**

Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion and/or fire causing property damage and personal injury or death.

Fisher™ regulators must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson Process Management Regulator Technologies, Inc. (Emerson) instructions.

If the regulator vents gas or a leak develops in the system, service to the unit may be required. Failure to correct trouble could result in a hazardous condition.

Call a gas service person to service the unit. Only a qualified person must install or service the regulator.

## Introduction

### Scope of the Manual

This manual provides installation, startup and maintenance instructions and parts ordering information for the EZH and EZHSO Series pressure-reducing regulators, PRX Series pilots and Type SA/2 pilot supply filter regulator. Information on other equipment used with this regulator is found in separate manuals.

### Product Description

EZH Series (Spring-to-Close) and EZHSO Series (Spring-to-Open) regulators are accurate pilot-operated, pressure-balanced, soft-seated regulators. They are designed for use in high pressure natural gas transmission/city gate stations, large capacity distribution systems and power plant feeds. They provide smooth and reliable operation, tight shutoff and long life.

# EZH and EZHSO Series

## Specifications

Ratings and specifications for the EZH and EZHSO Series are listed in the Specifications section below. Specifications for specific regulator constructions are stamped on a nameplate attached to either the main actuator or the pilot spring case.

### Available Configurations

**Type EZH:** Spring-to-close pilot-operated pressure reducing regulator for low to high outlet pressure  
**Type EZHSO:** Spring-to-open pilot-operated pressure reducing regulator for low to high outlet pressure  
**Type EZHOSX:** Type EZH with a Type OS2 slam-shut device for overpressure (OPSO) or overpressure and underpressure (OPSO/UPSO) protection  
**Type EZHSO-OSX:** Type EZHSO with a Type OS2 slam-shut device for overpressure (OPSO) or overpressure and underpressure (OPSO/UPSO) protection

### Body Sizes, End Connection Styles and Pressure Ratings<sup>(1)</sup>

See Table 1

### Maximum Inlet and Outlet (Casing) Pressures<sup>(1)</sup>

1500 psig / 103 bar

### Maximum Emergency (Design Casing Pressure)<sup>(1)</sup>

1500 psig / 103 bar

### Maximum Operating Differential Pressure<sup>(1)(4)</sup>

**Main Valve:** 1500 psid / 103 bar d  
**Pilot:** *Between loading pressure in pilot and loading sense pressure:* 1233 psid / 85.0 bar d

### Outlet Pressure Ranges

See Table 2

### Pressure Registration

External

### Pilot Connections

1/4 NPT

### Minimum Differential Pressures<sup>(1)(2)</sup>

| SERIES | MAIN VALVE BODY SIZE |     | MINIMUM DIFFERENTIAL |       |                   |       |
|--------|----------------------|-----|----------------------|-------|-------------------|-------|
|        |                      |     | For 90% Capacity     |       | For 100% Capacity |       |
|        | NPS                  | DN  | psid                 | bar d | psid              | bar d |
| EZH    | 1                    | 25  | 15.2                 | 1.1   | 15.7              | 1.1   |
|        | 2                    | 50  | 12.0                 | 0.83  | 13.8              | 0.95  |
|        | 3                    | 80  | 10.6                 | 0.73  | 12.8              | 0.88  |
|        | 4                    | 100 | 15.8                 | 1.1   | 16.4              | 1.1   |
| EZHSO  | 1                    | 25  | 55                   | 3.8   | 55                | 3.8   |
|        | 2                    | 50  |                      |       |                   |       |
|        | 3                    | 80  |                      |       |                   |       |
|        | 4                    | 100 | ----                 | ----  | 25.6              | 1.8   |

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

#### Nitrile (NBR) Version:

-20 to 180°F / -29 to 82°C

#### Fluorocarbon (FKM) Version:

0 to 180°F / -18 to 82°C<sup>(3)</sup>

#### Polyurethane (PU) Version:

*NPS 1 to 2 / DN 25 to 50 Sizes:*

-22 to 180°F / -30 to 82°C

*NPS 3 to 4 / DN 80 to 100 Sizes:*

-4 to 180°F / -20 to 82°C

### Options

- Travel Indicator
- Whisper Trim™ Cage  
(NPS 2 to 4 / DN 50 to 100 Sizes only)

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

2. When using a Type SA/2 pilot supply filter regulator, the differential pressure across the regulator must be at least 45 psid / 3.1 bar d for optimum regulator performance.

3. Types PRX and SA/2 Fluorocarbon (FKM) elastomer is limited to 0°F / -18°C.

4. Maximum Operating Differential Pressure is 1400 psid / 96.5 bar d for NPS 1 / DN 25 EZHSO Series.

## Pilot Descriptions

The EZH and EZHSO Series pressure-reducing regulators include a PRX Series pilot mounted on the main valve.

**Type PRX/120:** Outlet pressure range of 14.5 to 435 psig / 1.00 to 30.0 bar. The Type PRX/120 can be used as the pilot on single stage pressure reducing regulators, as the monitor or working pilot in wide-open monitor systems or as the working pilots in working monitor systems.

**Type PRX/120-AP:** Outlet pressure range of 435 to 1160 psig / 30.0 to 80.0 bar. The Type PRX/120-AP can be used as the pilot on single stage pressure reducing regulators, as the monitor or working pilot in wide-open monitor systems or as the working pilots in working monitor systems.

**Type PRX/125:** Identical to the Type PRX/120 except the restriction screw is removed. The Type PRX/125 can only be used as the monitor override pilot on working monitor applications.

**Type PRX/125-AP:** Identical to the Type PRX/120-AP except the restriction screw is removed. The Type PRX/125-AP can only be used as the monitor override pilot on working monitor applications.

### Pilot Supply Filter Regulator

The Type SA/2 pilot supply filter regulator provides a constant supply pressure to the PRX Series pilot that is approximately 45 psi / 3.1 bar over set pressure. The Type SA/2 has an integral 5-micron filter.

# EZH and EZHSO Series

**Table 1. Main Valve Body Sizes, End Connection Styles and Body Ratings**

| MAIN VALVE BODY SIZE |     | MAIN VALVE BODY MATERIAL | END CONNECTION STYLE | STRUCTURAL DESIGN RATING |      |
|----------------------|-----|--------------------------|----------------------|--------------------------|------|
| NPS                  | DN  |                          |                      | psig                     | bar  |
| 1                    | 25  | LCC or WCC Steel         | NPT or SWE           | 1500                     | 103  |
|                      |     |                          | CL150 RF             | 290                      | 20.0 |
|                      |     |                          | CL300 RF             | 750                      | 51.7 |
|                      |     |                          | CL600 RF or BWE      | 1500                     | 103  |
| 2                    | 50  |                          | NPT or SWE           | 1500                     | 103  |
|                      |     |                          | CL150 RF             | 290                      | 20.0 |
|                      |     |                          | CL300 RF             | 750                      | 51.7 |
|                      |     |                          | CL600 RF or BWE      | 1500                     | 103  |
| 3                    | 80  |                          | CL150 RF             | 290                      | 20.0 |
|                      |     |                          | CL300 RF             | 750                      | 51.7 |
|                      |     |                          | CL600 RF or BWE      | 1500                     | 103  |
|                      |     |                          | CL150 RF             | 290                      | 20.0 |
| 4                    | 100 | CL300 RF                 | 750                  | 51.7                     |      |
|                      |     | CL600 RF or BWE          | 1500                 | 103                      |      |

**Table 2. Outlet Pressure Ranges**

| TYPE                     | OUTLET PRESSURE RANGE                           |   | AC (ACCURACY CLASS) |              | PILOT CONTROL SPRING INFORMATION |  |
|--------------------------|---|---|---------------------|--------------|----------------------------------|--|
|                          | psig  | bar   | EZH Series          | EZHSO Series | Spring Color                     | Part Number  |
| PRX/120<br>PRX/125       | 14.5 to 26<br>23 to 44<br>41 to 80<br>73 to 123 | 1.00 to 1.8<br>1.6 to 3.0<br>2.8 to 5.5<br>5.0 to 8.5 | 2.5%                | 2.5%         | Yellow<br>Green<br>Blue<br>Black | M0255240X12<br>M0255230X12<br>M0255180X12<br>M0255220X12 |
|                          | 116 to 210<br>203 to 334<br>319 to 435          | 8.0 to 14.5<br>14.0 to 23.0<br>22.0 to 30.0           |                     |              | 1%                               | 2.5%   |
| PRX/120-AP<br>PRX/125-AP | 435 to 1160                                     | 30.0 to 80.0  | 1%                  | 2.5%         | Clear                            | M0273790X12  |

**Table 3. Failure Mode Analysis**

| PART NAME             | CONDITION  | CAUSE                                   | EFFECT  | REGULATOR REACTION MODE |            |
|-----------------------|--|---|---|-------------------------|------------|
|                       |  |   |   | Type EZH                | Type EZHSO |
| Filter                | Filter Blocked /Clogged                                | Debris or aromatics present in the gas  | Decrease of supply pressure gives decrease of loading pressure                                    | Close                   | Open       |
| Pilot disk            | Pilot cannot be closed                                 | Debris or aromatics present, Sour gas   | Increase loading pressure   | Open                    | Open       |
| Pilot lower diaphragm | Pilot cannot control                                   | Debris or aromatics present, Sour gas   | Decrease loading pressure   | Close                   | Open       |
| Pilot upper diaphragm | Pilot cannot feed the regulator                        | Debris or aromatics present, Sour gas   | Decrease loading pressure   | Close                   | Open       |
| Regulator diaphragm   | Not proper performance of the Loading Pressure Chamber | Debris or aromatics present, Sour gas   | Balancing of Pressures and charge or discharge of the loading pressure chamber                    | Close                   | Open       |
| Pilot                 | Frozen Pilot, Type SA/2 working                        | Moisture in the gas, high-pressure drop | Type SA/2 loading upper casing of regulator, Pilot not supplying loading pressure to lower casing | Close                   | Close      |

# EZH and EZHSO Series

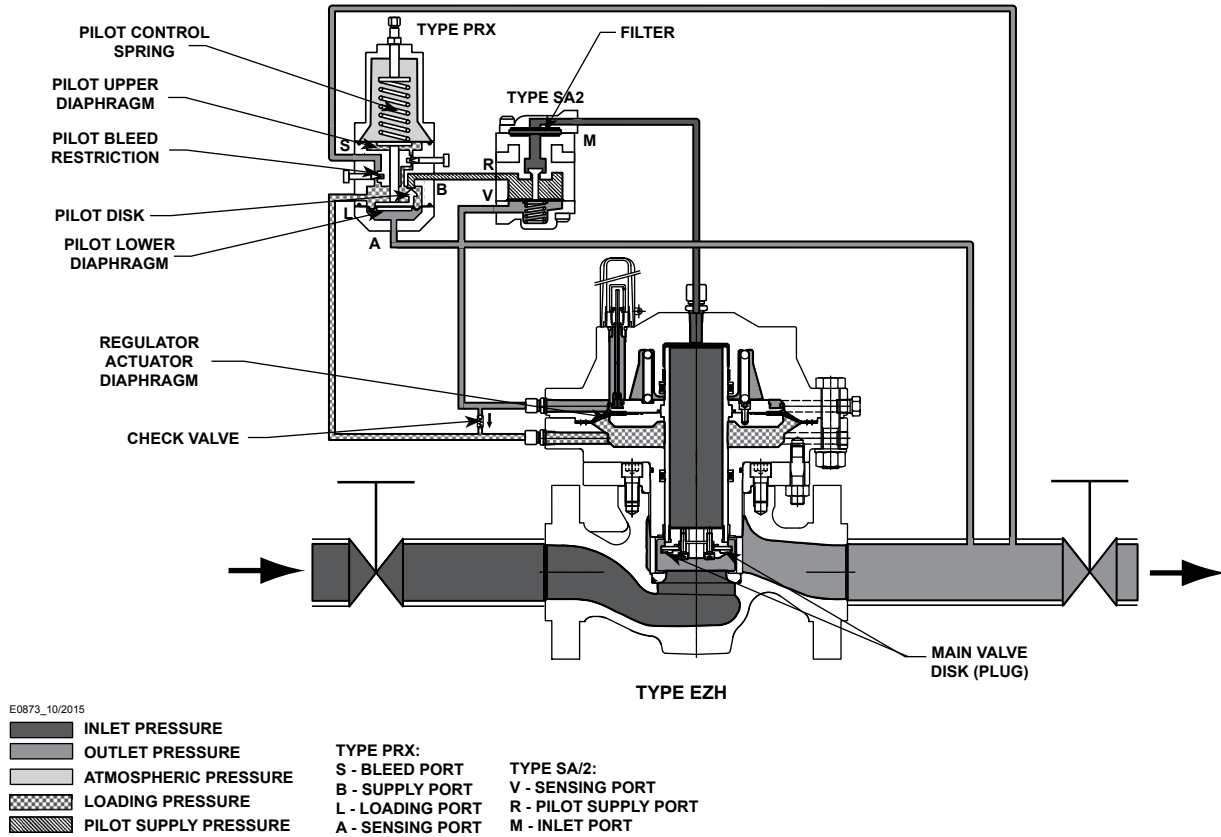


Figure 3. Type EZH (Spring-to-Close) Operational Schematic

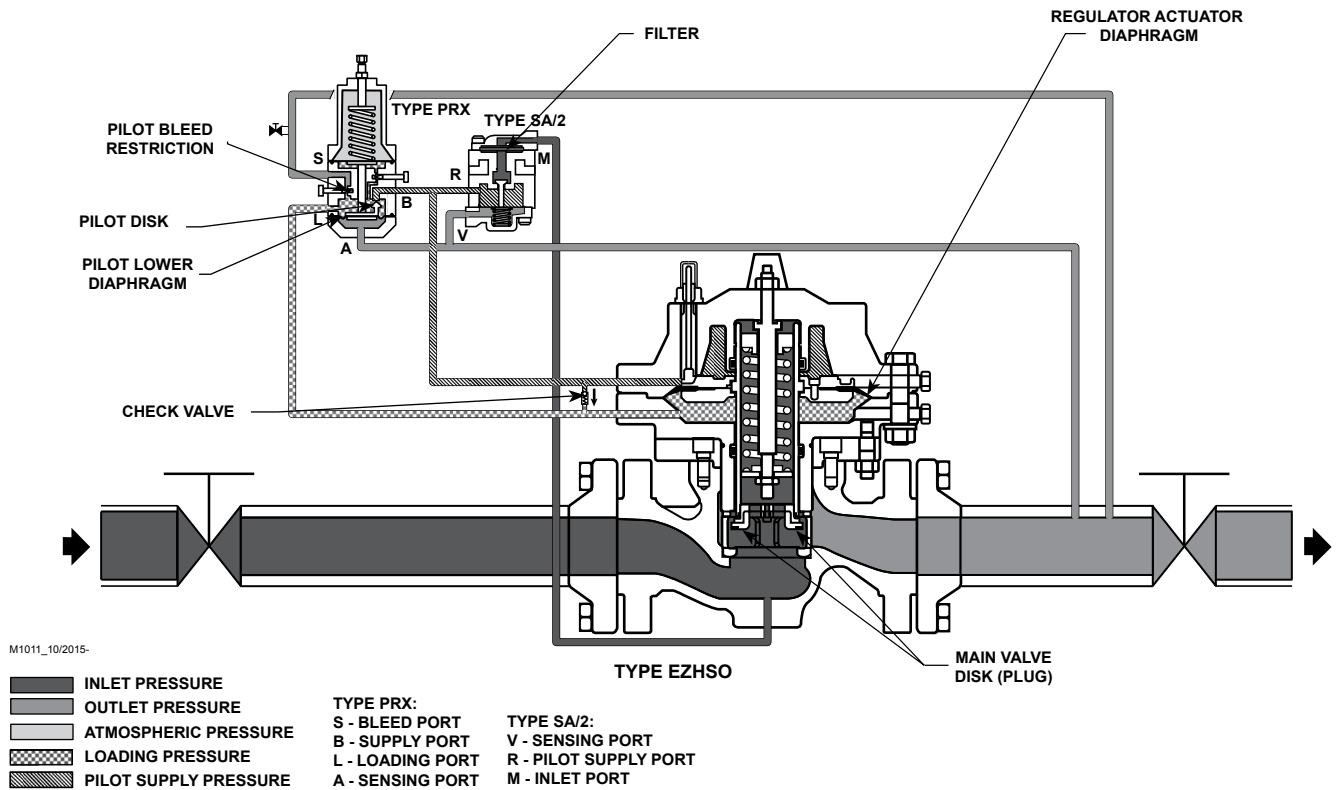


Figure 4. Type EZHSO (Spring-to-Open) Operational Schematic

## Principle of Operation

### EZH Series – Spring-to-Close Version



**The pilot-operated EZH Series (Spring-to-Close version) will fail in close position with a main valve diaphragm failure or lack of pressure supply to the pilot (see Table 3 for Failure Mode Analysis).**

EZH Series (Figure 3) uses inlet pressure as the operating medium, which is reduced through pilot operation to load the regulator actuator diaphragm. Outlet pressure opposes loading pressure in the actuator and also opposes the pilot control spring.

Pilot is supplied with pressure coming from pre-regulator Type SA/2, which reduces inlet pressure to the constant value of outlet pressure plus approximately 45 psi / 3.1 bar.

When outlet pressure drops below the setting of the pilot control spring, pilot control spring force on the pilot diaphragm opens the pilot valve disk, providing additional loading pressure to the regulator actuator diaphragm. This diaphragm loading pressure opens the main valve disk, supplying the required flow to the downstream system. Any excess loading pressure in the lower chamber of the actuator diaphragm escapes downstream through the bleed restriction in the pilot.

When the gas demand in the downstream system has been satisfied, the outlet pressure increases. The increased pressure is transmitted through the downstream control line and acts under the lower pilot diaphragm. This pressure exceeds the pilot spring setting and moves the PRX Series diaphragm, closing the orifice and interrupting the loading pressure supply to the lower chamber of the regulator actuator diaphragm. The excess loading pressure acting under the regulator actuator diaphragm and pilot bleeds to the downstream system through a bleed restriction in the pilot.

A check valve, set at 75 psi / 5.2 bar, is installed between outlet pressure and loading pressure impulse lines; this valve will protect the main valve diaphragm assembly from excessive differential pressure during startup if incorrect start up procedures are used. Do not exceed 75 psi / 5.2 bar differential pressure between the outlet pressure and loading pressure impulse lines.

### EZHSO Series – Spring-to-Open Version



**The pilot-operated EZHSO Series (Spring-to-Open version) will fail in open position with a main valve diaphragm failure or lack of pressure supply to the pilot (see Table 3 for Failure Mode Analysis).**

EZHSO Series (Figure 4) uses inlet pressure as the operating medium, which is reduced through pilot operation to load the regulator actuator diaphragm (lower chamber). The upper chamber of EZHSO Series actuator and the PRX Series pilot are both supplied with pressure coming from pre-regulator Type SA/2, which reduces inlet pressure to the constant value of outlet pressure plus approximately 45 psi / 3.1 bar. This pressure opposes the main spring force that tends to open the regulator. Outlet pressure opposes the pilot control spring.

When outlet pressure drops below the setting of the pilot control spring, pilot control spring force on the pilot diaphragm opens the pilot valve disk, providing additional loading pressure to the lower chamber of the regulator actuator diaphragm. This diaphragm loading pressure opens the main valve disk, supplying the required flow to the downstream system. Any excess loading pressure in the lower chamber of the regulator actuator diaphragm and PRX Series escapes downstream through the bleed restriction in the pilot.

When outlet pressure increases over the setting of the pilot spring, the pilot valve disk will be closed, reducing loading pressure to the lower chamber of the regulator actuator diaphragm; the pressure in the upper case will force the regulator to close.

A check valve, set at 75 psi / 5.2 bar, is installed between pilot supply pressure and loading pressure impulse lines; this valve will protect the diaphragm assembly from incorrect start-up procedures, avoiding excess differential between inlet and loading pressure.

## Monitoring Systems

Monitoring regulation is overpressure protection by containment; therefore, there is no relief valve to vent to the atmosphere. When the working regulator fails to control the pressure, a monitor regulator installed in series, sensing the downstream pressure, goes into operation to maintain the downstream pressure at a slightly higher than normal set pressure. During an overpressure situation, monitoring keeps the customer on line. Also, testing is relatively easy. To perform a periodic test on a monitoring regulator, increase the outlet set pressure of the working regulator and watch the outlet pressure gauge to determine if the monitoring regulator takes over at the appropriate outlet pressure.

### Wide-Open Monitoring System (Figure 5)

There are two types of wide-open monitoring systems: upstream and downstream. The difference between upstream and downstream monitoring is that the functions of the regulators are reversed. Systems can be changed from upstream to downstream monitoring and vice-versa, by simply reversing the setpoints of the two regulators. The decision to use either an upstream or downstream monitoring system is largely a matter of personal preference or company policy.

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In normal operation of a wide open configuration, the working regulator controls the system's outlet pressure. With a higher outlet pressure setting, the monitor regulator senses a pressure lower than its setpoint and tries to increase outlet pressure by going wide open. If the working regulator fails, the monitoring regulator assumes control and holds the outlet pressure at its outlet pressure setting.

Figure 5 shows an upstream wide-open monitor Type EZH (failed-close) and a downstream active regulator Type EZHSO (failed-open). In this installation, if the Type EZHSO regulator no longer controls downstream pressure, it will remain open, causing the Type EZH monitor regulator to take control of the downstream pressure. Should the Type EZH fail, the monitor regulator will go closed and protect the downstream system from an overpressure condition.

## Working Monitoring System (Figure 6)

In a working monitoring system, the upstream regulator requires two pilots and it is always the monitoring regulator. The additional pilot permits the monitoring regulator to act as a series regulator to control an intermediate pressure during normal operation. In this way, both units are always operating and can be easily checked for proper operation. See Installation section.

In normal operation, the working regulator controls the outlet pressure of the system. The monitoring regulator's working pilot controls the intermediate pressure and the monitoring pilot senses the system's outlet pressure. If the working regulator fails, the monitoring pilot will sense the increase in outlet pressure and take control.

Working monitor installations require an EZH or EZHSO Series main valve with a Type PRX/120 or PRX/120-AP working pilot and a Type PRX/125 or PRX/125-AP monitoring pilot for the upstream regulator and an EZH or EZHSO Series with the appropriate Type PRX/120 or PRX/120-AP pilot for the downstream regulator.

## Installation



### WARNING

**Personal injury or equipment damage, due to 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 Specification section and on the appropriate nameplate or where conditions exceed any rating of the adjacent piping or piping connections. To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices to prevent service conditions from exceeding those limits. Also, be sure the installation is in compliance with all applicable codes and regulations.**

**Additionally, physical damage to the regulator could break the pilot off the main valve, causing personal injury and property damage due to bursting of pressure-containing parts. To avoid such injury and damage, install the regulator in a safe location.**

## All Installations

An EZH or EZHSO Series regulator bleeds no gas to atmosphere during normal operation, making it suitable for installation in pits and other enclosed locations without elaborate venting systems. This regulator also can be installed in pits subject to flooding by venting the pilot spring case above the expected flood level so that the pilot diaphragm is always exposed to atmospheric pressure.

1. Only personnel qualified through training and experience should install, operate and maintain a regulator. Before installation, make sure that there is no damage to or debris in the regulator. Also, make sure that all tubing and piping are clean and unobstructed.



### CAUTION

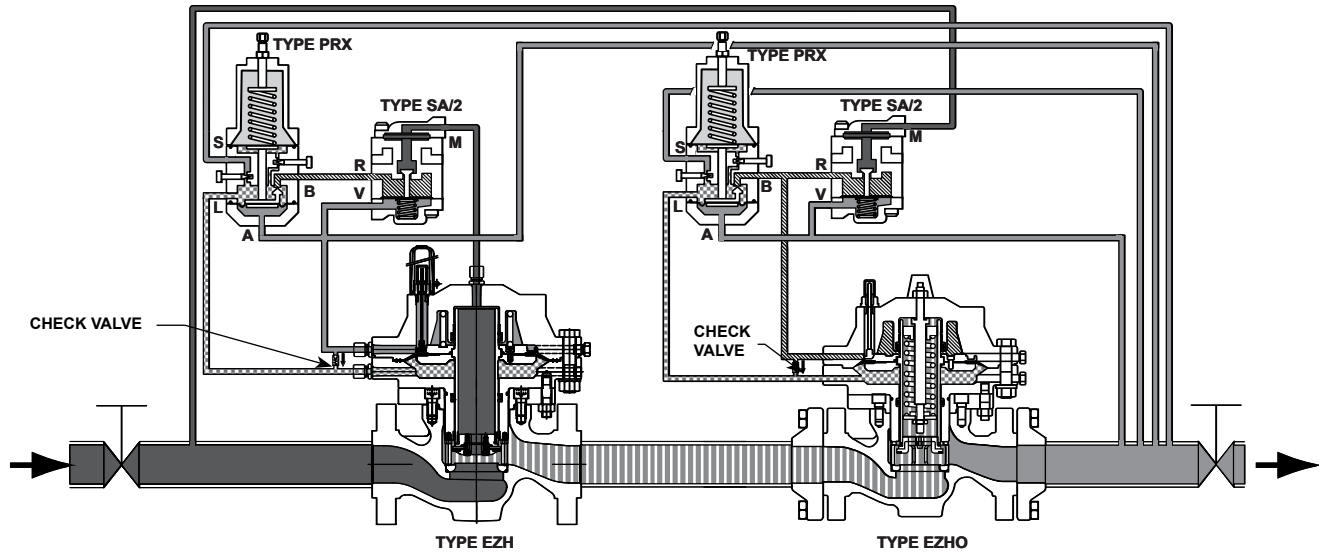
**Eyebolts are installed to aid in the handling and installation of the Regulator Assembly only. Do not attempt to lift more weight than the regulator with these eyebolts.**

2. Install the regulator so that the flow arrow on the main valve matches the flow direction of process fluid through the regulator. The EZH and EZHSO Series may be installed in any position, but it is normally installed in a horizontal pipeline with the pilot or pilots above the body.
3. Apply pipe compound to the external pipeline threads before installing a regulator with threaded NPT end connections. Use gaskets between pipeline and regulator flanges when installing a regulator with flanged end connections. When installing butt weld end connections, remove trim before welding and make sure to use approved welding practices. Use approved piping procedures when installing the regulator.



### WARNING

**A regulator may vent some gas to the atmosphere. In hazardous or flammable gas service, vented gas may accumulate, causing personal injury, death or property damage due to fire or explosion. Install vent line(s) from the regulator pilot(s) to a remote, safe location away from air intakes or any hazardous location. The end of the vent line or stack opening must be pointed down and protected against condensation or clogging.**



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|   |                  |                       |
|---|------------------|-----------------------|
|  INLET PRESSURE          | TYPE PRX         | TYPE SA/2:            |
|  OUTLET PRESSURE         | S - BLEED PORT   | V - SENSING PORT      |
|  ATMOSPHERIC PRESSURE    | B - SUPPLY PORT  | R - PILOT SUPPLY PORT |
|  LOADING PRESSURE       | L - LOADING PORT | M - INLET PORT        |
|  INTERMEDIATE PRESSURE | A - SENSING PORT |                       |
|  PILOT SUPPLY PRESSURE |                  |                       |

Figure 5. Wide-Open Monitoring System Operational Schematics

- PRX Series pilots have a 1/4 NPT vent connection in the spring case. The pilot vent opening should be pointed down. Protect the vent opening from condensation or clogging. To remotely vent gas from the spring case, remove the screened vent and connect 1/4 in. / 6.4 mm piping or tubing to the spring case connection. The piping or tubing should vent to a safe location, have as few elbows as possible and have a screened vent that points down on its exhaust. Install the regulator and any remote vent piping or tubing so that the vent is pointed down and protected from condensation, freezing or substances that may clog it.

pipe 6 to 10 pipe diameters from the regulator outlet as shown in Figures 3 and 4, using 3/8 in. / 9.5 mm or larger outside diameter tubing. If such a distance is not practical, connect the control line away from elbows, swages, nipples or any area where abnormal flow velocities occur.

**Note**

The optimal location for the sense and bleed lines is between the regulator and the downstream block valve. To prevent damage to the pilot during startup, the sense and bleed lines should be located on the same side of the downstream block valve.

- The PRX Series pilot connections are 1/4 NPT. Connect a downstream bleed line from the "S" port on the PRX Series pilot with a straight run of pipe 6 to 10 pipe diameters to the regulator outlet as shown in Figures 3 and 4, using 3/8 in. / 9.5 mm or larger outside diameter tubing.

**Note**

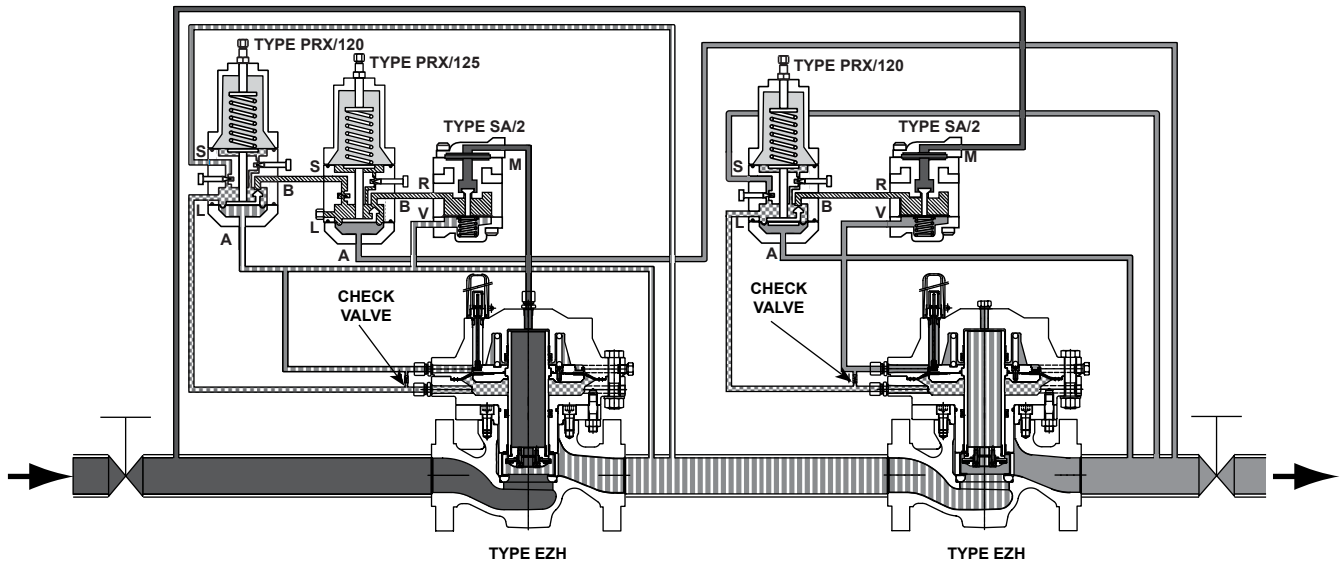
Separate sensing lines must be used for the "S" and the "A" ports.

**CAUTION**

To avoid freeze-up because of pressure drop and moisture in the gas, use anti-freeze practices, such as heating the supply gas or adding a de-icing agent to the supply gas.

- The PRX Series pilot connections are 1/4 NPT. Connect a downstream control (sense) line from the "A" port on the bottom of the PRX Series pilot to a straight run of

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|   |                       |                  |                       |
|---|-----------------------|------------------|-----------------------|
|  | INLET PRESSURE        |                  |                       |
|  | OUTLET PRESSURE       |                  |                       |
|  | ATMOSPHERIC PRESSURE  |                  |                       |
|  | LOADING PRESSURE      |                  |                       |
|  | INTERMEDIATE PRESSURE |                  |                       |
|  | PILOT SUPPLY PRESSURE |                  |                       |
|   |                       | TYPE PRX         | TYPE SA/2:            |
|   |                       | S - BLEED PORT   | V - SENSING PORT      |
|   |                       | B - SUPPLY PORT  | R - PILOT SUPPLY PORT |
|   |                       | L - LOADING PORT | M - INLET PORT        |
|   |                       | A - SENSING PORT |                       |

Figure 6. Working Monitoring System Operational Schematics

## CAUTION

To prevent damage to the pilot during Startup, the sense and bleed lines should be located on the same side of the downstream block valve.

- Install hand valves in the downstream sense and bleed lines if desired. If hand valves are installed, they should be full flow valves, such as a full port ball valve. For EZHSO Series installation, a vent valve downstream of the regulator is needed. It should be installed directly in the PRX Series pilot bleed line connection (line from Port S to pipe). A full bore NPS 1/4 ball valve for the vent line is preferred to provide sufficient flow.
- For optional remote pneumatic loading of a PRX Series pilot, make the spring case piping connections just as they would be made for remote venting in step 4.

### Wide-Open Monitor Regulator

## CAUTION

The working regulator must be rated for the maximum allowable operating pressure of the system because this will be its inlet pressure if the monitoring regulator fails. Also, the outlet pressure rating of the

monitoring pilot and any other components that are exposed to the intermediate pressure must be rated for full inlet pressure.

- Follow the procedures in the All Installations section and then continue with step 2 of this section. The sense and bleed control lines of both the upstream and downstream pilots will be connected to the downstream piping (see Figure 5).
- Connect the pilot supply line for the downstream regulator to the outlet "R" port of the Type SA/2 pilot supply filter regulator.

### Working Monitor Regulator

- Follow the procedure in the All Installations section and then continue with step 2 of this section. The sense line of the upstream monitor pilot (from Port A on the Type PRX/125) and the bleed (Port S) and sense lines (Port A) of the downstream pilot will be connected to the downstream piping (see Figure 6).
- Connect an inlet supply line from the upstream piping to the inlet "M" port of the downstream Type SA/2 pilot supply filter regulator.
- Connect a control (sense) line from the "A" port of the upstream working Type PRX/120 pilot to the intermediate pressure portion of piping, using 3/8 in. / 9.5 mm or larger outside diameter tubing.



4. Connect a downstream bleed line from the “S” port of the upstream working Type PRX/120 pilot to the intermediate pressure portion of piping, using 3/8 in. / 9.5 mm or larger outside diameter tubing.

## Startup and Adjustment

### Pre-startup Considerations

Each regulator is factory-set for the outlet pressure specified on the order. If no setting was specified, outlet pressure was factory-set at the mid-range of the pilot control spring. Before beginning the start-up procedure in this section, make sure the following conditions are in effect:

- Block valves isolate the regulator
- Vent valves are closed
- A bypass, if any, is in operation

In all cases, check the pilot control spring setting to make sure it is correct for the application.



**Be sure to slowly introduce pressure into the system to prevent downstream overpressure due to potential rapid pressure increase. Pressure gauges should always be used to monitor downstream pressure during Startup. Procedures used in putting this regulator into operation must be planned accordingly if the downstream system is pressurized by another regulator or by a manual bypass.**

#### Note

**When using a Type SA/2 pilot supply filter regulator, the differential pressure across the main regulator must be at least 45 psid / 3.1 bar d for optimum regulator performance. The Type SA/2 can be removed if differential pressure across the main regulator is less than 45 psid / 3.1 bar d and inlet pressure stays at or below 200 psig / 13.8 bar.**

### Pilot Adjustment

The adjustment of the regulators is performed by means of the pilot adjustment screw, which varies the compression of the control spring. Adjustment is performed while the regulator is in operation with the aid of a pressure gauge to monitor downstream pressure. The shutoff valve downstream of the regulator must not be completely closed, as it is necessary that a small quantity of gas flows downstream to allow the outlet side to vent, when it is necessary to lower the pressure. For PRX Series pilots (Figure 13), loosen locknut (key 2) and turn the adjusting

screw into the spring case (clockwise) to increase and out of the spring case (counterclockwise) to decrease the downstream pressure. When the desired setpoint adjustment is completed and verified, tighten the locknut to lock the adjusting screw in position. No adjustment is needed to the Type SA/2 pilot supply filter regulator.

Adjusting the monitor regulator (Figure 6) is the same as adjusting the main regulator. Monitor setpoints are set slightly higher than the main regulator. The monitor pressure setting should be adjusted so it is at minimum two times the pilot accuracy band pressure above the working regulator pressure setting.

### PRX Series Pilot Restrictor and Damper Screw Adjustment

#### Note

**The Type PRX/125 (upstream monitor pilot in working monitor installations) does not have a restrictor screw.**

The Damper and Restrictor screws on the PRX Series pilot control the regulator's proportional band (droop) and speed of response. To tune, follow the steps outlined below referencing Figure 13.

1. Start with the restrictor screw (R) 1 turn counterclockwise from fully seated (turn restrictor fully clockwise then 1 turn counterclockwise) and the damper screw (D) fully counterclockwise.
2. Turn damper screw clockwise until desired performance is achieved. This reduces the flow path of the damper. If the damper becomes fully seated (no longer able to turn clockwise) and the desired performance has not been achieved, return the damper screw to the fully counterclockwise position.



**The damper screw should not be left in the fully seated position, as it will lock the regulator in last position which could cause incorrect pressure regulation.**

3. Turn the restrictor screw an additional turn counterclockwise from fully seated. This increases the flow path of the restrictor. If additional tuning is required, repeat step 2. Follow this method until desired performance is achieved.

### Startup

1. Make sure all block valves, vent valves and control line valve(s) are closed.
2. Back out the pilot adjusting screw(s).
3. Introduce upstream pressure by slowly opening inlet valve.

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**4. EZHSO Series Monitor Installations and all EZH Series Installations:** Crack open the outlet block valve or bypass valve to allow minimum flow.

**For EZHSO Series Single Regulator Installation:** Vent pressure from bleed line until regulator closes and then shut-off vent. A full bore NPS 1/4 ball valve for the vent line is preferred. Slowly open downstream valve, making sure that there is a constant sufficient pressure drop across the regulator. If downstream pressure climbs too close to upstream pressure (a minimum DP of 55 psi / 3.8 bar must be guaranteed), the regulator will again fully open. In this case, start-up procedure needs to be repeated.

**For a single regulator (Figure 3),** set the pilot to the desired outlet (control) pressure according to the Pilot Adjustment procedure.

**For a wide-open downstream monitor installation (Figure 5),** adjust the upstream working pilot until intermediate pressure is higher than the desired setpoint of the monitor pilot. Adjust the downstream monitoring pilot to the desired monitoring takeover pressure. Reduce the upstream pilot to the normal outlet pressure setting.

**For a wide-open upstream monitor installation (Figure 5),** adjust the downstream working pilot to a setpoint higher than the setpoint of the monitor pilot. Adjust the upstream monitoring pilot to the desired monitoring takeover pressure. Reduce the downstream pilot to the normal outlet pressure setting.

**For a working monitor installation (Figure 6),** turn out the adjusting screw of the downstream pilot, removing spring tension. Adjust the upstream working pilot to the desired intermediate pressure setting. Turn out the adjusting screw of the upstream monitor pilot (Type PRX/125), removing tension. Turn in the adjusting screw of the downstream pilot. Adjust the upstream monitor pilot to the desired setpoint. Establish final desired downstream pressure by adjusting the downstream pilot.

5. After adjusting the PRX Series pilot(s) to the desired pressure setting(s), slowly open the downstream block valve wide open.
6. Close the bypass valve, if used.

## Shutdown

### CAUTION

**If the pilot bleed control line pressure is shutdown first, the downstream system may be subjected to full inlet pressure.**

1. If the pilot setting must be changed, be sure to keep some tension on the spring. This will prevent trapping inlet pressure during blow down.
2. Slowly close the valves in the following order:
  - a. Inlet block valve
  - b. Outlet block valve
  - c. Control line valve(s), if used.
3. Open the vent valves to depressurize the system.

## Maintenance

The regulator parts are subject to normal wear and must be inspected periodically and replaced as necessary. The frequency of inspection and replacement depends on the severity of service conditions and on applicable federal, state and local codes and regulations. **Use Torque Specifications (Table 4) for proper torque values.**

### WARNING

**To avoid personal injury or property damage from sudden release of pressure, isolate the regulator from the pressure system and release all pressure from the pilot and main valve before performing maintenance operations.**

**Use proper lifting techniques, when lifting the upper and lower actuator casings (keys 11 and 5) off the EZH or EZHSO Series body (key 1). The actuator assembly weighs more than 100 lbs / 45 kg.**

### CAUTION

**Customer cannot use another type of eyebolt in the regulator. Only Emerson parts can be used to repair the unit.**

**Eyebolts are installed to aid in the handling and installation of the Regulator Assembly only. Do not attempt to lift more weight than the regulator with these eyebolts.**

## Polyurethane (PU) Disk Conversion

To convert EZH and EZHSO Series units to a Polyurethane (PU) disk from a Nitrile (NBR) or Fluorocarbon (FKM) disk, the user will need to order three parts; retainer (key 31), disk assembly (key 30) and seat ring (key 2). For the **NPS 4 / DN 100** Type EZHSO, the Polyurethane (PU) sleeve assembly is also required. Please contact your local Sales Office with any questions about parts selection.

## Main Valve and Actuator Maintenance

### *NPS 1 through 3 / DN 25 through 80 Disk Maintenance (Refer to Figures 8 and 9)*

#### **For EZH Series:**

1. Remove nuts (key 26).
2. Carefully lift the upper actuator casing and lower actuator casing assembly (keys 11 and 5) off the body (key 1).
3. Remove the hex socket cap screws (key 33) and lock washers (key 32). Lift off the disk holder assembly (key 30) and disk retainer (key 31).
4. Remove the O-ring (key 29). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the sleeve adaptor (key 27).
5. Remove the cage (key 3), seat ring (key 2) and O-ring (key 34). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the body (key 1).
6. Set the seat ring (key 2) back in the body (key 1) with the curved side down and the seat edge up. Place the cage (key 3) on top of seat ring. The cage will engage the step on the seat ring.
7. Place the disk holder assembly (key 30) and disk retainer (key 31) on the sleeve adaptor (key 27).
8. Insert the lock washers (key 32) and hex socket cap screws (key 33) and tighten.
9. Carefully lift the upper actuator casing and lower actuator casing assembly (keys 11 and 5) and place on the body (key 1). Secure with stud bolts and nuts (keys 24 and 26).

#### **For EZHSO Series:**

1. Remove nuts (key 26).
2. Carefully lift the upper actuator casing and lower actuator casing assembly (keys 11 and 5) off the body (key 1).
3. Remove the hex socket cap screw (key 154). Lift off the disk holder assembly (key 30). Do not attempt to remove the sleeve adaptor (key 27).
4. Remove the O-ring (key 29). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the sleeve adaptor (key 27).
5. Remove the cage (key 3), seat ring (key 2) and O-ring (key 34). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the body (key 1).
6. Set the seat ring (key 2) back in the body (key 1) with the curved side down and the seat edge up. Place the cage (key 3) on top of seat ring. The cage will engage the step on the seat ring.

7. Place the disk holder assembly (key 30) on the sleeve adaptor (key 27).
8. Insert the hex socket cap screw (key 154) and tighten.
9. Carefully lift the upper actuator casing and lower actuator casing assembly (keys 11 and 5) and place on the body (key 1). Secure with stud bolts and nuts (keys 24 and 26).

### *NPS 4 / DN 100 Disk Maintenance (EZH Series Only) (Refer to Figure 8)*

1. Remove cap screws (key 77).
2. Carefully lift the cap (key 70) off of the upper actuator casing (key 11) and unscrew the eyebolts (key 35) from the cap (key 70).
3. Remove O-ring (key 75). Inspect the O-ring for damage or wear and replace if necessary.
4. Remove the O-ring (key 69). Inspect the O-ring for damage or wear and replace if necessary. Lubricate O-ring before placing inside the cap (key 70).
5. Remove special screws (key 68) from sleeve (key 14).
6. Fit eyebolt (key 35) into the upper spring seat (key 73) threaded hole.
7. Carefully remove the trim system from the sleeve guide (key 61) using the eyebolts (key 35).
8. Remove socket head cap screws (key 33) and lock washers (key 32).
9. Lift off the disk retainer (key 31) and disk holder assembly (key 30).
10. Remove the O-ring (key 29). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the sleeve adaptor (key 27).
11. Place disk holder assembly (key 30) onto disk retainer (key 31).
12. Place disk retainer (key 31) with the disk holder assembly (key 30) into sleeve adaptor (key 27) and align screw holes.
13. Place lock washer (key 32) onto the screws (key 33).
14. Screw together the disk retainer assembly into the sleeve adaptor (key 27).
15. Lubricate the sleeve (key 14).
16. Carefully insert the trim system into the sleeve guide (key 61) utilizing eyebolt (key 35). Align sleeve utilizing the socket hex cap screw (key 74) as a guide.
17. Screw special screws (key 68) to affix the sleeve system. Place O-ring (key 69) on cap.
18. Remove eyebolt (key 35) from upper spring seat (key 73) threaded hole.
19. Carefully place the cap on the upper actuator casing (key 11).

# EZH and EZHSO Series

**Table 4. Torque Specifications**

| PART NAME                              |           | TORQUE SPECIFICATIONS AND TOOL RECOMMENDATIONS |                  |                    |                    |            |
|--|-----------|--|------------------|--------------------|--------------------|------------|
|  |           | Body Size                                      |                  |                    |                    |            |
|  |           | NPS 1 / DN 25                                  | NPS 2 / DN 50    | NPS 3 / DN 80      | NPS 4 / DN 100     |            |
| Hex Head Cap Screw<br>(key 6)          | Tool Size | 13/16-in. or 21 mm                             | 3/4-in. or 19 mm | 15/16-in. or 24 mm | 1-1/8-in. or 29 mm |            |
|  | Torque    | ft-lbs   | 50 to 60         | 50 to 60           | 70 to 95           | 140 to 155 |
|  |           | N•m  | 68 to 81         | 68 to 81           | 95 to 129          | 190 to 210 |
| Allen Head Screw<br>(key 16)           | Tool Size | 4 mm   | 5 mm             | 5 mm               | 6 mm               |            |
|  | Torque    | ft-lbs   | 4.2 to 5.8       | 4.2 to 5.8         | 4.2 to 5.8         | 8.3 to 9.6 |
|  |           | N•m  | 5.6 to 7.9       | 5.6 to 7.9         | 5.6 to 7.9         | 11 to 13   |
| Hex Head Cap Screw<br>(keys 21 and 39) | Tool Size | 19 mm  | 24 mm            | 32 mm              | 41 mm              |            |
|  | Torque    | ft-lbs   | 50 to 55         | 130 to 150         | 250 to 270         | 280 to 310 |
|  |           | N•m  | 68 to 75         | 176 to 203         | 339 to 366         | 380 to 420 |
| Stud Bolts<br>(key 24)                 | Tool Size | 3/4-in.  | 3/4-in.          | 1-1/8-in.          | ----               |            |
|  | Torque    | ft-lbs   | 50 to 70         | 50 to 70           | 100 to 120         | ----       |
|  |           | N•m  | 68 to 95         | 68 to 95           | 136 to 163         | ----       |
| Hex Head Nut<br>(key 26)               | Tool Size | 3/4-in. or 19 mm                               | 3/4-in. or 19 mm | 1-1/4-in. or 32 mm | ----               |            |
|  | Torque    | ft-lbs   | 45 to 50         | 45 to 50           | 80 to 95           | ----       |
|  |           | N•m  | 61 to 68         | 61 to 68           | 108 to 129         | ----       |
| Allen Head Screw<br>(key 33)           | Tool Size | 3 mm   | 4 mm             | 5 mm               | 5 mm               |            |
|  | Torque    | ft-lbs   | 2.5 to 3.3       | 4.2 to 5           | 6.7 to 8.3         | 6.7 to 8.3 |
|  |           | N•m  | 3.4 to 4.5       | 5.6 to 6.8         | 9 to 11            | 9 to 11    |
| Allen Screws<br>(keys 68 and 74)       | Tool Size | ----   | ----             | ----               | 4 mm               |            |
|  | Torque    | ft-lbs   | ----             | ----               | ----               | 3          |
|  |           | N•m  | ----             | ----               | ----               | 4          |
| Hex Head Cap Screw<br>(key 77)         | Tool Size | ----   | ----             | ----               | 20 mm              |            |
|  | Torque    | ft-lbs   | ----             | ----               | ----               | 90 to 110  |
|  |           | N•m  | ----             | ----               | ----               | 122 to 149 |
| Hex Head Nut<br>(key 151)              | Tool Size | 17 mm  | 17 mm            | 17 mm              | 17 mm              |            |
|  | Torque    | ft-lbs   | 32               | 32                 | 45                 | 45         |
|  |           | N•m  | 43               | 43                 | 61                 | 61         |
| Hex Head Nut<br>(key 152)              | Tool Size | ----   | 19 mm            | 19 mm              | 19 mm              |            |
|  | Torque    | ft-lbs   | ----             | 40                 | 60                 | 45 to 50   |
|  |           | N•m  | ----             | 54                 | 81                 | 61 to 68   |
| Hex Head Cap Screw<br>(key 154)        | Tool Size | 3 mm   | 5 mm             | 6 mm               | 3 mm               |            |
|  | Torque    | ft-lbs   | 1.3              | 4.2                | 10                 | 3.2        |
|  |           | N•m  | 1.8              | 5.6                | 14                 | 4.3        |
| Hex Head Nut<br>(key 155)              | Tool Size | 19 mm  | ----             | ----               | ----               |            |
|  | Torque    | ft-lbs   | 30               | ----               | ----               | ----       |
|  |           | N•m  | 41               | ----               | ----               | ----       |

20. Lubricate cap screws (key 77) and attach cap (key 70) to the upper casing using cap screws (key 77).

**Note**

**Rotate the cap such that the outer holes for sensing lines are in line with upper casing holes for sensing lines: to validate the alignment and before attaching cap, check that travel indicator is aligned on the cap and on the upper actuator casing.**

21. Mount O-ring (key 75) on the space between the cap (key 70) and the upper actuator casing (key 11).

22. Screw the eyebolts (key 35) on the cap (key 70).

**NPS 4 / DN 100 Disk Maintenance (EZHSO Series Only) (Refer to Figure 9)**

1. Remove cap screws (key 77).
2. Carefully lift the cap (key 70) off of the upper actuator casing (key 11).

3. Remove O-ring (key 75). Inspect the O-ring for damage or wear and replace if necessary.

4. Remove O-ring (key 69). Inspect the O-ring for damage or wear and replace if necessary. Lubricate O-ring before placing inside the cap (key 70).

5. Remove special screws (key 68) from sleeve.

6. Carefully remove the trim system from the sleeve guide (key 61) utilizing the eyebolt (key 35) or stem nut.

7. Remove socket head cap screws (key 154).

8. Lift off the disk holder assembly (key 30).

9. Remove the O-ring (key 29). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the sleeve adaptor (key 27).

10. Place disk holder assembly (key 30) into sleeve adaptor (key 27) and align screw holes.

11. Place on socket head cap screw (key 154). Screw together the disk holder assembly (key 30) into the sleeve adaptor (key 27).

- Lubricate the sleeve (key 14).
- Carefully insert the trim system into the sleeve guide (key 61). Align sleeve utilizing the socket hex cap screw (key 74) as a guide.
- Screw special screws (key 68) to affix the sleeve system.
- Place O-ring (key 69) on the cap (key 70).
- Carefully place the cap (key 70) on the upper actuator casing (key 11).
- Lubricate the cap screws (key 77) before screwing in to hold the cap (key 70) and the upper actuator casing (key 11) together.

### Note

**Rotate the cap such that the outer holes for sensing lines are in line with upper casing holes for sensing lines: to validate the alignment and before attaching cap, check that travel indicator is aligned on the cap and on the upper casing.**

- Mount O-ring (key 75) on the cap.

### *NPS 1 through 3 / DN 25 through 80 Intermediate Flange O-ring Maintenance for EZH and EZHSO Series*

- Remove nuts (key 26).
- Carefully lift the upper actuator casing and lower actuator casing assemblies (keys 11 and 5) off the body (key 1).
- Remove cap screws (key 6).
- Lift off intermediate flange (key 25).
- Remove O-ring (key 7). Inspect the O-ring for damage or wear and replace if necessary. Lightly lubricate O-ring before placing in the body (key 1).
- Place the intermediate flange (key 25) on the body, make sure to position the stud bolt (key 24) holes on the outsides of the body (key 1). Secure with cap screws (key 6).
- Carefully lift the upper actuator casing and lower actuator casing assemblies (keys 11 and 5) and position it in the body (key 1).
- Screw in stud bolts and nuts (keys 24 and 26).

### *NPS 1 through 3 / DN 25 through 80 Actuator Assembly Maintenance (Refer to Figures 8 and 9)*

#### For EZH Series:

- Make a mark on the upper actuator casing (key 11), lower actuator casing (key 5), intermediate flange (key 25) and body (key 1) to indicate proper alignment.

- Remove travel indicator assembly (keys 138, 139, 140, 141, 142A or 142B, 143, 144, 145, 160 and 192), if present, by loosening the travel indicator fitting (key 141) and lifting out the travel indicator assembly. See the Travel Indicator Maintenance section for the proper maintenance procedure.
- Loosen out the hex nuts (key 23) and remove the washers (key 22) and the cap screws (key 21). Remove all the short bolts first, then evenly remove the two long bolts (key 39), indicated with (LB) on the head and brackets (key 35). Make sure to balance the upper actuator casing while removing the spring tension. Carefully lift the upper actuator casing (key 11) off the lower actuator casing (key 5). Remove spring (key 13).
- Remove the socket head cap screws (key 16). Lift off the diaphragm (key 20) and the inlet plate (key 18). Remove O-rings (keys 15 and 17). Inspect the diaphragm and O-rings for damage or wear and replace if necessary.
- Inspect the upper actuator casing (key 11), O-ring (key 9), anti-friction split rings (key 8) and anti friction ring (key 4) for damage or wear. If damaged, remove the O-ring and split rings and replace with new parts. Lightly lubricate the O-ring and split rings. Place the split rings in the body first, then slide the O-ring between the split rings. Lubricate and reinstall the anti-friction ring (key 4).
- Remove hex nuts (key 26) from the stud bolts (key 24). Lift off the lower actuator casing (key 5). Remove the hex socket cap screws (key 33) and spring lock washers (key 32). Lift off the disk holder assembly (key 30) and disk retainer (key 31).
- Slide the sleeve (key 14) out of the lower actuator casing (key 5) and slide the outlet plate (key 19) off of the sleeve. Check the sleeve for scratches, burrs or other damage and replace if necessary.
- Inspect the lower actuator casing (key 5), O-rings (keys 9 and 62), anti-friction split rings (key 8) and anti-friction ring (key 4) for damage or wear. If damaged, remove the O-ring and split rings and replace with new parts. Lightly lubricate the O-ring (key 9) and split rings. Place the split rings in the body first, then slide the O-ring (key 9) between the split rings. Lubricate and mount O-ring (key 62) outside of the lower actuator casing (key 5).
- Slide the outlet plate (key 19) onto the sleeve (key 14) and slide the sleeve into the lower actuator casing (key 5). Place the disk holder (key 30) and disk retainer (key 31) on the sleeve adaptor (key 27). Insert the spring lock washers (key 32) and hex socket cap screws (key 33) and tighten.
- Lightly lubricate the O-rings (keys 15 and 17) and the inner and outer diaphragm (key 20) edges. Place the inlet plate (key 18) and the diaphragm (key 20) on the sleeve (key 14). Make sure O-rings (keys 15 and 17) are correctly positioned. Insert and tighten the hex socket cap screws (key 16).

# EZH and EZHSO Series

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## Note

**When tightening fasteners arranged in a circular pattern, alternate the tightening of each fastener with the fastener directly across from it using a “star” criss-cross pattern for five times, until proper specified torque is achieved. Each time around, when all screws are tightened to the required torque, the diaphragm will compress a little until the plates are in direct, metal-to-metal, contact. It will take at least five times around before this happens. Only then will the applied torque on each screw remain at the required value.**

11. Carefully lift the lower actuator casing assembly (key 5) and place on the body (key 1). **Make sure to match up the alignment marks.** Secure with stud bolts and nuts (keys 24 and 26).
12. Lightly lubricate the spring (key 13) and place on the inlet plate (key 18).
13. Carefully place the upper actuator casing (key 11) on the lower actuator casing (key 5). **Make sure to match up the alignment marks.** Insert the two long bolts (key 39) 180° apart and away from flanges. Place the washers (key 22), hex nuts (key 23) and brackets (key 35) on the long bolts and evenly tighten. Using proper bolting techniques, install remaining short bolts (key 21), washers and hex nuts.
14. Place travel indicator assembly (keys 138, 139, 140, 141, 142A or 142B, 143, 144, 145, 160 and 192) in the upper actuator casing (key 11), if present and tighten the travel indicator fitting (key 141).

## For EZHSO Series:

1. Make a mark on the upper actuator casing (key 11), lower actuator casing (key 5), intermediate flange (key 25) and body (key 1) to indicate proper alignment.
2. Remove travel indicator assembly (keys 138, 139, 140, 141, 142A or 142B, 143, 144, 145, 160 and 192), if present, by loosening the travel indicator fitting (key 141) and lifting out the travel indicator assembly. Please see Travel Indicator Maintenance section for proper maintenance procedure.
3. Remove protective cap (key 146). Loosen and remove hex nuts (key 151).
4. Remove cap screws (key 21), washers (key 22) and hex nuts (key 23). Carefully lift the upper actuator casing (key 11) off the lower actuator casing (key 5).
5. Remove the socket head cap screws (key 16). Lift off the diaphragm (key 20) and the inlet plate (key 18). Remove O-rings (keys 15 and 17). Inspect the diaphragm and O-rings for damage or wear and replace if necessary.
6. Inspect the upper actuator casing (key 11), O-ring (key 9), anti-friction split rings (key 8) and anti-friction ring (key 4) for damage or wear. If damaged, remove the

O-ring and split rings and replace with new parts. Lightly lubricate the O-ring and split rings. Place the split rings in the body first, then slide the O-ring between the split rings. Lubricate and reinstall the anti-friction ring (key 4).

7. Remove hex nuts (key 26) from the stud bolts (key 24). Lift off the lower actuator casing (key 5). Remove the hex socket cap screw (key 154). Lift off the disk holder assembly (key 30).
8. Slide the sleeve (key 14) out of the lower actuator casing (key 5) and slide the outlet plate (key 19) off of the sleeve. Check the sleeve for scratches, burrs or other damage and replace if necessary.
9. Inspect the lower actuator casing (key 5), O-rings (keys 9 and 62), anti-friction split rings (key 8) and anti-friction ring (key 4) for damage or wear. If damaged, remove the O-ring and split rings and replace with new parts. Lightly lubricate the O-ring (key 9) and split rings. Place the split rings in the body first, then slide the O-ring (key 9) between the split rings. Lubricate and mount O-ring (key 62) outside of the lower actuator casing (key 5).
10. Slide the outlet plate (key 19) onto the sleeve (key 14) and slide the sleeve into the lower actuator casing (key 5). Place the disk holder assembly (key 30) on the sleeve adaptor (key 27). Insert the hex socket cap screw (key 154) and tighten.
11. Lightly lubricate the O-rings (keys 15 and 17) and the inner and outer diaphragm (key 20) edges. Place the inlet plate (key 18) and the diaphragm (key 20) on the sleeve (key 14). Make sure O-rings (keys 15 and 17) are correctly positioned. Insert and tighten the hex socket cap screws (key 16).
12. Carefully lift the lower actuator casing assembly (key 5) and place on the body (key 1). **Make sure to match up the alignment marks.** Secure with stud bolts and nuts (keys 24 and 26).
13. Carefully place the upper actuator casing (key 11) on the lower actuator casing (key 5). **Make sure to match up the alignment marks.** Insert the two long bolts (key 39) 180° apart and away from flanges. Place the washers (key 22), hex nuts (key 23) and brackets (key 35) on the long bolts and evenly tighten. Using proper bolting techniques, install remaining short cap screws (key 21), washers and hex nuts.
14. Tighten hex nuts (key 151) and install protective cap (key 146).
15. Place travel indicator assembly (keys 138, 139, 140, 141, 142A or 142B, 143, 144, 145, 160 and 192) in the upper actuator casing (key 11), if present and tighten the travel indicator fitting (key 141).

## *NPS 4 / DN 100 Actuator Assembly Maintenance (EZH Series Only) (Refer to Figure 8)*

1. If present, remove the travel indicator assembly by unscrewing the travel indicator fitting (key 141), then pull out the stem (key 139). Please see the

Travel Indicator Maintenance section for the proper maintenance procedure.

2. Remove hex head cap screws (key 21), washers (key 22) and hex nuts (key 23). Carefully lift the upper actuator casing (key 11) off the lower actuator casing (key 5). Inspect the upper actuator casing (key 11), O-rings (key 9) and anti-friction rings (key 8) for damage or wear. If damaged, remove and replace with new parts. Place the anti-friction rings in the body first, then slide the O-ring between the anti-friction rings.
3. Unscrew 8 special screws (key 68). Unscrew eyebolts (key 35) from the cap and unscrew 8 screws (key 77) to remove cap (key 70) from the upper actuator casing (key 5). Attach eyebolts to the upper spring seat (key 73) and lift up and remove the sleeve assembly (key 14). Lift off the diaphragm/plates system. Remove O-ring (key 15) and replace it as needed. Inspect diaphragm for damage or wear; remove screws (key 16), lift off inlet plate (key 18) to replace diaphragm (key 20) and O-ring (key 17).
4. Align screw holes on the cap (key 70) to the sleeve guide screw (key 66). Remove sleeve guide (key 61) utilizing cap (key 70) to unscrew. Inspect O-rings (keys 9 and 64) for damage or wear, replace anti-friction ring (key 8) and O-ring (key 9) if necessary. Unscrew 8 cap screws (key 6) and remove crush washers (key 67). Lift off lower casing (key 5). Inspect O-ring (keys 7 and 63) for damage or wear. Replace if necessary.
5. Remove cage (key 78).
6. Remove seat ring (key 2). Inspect seat ring for damage or wear. If damaged, replace with new parts.
7. Remove O-ring (key 34) from body. Inspect for damage or wear. If damaged, replace with new parts.
8. Lubricate O-ring (key 34) and replace into the body.
9. Place seat ring (key 2) on top of O-ring (key 34) in body with the curved side down and seat edge up.
10. Place cage (key 78) on the top of seat ring (key 2).
11. Place lower casing (key 5) on top of the body. Replace washer (key 67) with new parts and tighten cap screws (key 6). Screw sleeve guide (key 61) into lower casing (key 5) utilizing cap (key 70).
12. Lubricate the sleeve (key 14) in the upper plate contact area and assemble the diaphragm/plates system on the sleeve system. Tighten screws (key 16) using a "star" criss-cross pattern for five times until proper specified torque is achieved.
13. Screw the special screws (key 68) – already on the sleeve – to fix the diaphragm/plates system on the sleeve system. Tighten screws (key 68) using a "star" criss-cross pattern for five times until proper specified torque is achieved.
14. Lubricate lower casing (key 5) on the diaphragm contact area.
15. Carefully insert the trim system into the sleeve guide (key 61) utilizing the eye-bolts (key 35) that fits in the upper spring seat (key 73) threaded hole.
16. Lubricate the diaphragm (key 20) on the upper casing contact area.
17. Lubricate and mount the O-ring (key 69) on the cap (key 70). Lubricate and mount O-rings (key 9) and anti-friction rings (key 8) inside the cap. Unscrew the eyebolts (key 35) from the upper spring seat (key 73) and carefully place the cap on the upper actuator casing (key 11). Align the travel indicator hole on the cap to the upper actuator casing travel indicator hole. Lubricate cap screws (key 77) and attach cap (key 70) to the upper casing (key 5) using cap screws (key 77) with a torque of 100 ft-lbs / 136 N•m. Bag diaphragm flat to lower actuator casing diaphragm flange contact area. Carefully place the upper actuator casing on the top of the lower actuator casing/trim system using a stud to guide.

## Note

**Rotate the upper casing such that the outer holes for sensing lines are perpendicular to gas flow and outer holes of lower casing.**

18. Lubricate threads on bolts (key 21).
19. Bolt together the upper and lower actuator casings (keys 11 and 5) using cap screws (key 21), washers (key 22) and hex nuts (key 23). Tighten cap screws using a "star" criss-cross pattern for five times until proper specified torque is achieved.
20. Mount O-ring (key 75) on the cap (key 70).
21. Screw the eyebolts (key 35) on the cap (key 70).
22. If present, set the stem (key 139) through the casing hole and tap it into the groove in the diaphragm plate (key 18). Slide the travel indicator fitting (key 141) over the stem and tighten to the cap (key 70).

## *NPS 4 / DN 100 Actuator Assembly Maintenance (EZHSO Series Only) (Refer to Figure 9)*

1. Remove closing cap (key 146), unscrew 2 nuts (key 151). If present, remove travel indicator assembly by unscrewing the travel indicator fitting (key 141), then pull out the stem (key 139). Please see the Travel Indicator Maintenance section for the proper maintenance procedure.
2. Remove hex head cap screws (key 21), washers (key 22) and hex nuts (key 23). Carefully lift the upper actuator casing (key 11) off the lower actuator casing (key 5). Inspect the upper actuator casing (key 11), O-rings (key 158) and anti-friction rings (key 157) for damage or wear. If damaged, remove and replace with new parts. Place the anti-friction rings in the cap first, then slide the O-ring between the anti-friction rings.
3. Unscrew 8 special screws (key 68). Lift up and remove the sleeve assembly (key 14). Lift off the diaphragm/plates system. Remove O-ring (key 15) and replace as needed. Inspect diaphragm (key 20) for damage or wear, remove screws (key 16), lift off inlet plate (key 18) to replace diaphragm and O-ring (key 17).

# EZH and EZHSO Series

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4. Unscrew 8 screws (key 77) to remove cap (key 70) from the upper casing (key 5). Align screw holes on the cap (key 70) to the sleeve guide screws (key 66). Remove sleeve guide (key 61) utilizing cap (key 70) to unscrew. Inspect O-rings (key 9), (key 64) and (key 153) for damage or wear, replace anti-friction rings (key 8) and O-ring (key 9) if necessary. Unscrew 8 cap screws (key 6) and remove crush washers (key 67). Lift off lower casing (key 5). Inspect O-rings (keys 7 and 63) or damage or wear, replace them if necessary.
5. Remove cage (key 78).
6. Remove seat ring (key 2). Inspect seat ring for damage or wear. If damaged, replace with new parts.
7. Remove O-ring (key 34) from body (key 1). Inspect for damage or wear. If damaged, replace with new parts.
8. Lubricate O-ring (key 34) and replace into the body (key 1).
9. Place seat ring (key 2) on top of O-ring in body (key 1) with curved side down and seat edge up.
10. Place cage (key 78) on the top of seat ring (key 2).
11. Place lower casing (key 5) on top of body. Replace crush washers (key 67) with new parts and tighten cap screws (key 6). Screw sleeve guide into lower actuator casing (key 5) utilizing cap (key 70).
12. Lubricate the sleeve (key 14) in the upper plate contact area and assemble the diaphragm/plates system on the sleeve system. Tighten screws (key 16) using a “star” criss-cross pattern for five times until proper specified torque is achieved.
13. Screw the special screws (key 68) – already on the sleeve – to fix the diaphragm/plates system on the sleeve system. Tighten special screws (key 68) using a “star” criss-cross pattern until proper specified torque is achieved.
14. Lubricate lower casing (key 5) on the diaphragm contact area.
15. Carefully insert the trim system into the sleeve guide (key 61).
16. Lubricate the diaphragm (key 20) on the upper casing contact area.
17. Lubricate and mount the O-ring (key 69) on the cap (key 70). Lubricate and mount O-rings (key 9) and anti-friction rings (key 8) inside the cap (key 70). Lubricate and mount O-ring (key 153) on the stem (key 147). Carefully place the cap on the upper actuator casing (key 11). Align the travel indicator hole on the cap (key 70) to the upper actuator casing travel indicator hole. Screw 8 screws (key 77) to tighten cap (key 70) to the upper actuator casing (key 11). Bag diaphragm flat to lower casing diaphragm flange contact area. Carefully place the top actuator casing on the top of the lower actuator casing/trim system using a stud to guide.

## Note

**Rotate the upper casing such that the outer holes for sensing lines are perpendicular to gas flow and outer holes of lower casing.**

18. Lubricate threads on bolts (key 21).
19. Bolt together the upper and lower actuator casings (keys 11 and 5) using bolts (key 21), washers (key 22) and nuts (key 23). Tighten cap screws using a “star” criss-cross pattern for five times until proper specified torque is achieved.
20. Assemble one nut (key 151) to the stem (key 147) until the specified torque is achieved and then assemble another nut (key 151) to lock the position of stem. Screw on the closing cap (key 146). Mount O-ring (key 75) on the cap (key 70).
21. If present, set the stem (key 139) through the casing hole and tap it into the groove in the diaphragm plate (key 18). Slide the travel indicator fitting (key 141) over the stem and tighten to the cap (key 70).

## EZH Series Travel Indicator Maintenance

A new and improved travel indicator has been phased in during 2013. The new version improves the O-ring stem seal to minimize leakage and extend service life. The components of the legacy and new versions are not interchangeable. If maintenance is performed on the new travel indicator, it is recommended to replace the entire travel indicator assembly with the new version. Part numbers for the assemblies are shown in the parts list. Figure 7 shows the difference between the designs. The spare parts kits will support either design. Take care to use the correct O-ring (key 142A or 142B) when performing maintenance, see parts list for the appropriate part number.

1. Remove plastic travel indicator cover (key 138).
2. Loosen travel indicator bushing (key 140) and remove it by sliding it over the travel indicator stem (key 139).
3. Remove indicator fitting (key 141) and inspect O-ring (key 143). Remove O-ring (key 142B) and back-up rings (key 160). Replace and lubricate O-ring if damaged. Pull up on the travel indicator stem (key 139) to force the spring collet (key 144) out of the diaphragm head groove. Examine these parts and the stem for wear and replace if necessary.
4. Examine the retaining ring (key 145) for wear and replace if necessary.
5. Insert the travel indicator stem (key 139) and spring collet (key 144) back into the diaphragm head groove. Replace the indicator fitting (key 141) and O-ring (key 143) and tighten with a referenced torque of 20 ft-lbs / 27.1 N•m.
6. Lubricate the O-ring (key 142B) and back-up rings (key 160, 2 required). Place one back-up ring on the stem (key 139) followed by the O-ring and then the other back-up ring. Push into groove of the indicator fitting (key 141).



- Slide the travel indicator bushing (key 140) over the travel indicator stem (key 139) and tighten firmly in place with a torque of 3.7 ft-lbs / 5.0 N•m.
- Replace the travel indicator cover (key 138) and tighten firmly in place.

## PRX Series Maintenance



**Always remove spring (key 7) tension before performing maintenance on this unit. To remove spring tension, loosen locknut (key 2) and back out adjusting screw (key 1) until compression is removed from the spring.**

### Lower Diaphragm Maintenance

- Disconnect pilot and remove it from the line.
- Remove machine screws (key 10) from lower cover (key 21) and the separate lower cover from the body (key 16).
- Use a wrench to hold the stem (key 23) and break loose the stem nut (key 20). Remove the stem nut and washer (key 11).
- Remove the upper diaphragm plate (key 13), diaphragm (key 14), pad holder (key 22) and O-ring (key 18). Inspect parts for damage or wear, replace if necessary.
- Remove orifice (key 19) and O-ring (key 17). Inspect the parts for damage or wear and replace if necessary. Lightly lubricate the O-ring and place in the body (key 16). Install the orifice.
- Set the pad holder (key 22) in the body (key 16).
- Lightly lubricate the rims of the diaphragm (key 14) and place it on top of the pad holder (key 22). Set the upper diaphragm plate (key 13) on the diaphragm (key 14).
- Lightly lubricate the O-ring (key 18) and place it in the lower cover (key 21).
- Place the washer (key 11) and stem nut (key 20) on the stem (key 23) and tighten. *If also performing Upper Case Maintenance, skip to step 2 of the Upper Case Maintenance section.*
- Insert machine screws (key 10) in the lower cover (key 21) and tighten uniformly to ensure proper seal.

### Upper Diaphragm Maintenance

- Disconnect pilot and remove it from the line.
- Loosen locknut (key 2) and back out adjusting screw (key 1) until compression is removed from the spring. Remove cap (key 3).
- Lift the upper spring seat (key 6), spring (key 7) and O-ring (key 4) out of the upper cover (key 8). Inspect O-ring and replace if necessary.

- Remove the machine screws (key 10) and the washers (key 11), separate the upper cover (key 8) from the body (key 16) and lift the lower spring seat (key 9) away from upper diaphragm nut (key 26). Use a wrench to hold stem (key 23) securely while removing the upper diaphragm nut.
- Remove remaining loose components: washer (key 11), upper diaphragm plate (key 13), diaphragm (key 14), lower diaphragm plate (key 15) and O-rings (keys 18 and 25). Inspect diaphragm and O-rings for damage or wear and replace if necessary.
- Lightly lubricate the O-ring (key 25). Place O-ring over the stem (key 23) and press it down into the body (key 16).
- Set the lower diaphragm plate (key 15) into the body (key 16).
- Lightly lubricate the rims of the diaphragm (key 14) and place it in the body (key 16) on top of the lower diaphragm plate (key 15).
- Set the upper diaphragm plate (key 13) on top of the diaphragm (key 14).
- Place washer (key 11) and stem nut (key 26) on the stem (key 23) and tighten using a wrench to hold the stem.
- Place the lower spring seat (key 9) on the upper diaphragm nut (key 26) and mount the upper cover (key 8) on top of the body (key 24) and the diaphragm (key 14).
- Place and uniformly tighten the machine screws (key 10) to hold the body (key 24) and upper cover (key 8) together. Position the diaphragm convolution facing down and make sure that the diaphragm is not deformed and is properly installed.
- Install spring (key 7) and upper spring seat (key 6) on top of the lower spring seat (key 9) inside the upper cover (key 8). Install Cap (key 3).
- Screw in adjusting screw (key 1) at desired spring compression and use the lock nut (key 2) to lock the adjusting screws position. Refer to Pilot Adjustment section (page 9) to adjust pilot settings.

### Damper and Restrictor Maintenance

- Remove screw (key 31) and plate (key 29) off from the body (key 16).
- Remove ring nuts (key 30).
- Remove damper adjusting screw with hole (key 27). Remove and inspect O-ring (key 28) for damage or wear and replace if necessary. Lightly lubricate O-ring before placing on the adjusting screw. Insert damper adjusting screw into the body (key 16) and tighten. Insert ring nut (key 30) and tighten. Back out damper adjusting screw until it stops.
- Remove restrictor adjusting screw with hole (key 32). Remove and inspect O-ring (key 28) for damage or wear and replace if necessary. Lightly lubricate O-ring before

# EZH and EZHSO Series

placing on the adjusting screw. Insert restrictor adjusting screw into the body (key 16) and completely tighten. Insert ring nut (key 30) and completely tighten. Back out restrictor adjusting screw 1/2 turn.

## Note

**When using a Type PRX/120 pilot with a Type PRX/125 pilot as a monitor, use the following settings:**

- **Restrictor - completely tighten and then back out three full turns.**
- **Damper - back out until it stops.**

5. Install plate (key 29) and screw (key 31).

## Type SA/2

1. Disconnect pilot supply filter regulator and remove it from the line.
2. Remove cap screws, washers and nuts (keys 2, 9 and 10) from body (key 7) and separate filter cover (key 11) and regulator cover (key 19) from the body (key 7). Separate loose components from the body such as the spring (key 1), washer (key 3), plate (key 4), filter net (key 8), felt (key 12), diaphragm (key 18), spring washer (key 20) and nut (key 21).
3. Remove and inspect O-ring (key 13) for damage or wear and replace if necessary. Lightly lubricate the O-ring before placing it back in the filter cover (key 11).
4. Clean filter net (key 8). Replace felt (key 12).
5. Inspect diaphragm (key 18) for damage or wear and replace if necessary. Check the seating surface of the screw unit (key 17) for erosion, scratches, spurs or other damage and replace if necessary.
6. Unscrew and remove the regulator seat (key 5). Inspect O-ring (key 6) for damage or wear and replace if necessary. Lightly lubricate the O-ring and place it on the regulator seat.
7. Pull pad holder unit (key 15) out of the body (key 7). Inspect the seat for damage, replace if necessary.
8. Set the pad holder unit (key 15) on the spring (key 14) and insert the regulator seat (key 5). Tighten the regulator seat until it stops.
9. Lightly lubricate the outer and inner rims of the diaphragm (key 18). Place the diaphragm onto the screw unit (key 17) and slide the screw unit into the regulator seat (key 5). Place plate (key 4), washer (key 3) and spring washer (key 20) and screw nut (key 21) into the screw unit. Use care to avoid damage to parts when reassembling.
10. Set the spring (key 1) on top of the nut (key 21).
11. Align the regulator cover (key 19) over the body (key 7) with the sense port (V) opposite the pilot supply port (R).

12. Place the felt (key 12) and filter net (key 8), one on each side of the felt, on the filter cover (key 11).
13. Pick up the body (key 7) and place it on the filter cover (key 11) with the inlet port (M) aligned vertically with the sense port (V).
14. Insert cap screws (key 2). Place washers (key 9) and nuts (key 10) on the end of the cap screws. Tighten the nuts.

## Parts Ordering

Each EZH or EZHSO Series regulator is assigned a serial number, which can be found on the nameplate. Refer to the serial number when contacting your local Sales Office for technical information or when ordering parts.

When ordering replacement parts, reference the key number of each needed part as found in the following parts list. Separate kit containing all recommended spare parts is available.

## Parts List

### EZH and EZHSO Series Main Valve (Figures 8 and 9)

| Key | Description   | Part Number |
|-----|---|-------------|
|     | <b>EZH Series</b>   |             |
|     | <b>Disk Parts Kits</b>  |             |
|     | NPS 1, 2 and 3 / DN 25, 50 and 80<br>(include keys 29, 30, 32, 33, 34 and 62) |             |
|     | NPS 4 / DN 100 (include keys 29, 30, 32, 33, 69, 71 and 75)                   |             |
|     | NPS 1 / DN 25   |             |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZH1X00N12 |
|     | Fluorocarbon (FKM)  | REZH1X00F12 |
|     | Polyurethane (PU)   | REZH1X00P12 |
|     | NPS 2 / DN 50   |             |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZH2X00N12 |
|     | Fluorocarbon (FKM)  | REZH2X00F12 |
|     | Polyurethane (PU)   | REZH2X00P12 |
|     | NPS 3 / DN 80   |             |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZH3X00N12 |
|     | Fluorocarbon (FKM)  | REZH3X00F12 |
|     | Polyurethane (PU)   | REZH3X00P12 |
|     | NPS 4 / DN 100  |             |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZH4X00N12 |
|     | Fluorocarbon (FKM)  | REZH4X00F12 |
|     | Polyurethane (PU)   | REZH4X00P12 |
|     | <b>EZHSO Series</b>   |             |
|     | <b>Disk Parts Kits</b>  |             |
|     | NPS 1, 2 and 3 / DN 25, 50 and 80<br>(include keys 29, 30, 34, 62 and 154)    |             |
|     | NPS 4 / DN 100 (include keys 29, 30, 69, 71, 75 and 154)                      |             |
|     | NPS 1 / DN 25   |             |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS1X0N12 |
|     | Fluorocarbon (FKM)  | REZHS1X0F12 |
|     | Polyurethane (PU)   | REZHS1X0P12 |
|     | NPS 2 / DN 50   |             |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS2X0N12 |
|     | Fluorocarbon (FKM)  | REZHS2X0F12 |
|     | Polyurethane (PU)   | REZHS2X0P12 |
|     | NPS 3 / DN 80   |             |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS3X0N12 |
|     | Fluorocarbon (FKM)  | REZHS3X0F12 |
|     | Polyurethane (PU)   | REZHS3X0P12 |

# EZH and EZHSO Series

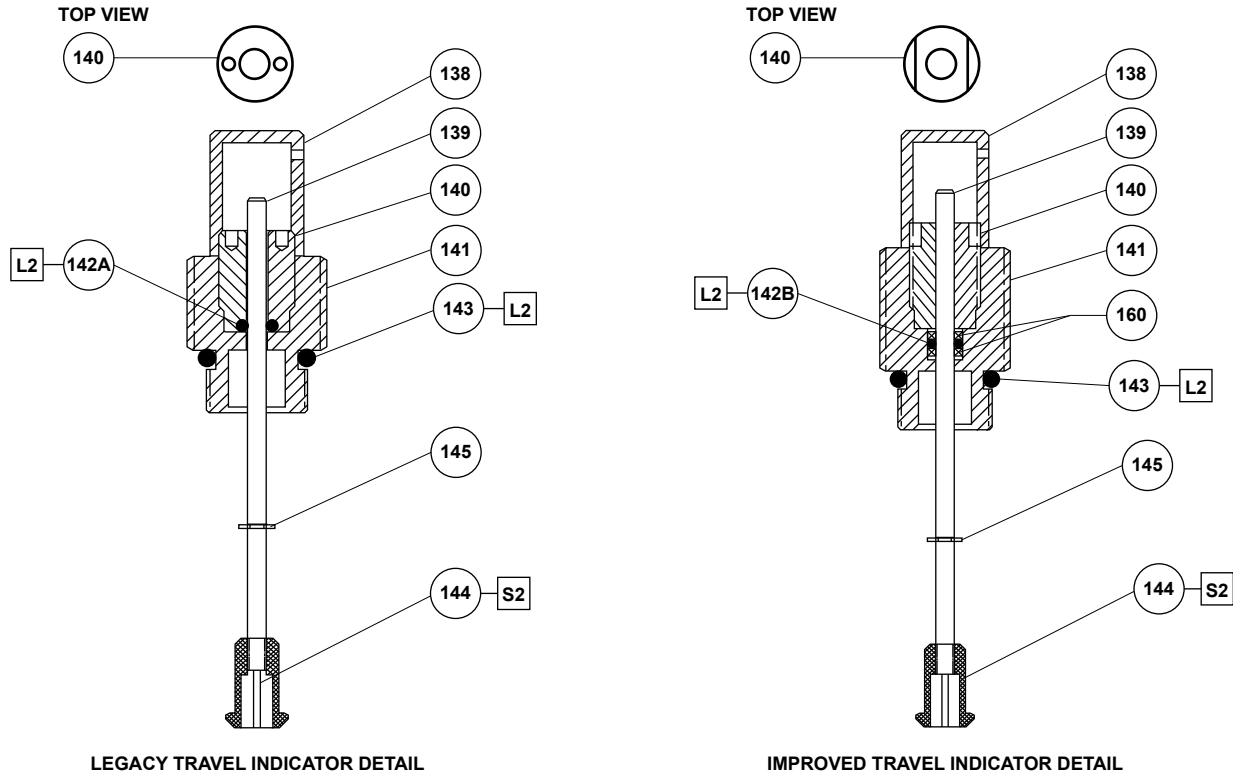
| Key | Description   | Part Number | Key              | Description  | Part Number |
|-----|---|-------------|------------------|--|-------------|
|     | EZHSO Series (continued)  |             |                  |  |             |
|     | Disk Parts Kits   |             | 3 <sup>(1)</sup> | Cage, Steel  |             |
|     | NPS 1, 2 and 3 / DN 25, 50 and 80<br>(include keys 29, 30, 34, 62 and 154)  |             |                  | NPS 1 / DN 25 (standard)   | GE31405X012 |
|     | NPS 4 / DN 100  |             |                  | NPS 2 / DN 50  |             |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS4X0N12 |                  | Standard   | GE37679X012 |
|     | Fluorocarbon (FKM)  | REZHS4X0F12 |                  | Whisper Trim™ Cage   | GE37959X012 |
|     | Polyurethane (PU)   | REZHS4X0P12 |                  | NPS 3 / DN 80  |             |
|     | EZH Series  |             |                  | Standard   | GE38018X012 |
|     | Full Repair Kits  |             |                  | Whisper Trim Cage  | GE38021X012 |
|     | NPS 1, 2 and 3 / DN 25, 50 and 80<br>(include keys 4, 7, 8, 9, 15, 17, 20, 28,<br>29, 30, 32, 33, 34, 62, 142B and 143)       |             |                  | NPS 4 / DN 100   |             |
|     | NPS 4 / DN 100 (include keys 7, 8,<br>9, 15, 17, 20, 29, 30, 32, 33, 34, 63, 64,<br>67, 69, 71, 75, 142B and 143)             |             |                  | Standard   | M0303260X12 |
|     | NPS 1 / DN 25   |             |                  | Whisper Trim™ Cage   | M0303520X12 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZH1X00N22 | 4*               | Anti-Friction Ring (2 required), PTFE  |             |
|     | Fluorocarbon (FKM)  | REZH1X00F22 |                  | NPS 1 / DN 25 Body   | M0274090X12 |
|     | Polyurethane (PU)   | REZH1X00P22 |                  | NPS 2 / DN 50 Body   | M0272760X12 |
|     | NPS 2 / DN 50   |             |                  | NPS 3 / DN 80 Body   | M0272810X12 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZH2X00N22 | 5                | Actuator Lower Casing, Carbon steel  |             |
|     | Fluorocarbon (FKM)  | REZH2X00F22 |                  | NPS 1 / DN 25 Body   | M0296970X12 |
|     | Polyurethane (PU)   | REZH2X00P22 |                  | NPS 2 / DN 50 Body   | M0295830X12 |
|     | NPS 3 / DN 80   |             |                  | NPS 3 / DN 80 Body   | GE44397X012 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZH3X00N22 |                  | NPS 4 / DN 100 Body  | M0300770X12 |
|     | Fluorocarbon (FKM)  | REZH3X00F22 | 6                | Cap Screws, Zinc-plated steel  |             |
|     | Polyurethane (PU)   | REZH3X00P22 |                  | NPS 1 / DN 25 Body (4 required)  | M4691008X12 |
|     | NPS 4 / DN 100  |             |                  | NPS 2 / DN 50 Body (8 required)  | GE11386X012 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZH4X00N22 |                  | NPS 3 / DN 80 Body (4 required)  | GE11387X022 |
|     | Fluorocarbon (FKM)  | REZH4X00F22 |                  | NPS 4 / DN 100 Body (8 required)   | M4691020X12 |
|     | Polyurethane (PU)   | REZH4X00P22 | 7*               | O-ring   |             |
|     | EZHSO Series  |             |                  | NPS 1 / DN 25 Body   |             |
|     | Full Repair Kits  |             |                  | Nitrile (NBR)  | 19B2838X012 |
|     | NPS 1, 2 and 3 / DN 25, 50 and 80<br>(include keys 4, 7, 8, 9, 15, 17, 20, 28,<br>29, 30, 34, 62, 142B, 143, 153 and 154)     |             |                  | Fluorocarbon (FKM)   | 19B2838X022 |
|     | NPS 4 / DN 100 (include keys 7, 8, 9,<br>15, 17, 20, 29, 30, 34, 63, 64, 67, 69, 71,<br>75, 142B, 143, 153, 154, 157 and 158) |             |                  | NPS 2 / DN 50 Body   |             |
|     | NPS 1 / DN 25   |             |                  | Nitrile (NBR)  | 18B2124X012 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS1X0N22 |                  | Fluorocarbon (FKM)   | 18B2124X022 |
|     | Fluorocarbon (FKM)  | REZHS1X0F22 |                  | NPS 3 / DN 80 Body   |             |
|     | Polyurethane (PU)   | REZHS1X0P22 |                  | Nitrile (NBR)  | 18B8514X012 |
|     | NPS 2 / DN 50   |             |                  | Fluorocarbon (FKM)   | 18B8514X022 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS2X0N22 |                  | NPS 4 / DN 100 Body  | M6020169X12 |
|     | Fluorocarbon (FKM)  | REZHS2X0F22 | 8*               | Anti-Friction Rings (4 required), PTFE   |             |
|     | Polyurethane (PU)   | REZHS2X0P22 |                  | NPS 1 / DN 25  | M0194530X12 |
|     | NPS 3 / DN 80   |             |                  | NPS 2 / DN 50  | M0194690X12 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS3X0N22 |                  | NPS 3 / DN 80  | M0192170X12 |
|     | Fluorocarbon (FKM)  | REZHS3X0F22 |                  | NPS 4 / DN 100 (8 required for EZH Series,<br>6 required for EZHSO Series)                   | M0194830X12 |
|     | Polyurethane (PU)   | REZHS3X0P22 | 9*               | O-ring (2 required), Fluorocarbon (FKM)  |             |
|     | NPS 4 / DN 100  |             |                  | NPS 1 / DN 25  | M6020019X12 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS4X0N22 |                  | NPS 2 / DN 50  | M6020029X12 |
|     | Fluorocarbon (FKM)  | REZHS4X0F22 |                  | NPS 3 / DN 80  | M6020036X12 |
|     | Polyurethane (PU)   | REZHS4X0P22 |                  | NPS 4 / DN 100   |             |
|     | EZH Series  |             |                  | EZH Series   | M6020044X12 |
|     | Full Repair Kits  |             |                  | EZHSO Series   |             |
|     | NPS 1, 2 and 3 / DN 25, 50 and 80<br>(include keys 4, 7, 8, 9, 15, 17, 20, 28,<br>29, 30, 34, 62, 142B, 143, 153 and 154)     |             |                  | Nitrile (NBR) and Fluorocarbon (FKM)   | ERAA00262A0 |
|     | NPS 4 / DN 100 (include keys 7, 8, 9,<br>15, 17, 20, 29, 30, 34, 63, 64, 67, 69, 71,<br>75, 142B, 143, 153, 154, 157 and 158) |             |                  | Fluorocarbon (FKM)   | M6020044X12 |
|     | NPS 1 / DN 25   |             | 10               | Pipe Plug, NPS 1, 2 and 3 /<br>DN 25, 50 and 80 (5 required),<br>NPS 4 / DN 100 (6 required) | 1A767524662 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS1X0N22 | 11               | Actuator Upper Casing, Carbon steel  |             |
|     | Fluorocarbon (FKM)  | REZHS1X0F22 |                  | NPS 1 / DN 25 Body   | M0297220X12 |
|     | Polyurethane (PU)   | REZHS1X0P22 |                  | NPS 2 / DN 50 Body   | M0296950X12 |
|     | NPS 2 / DN 50   |             |                  | NPS 3 / DN 80 Body   | GE44420X012 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS2X0N22 |                  | NPS 4 / DN 100 Body  | M0300760X12 |
|     | Fluorocarbon (FKM)  | REZHS2X0F22 | 13               | Spring, Carbon steel   |             |
|     | Polyurethane (PU)   | REZHS2X0P22 |                  | EZH Series   |             |
|     | NPS 3 / DN 80   |             |                  | NPS 1 / DN 25 Body   | M0194590X12 |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS3X0N22 |                  | NPS 2 / DN 50 Body   | M0191440X12 |
|     | Fluorocarbon (FKM)  | REZHS3X0F22 |                  | NPS 3 / DN 80 Body   | M0192240X12 |
|     | Polyurethane (PU)   | REZHS3X0P22 |                  | NPS 4 / DN 100 Body <sup>(2)</sup>   | -----       |
|     | NPS 4 / DN 100  |             |                  | EZHSO Series <sup>(2)</sup>  | -----       |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | REZHS4X0N22 | 14               | Sleeve, Steel  |             |
|     | Fluorocarbon (FKM)  | REZHS4X0F22 |                  | EZH Series   |             |
|     | Polyurethane (PU)   | REZHS4X0P22 |                  | NPS 1 / DN 25 Body   | M0274230X12 |
|     | EZH Series  |             |                  | NPS 2 / DN 50 Body   | M0272600X12 |
|     | Full Repair Kits  |             |                  | NPS 3 / DN 80 Body   | M0276310X12 |
|     | NPS 1, 2 and 3 / DN 25, 50 and 80<br>(include keys 4, 7, 8, 9, 15, 17, 20, 28,<br>29, 30, 34, 62, 142B, 143, 153 and 154)     |             |                  | NPS 4 / DN 100 Body <sup>(2)</sup>   | -----       |
|     | NPS 4 / DN 100 (include keys 7, 8, 9,<br>15, 17, 20, 29, 30, 34, 63, 64, 67, 69, 71,<br>75, 142B, 143, 153, 154, 157 and 158) |             |                  | EZHSO Series <sup>(2)</sup>  | -----       |
|     | NPS 1 / DN 25   |             | 15*              | O-ring, Fluorocarbon (FKM)   |             |
|     | Nitrile (NBR) and Fluorocarbon (FKM)  | ERAA05563A0 |                  | NPS 1 / DN 25 Body   | M6020021X12 |
|     | Fluorocarbon (FKM)  | ERAA07459A0 |                  | NPS 2 / DN 50 Body   | M6020095X12 |
|     | Polyurethane (PU)   | ERAA07456A0 |                  | NPS 3 / DN 80 Body   | M6020073X12 |
|     | NPS 2 / DN 50 Body  |             |                  | NPS 4 / DN 100 Body  |             |
|     | For 100% Capacity   | ERAA04296A0 |                  | EZH and EZHSO Series,<br>Nitrile (NBR) and Fluorocarbon (FKM)                                | M6020170X12 |
|     | For 80% Capacity  | ERAA06553A0 |                  | EZHSO Series only, Fluorocarbon (FKM)  | 10A3588X022 |
|     | For 50% Capacity  | ERAA06576A0 |                  |  |             |
|     | For 30% Capacity  | ERAA06577A0 |                  |  |             |
|     | NPS 3 / DN 80 Body  |             |                  |  |             |
|     | For 100% Capacity   | ERAA05563A0 |                  |  |             |
|     | For 80% Capacity  | ERAA07459A0 |                  |  |             |
|     | For 50% Capacity  | ERAA07456A0 |                  |  |             |
|     | For 30% Capacity  | ERAA07461A0 |                  |  |             |
|     | NPS 4 / DN 100 Body   |             |                  |  |             |
|     | For 100% Capacity   | ERAA10213A0 |                  |  |             |
|     | For 80% Capacity  | ERAA11449A0 |                  |  |             |
|     | For 50% Capacity  | ERAA11452A0 |                  |  |             |
|     | For 30% Capacity  | ERAA11453A0 |                  |  |             |

\*Recommended spare part

1. When retrofitting an EZH Series with pins with the new cage, it is also necessary to order the Seat Ring.

2. Parts are not orderable. See Table 5 for sleeve assembly if it needs to be replaced.

# EZH and EZHSO Series



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- APPLY LUBRICANT (L) / SEALANT (S)<sup>(1)</sup>:
- L2 = SILICONE-BASED GREASE
- S2 = ANAEROBIC METHACRYLATE SEALANT FOR THREADS

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

Figure 7. EZH Series Travel Indicator Assembly

| Key | Description   | Part Number   | Key | Description  | Part Number  |
|-----|---|---|-----|--|--|
| 16  | Socket Head Cap Screw, Zinc-plated steel<br>NPS 1 / DN 25 Body (6 required)<br>NPS 2 / DN 50 Body (6 required)<br>EZH Series<br>EZHSO Series  | M5011005X12<br>M5011014X12<br>19B0829X012                               | 21  | Cap Screw, Zinc-plated steel (continued)<br>NPS 2 / DN 50 Body<br>(14 required for EZH Series,<br>16 required for EZHSO Series)  | 1P1477X0012  |
| 17* | O-ring, Fluorocarbon (FKM)<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body<br>NPS 4 / DN 100 Body (EZH and EZHSO Series)<br>Nitrile (NBR) and Fluorocarbon (FKM)<br>EZHSO Series only, Fluorocarbon (FKM) | M6020120X12<br>M6020096X12<br>M6020127X12<br>M6020097X12<br>ERAA00263A0 | 22  | Plain Washer, Steel<br>NPS 1 / DN 25 Body (16 required)<br>NPS 2 / DN 50 Body (16 required)<br>NPS 3 / DN 80 Body (16 required)<br>NPS 4 / DN 100 Body (16 required)                                     | GF05679X012<br>M4691022X12<br>M5001007X12<br>M5001009X12<br>M5001012X12<br>M5001015X12 |
| 18  | Inlet Plate, Carbon steel<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body<br>NPS 4 / DN 100 Body  | M0194440X12<br>M0194620X12<br>M0192080X12<br>M0300020X12                | 23  | Hex Nut, Zinc-plated carbon steel<br>NPS 1 / DN 25 Body (16 required)<br>NPS 2 / DN 50 Body (16 required)<br>NPS 3 / DN 80 Body (16 required)<br>NPS 4 / DN 100 Body (16 required)                       | 1A341224122<br>1A343324122<br>ERCA01576A0<br>M4692005X12                               |
| 19  | Outlet Plate, Carbon steel<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body<br>NPS 4 / DN 100 Body   | M0194480X12<br>M0194660X12<br>M0192120X12<br>M0300030X12                | 24  | Continuous Thread Stud Bolt, Zinc-Plated Steel<br>NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only<br>NPS 1 / DN 25 Body (4 required)<br>NPS 2 / DN 50 Body (6 required)<br>NPS 3 / DN 80 Body (6 required) | M4693002X12<br>GE00808X042<br>M4693003X22  |
| 20* | Diaphragm, Nitrile (NBR)<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body<br>NPS 4 / DN 100 Body   | M0194450X12<br>M0194630X12<br>M0192090X12<br>M0194750X12                | 25  | Intermediate Flange, Carbon steel<br>NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body   | M0297240X12<br>M0295800X12<br>GE44403X012  |
| 21  | Cap Screw, Zinc-plated steel<br>NPS 1 / DN 25 Body<br>(14 required for EZH Series,<br>16 required for EZHSO Series)   | 1A361524052   | 26  | Hex Nut, Steel<br>NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies only<br>NPS 1 / DN 25 Body (4 required)<br>NPS 2 / DN 50 Body (6 required)<br>NPS 3 / DN 80 Body (4 required)                                 | 1A341224122<br>1A341224122<br>M4692004X12  |

\*Recommended spare part

# EZH and EZHSO Series

| Key | Description  | Part Number  | Key | Description   | Part Number  |
|-----|--|--|-----|---|--|
| 27  | Sleeve Adaptor, Carbon steel<br>EZH Series<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body<br>NPS 4 / DN 100 Body <sup>(2)</sup><br>EZHSO Series <sup>(2)</sup>  | M0274250X12<br>M0272570X12<br>M0276340X12<br>-----<br>-----  | 31  | Disk Retainer (continuation)<br>EZHSO Series, Polyurethane (PU)<br>NPS 1 / DN 25<br>NPS 2 / DN 50<br>NPS 3 / DN 80<br>NPS 4 / DN 100  | ERAA03714A0<br>ERAA03633A0<br>ERAA04692A0<br>ERAA04913A0   |
| 28* | O-ring, Fluorocarbon (FKM)<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body   | M6020144X12<br>M6020079X12<br>M6020151X12  | 32* | Lock Washer, EZH Series only, Stainless steel<br>NPS 1 / DN 25 Body (1 required)<br>NPS 2 / DN 50 Body (2 required)<br>NPS 3 / DN 80 Body (3 required)<br>NPS 4 / DN 100 Body (4 required)  | M5077005X12<br>M5077004X12<br>M5077001X12<br>M5001004X12   |
| 29* | O-ring <sup>(3)</sup><br>EZH Series<br>NPS 1 / DN 25<br>NPS 2 / DN 50<br>NPS 3 / DN 80<br>NPS 4 / DN 100<br>Nitrile (NBR) and Fluorocarbon (FKM)<br>Fluorocarbon (FKM)<br>EZHSO Series<br>NPS 1 / DN 25<br>NPS 2 / DN 50<br>NPS 3 / DN 80<br>NPS 4 / DN 100<br>Nitrile (NBR) and Fluorocarbon (FKM)<br>Fluorocarbon (FKM)  | M6020143X12<br>M6020112X12<br>M6020147X12<br><br>M6020171X22<br>M6020171X12  | 33  | Socket Head Cap Screw, EZH Series only<br>NPS 1 / DN 25 Body (1 required)<br>NPS 2 / DN 50 Body (2 required)<br>NPS 3 / DN 80 Body (1 required)<br>NPS 4 / DN 100 Body (4 required)   | M5011131X12<br>M5011006X12<br>M5011017X12<br>M5011018X12   |
| 30* | Disk Holder Assembly<br>EZH Series<br>NPS 1 / DN 25 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>NPS 2 / DN 50 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>NPS 3 / DN 80 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>NPS 4 / DN 100 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>EZHSO Series<br>NPS 1 / DN 25 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>NPS 2 / DN 50 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>NPS 3 / DN 80 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>EZHSO Series<br>NPS 1 / DN 25 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>NPS 2 / DN 50 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>NPS 3 / DN 80 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU)<br>NPS 4 / DN 100 Body<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>Polyurethane (PU) | M0280900X12<br>M0282130X12<br>ERAA07132A0<br><br>M0280910X12<br>M0282140X12<br>ERAA07133A0<br><br>M0280920X12<br>M0282150X12<br>ERAA10096A0<br><br>M0299090X12<br>M0300120X12<br>ERAA11680A0<br><br>GE42269X012<br>GE42269X022<br>ERAA07132A0<br><br>GE42168X012<br>GE42168X022<br>ERAA07133A0<br><br>GE42244X012<br>GE42244X022<br>ERAA10096A0<br><br>GE44998X012<br>GE44998X022<br>ERAA11680A0 | 34* | O-ring<br>NPS 1 / DN 25<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>NPS 2 / DN 50<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>NPS 3 / DN 80<br>Nitrile (NBR)<br>Fluorocarbon (FKM)<br>NPS 4 / DN 100<br>Nitrile (NBR)<br>Fluorocarbon (FKM) | M6010099X12<br>M6020065X12<br><br>M6010109X12<br>M6020159X12<br><br>M6010247X12<br>M6020165X12<br><br>M6010126X12<br>M6020127X12 |
|     |  |  | 35  | Bracket or Eyebolt (2 required), Steel<br>NPS 1 / DN 25 Body - Bracket<br>NPS 2 / DN 50 Body - Bracket<br>NPS 3 / DN 80 Body - Eyebolt<br>NPS 4 / DN 100 Body - Eyebolt   | M0220960X12<br>M0278570X12<br>M5095001X12<br>M5095001X12   |
|     |  |  | 36  | Nameplate   | -----  |
|     |  |  | 37  | Drive Screw (3 required), Stainless steel   | -----  |
|     |  |  | 38  | Travel Indicator Plug<br>NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies<br>NPS 4 / DN 100 Body  | M0297680X12<br>M0303680X12   |
|     |  |  | 39  | Long Bolt (2 required), Zinc-plated steel<br>EZH Series<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body   | GE07221X012<br>M4691014X12<br>ERCA01574A0  |
|     |  |  | 43  | Caution/Warning Label, Aluminum<br>NPS 1, 2 and 3 /<br>DN 25, 50 and 80 Bodies (2 required)<br>NPS 4 / DN 100 Body (1 required)   | -----<br>-----   |
|     |  |  | 44  | Adjusting Screw Cap, Plastic<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 and 4 / DN 80 and 100 Bodies  | 24B1301X012<br>24B1301X012<br>24B1301X012  |
|     |  |  | 59  | Flow Arrow, Stainless steel   | -----  |
|     |  |  | 60  | Protective Cap (2 required), for EZH Series only, Plastic<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body   | T13659T0092<br>T13659T0072<br>T13659T0102  |
|     |  |  | 61  | Sleeve Guide, Steel<br>NPS 4 / DN 100 Body only   | M0300360X12  |
|     |  |  | 62* | O-ring<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body  | M6020082X12<br>M6010110X12<br>M6020094X12  |
|     |  |  | 63* | O-ring, Fluorocarbon (FKM), NPS 4 / DN 100 only   | M6020172X12  |
|     |  |  | 64* | O-ring<br>NPS 4 / DN 25 Body<br>(EZH and EZHSO Series),<br>Nitrile (NBR) and Fluorocarbon (FKM)<br>EZHSO Series only, Fluorocarbon (FKM)  | M6020139X12<br>1D2673X0042   |
|     |  |  | 66  | Socket Head Set Screw, Zinc-plated steel<br>NPS 4 / DN 100 Body Only (8 required)   | M5021047X12  |
|     |  |  | 67* | Crush Washer, Aluminum<br>NPS 4 / DN 100 Body Only (8 required)   | M4501738X12  |
|     |  |  | 68  | Special Screw, Zinc-plated steel<br>NPS 4 / DN 100 Body Only (8 required)   | M0300040X12  |
|     |  |  | 69* | O-ring, Fluorocarbon (FKM), NPS 4 / DN 100 only   | M6020149X12  |
|     |  |  | 70  | Cap, Carbon steel<br>NPS 4 / DN 100 Body, EZH Series Cap<br>NPS 4 / DN 100 Body, EZHSO Series Cap   | M0299980X12<br>GE44707X012   |
| 31  | Disk Retainer<br>EZH Series only, Nitrile (NBR)<br>and Fluorocarbon (FKM)<br>NPS 1 / DN 25 Body<br>NPS 2 / DN 50 Body<br>NPS 3 / DN 80 Body<br>NPS 4 / DN 100 Body<br>EZH Series, Polyurethane (PU)<br>NPS 1 / DN 25<br>NPS 2 / DN 50<br>NPS 3 / DN 80<br>NPS 4 / DN 100   | M0274160X12<br>M0272750X12<br>M0276250X12<br>M0300100X12<br><br>ERAA04846A0<br>ERAA04789A0<br>ERAA05023A0<br>ERAA08206A0   |     |   |  |

\*Recommended spare part

2. Parts are not orderable. See Table 5 for sleeve assembly if it needs to be replaced.

3. Included also in EZHSO Series sleeve subassembly (NPS 1, 2 and 3 / DN 25, 50 and 80).

# EZH and EZHSO Series

| Key   | Description   | Part Number | Key  | Description   | Part Number |
|-------|---|-------------|------|---|-------------|
| 71*   | O-ring, Fluorocarbon (FKM)                                  | M6020175X12 | 156  | Upper Spring Seat Adapter (EZHSO Series only), Steel <sup>(4)</sup> |             |
| 72    | Locking Nut, Steel  |             |      | NPS 4 / DN 100 Body   | M0303350X12 |
|       | EZH Series NPS 4 / DN 100 Body only <sup>(4)</sup>          | M0300060X12 | 157* | Anti-friction ring (EZHSO Series only), PTFE                        |             |
| 73    | Upper Spring Seat, Carbon steel, EZH Series only            |             |      | NPS 4 / DN 100 Body   | GE44971X012 |
|       | NPS 4 / DN 100 Body only <sup>(4)</sup>                     | M0300070X12 | 158* | O-ring (EZHSO Series only)  |             |
| 74    | Hex Socket Cap Screw, Zinc-plated steel                     | M5011135X12 |      | NPS 4 / DN 100 Body   |             |
|       | NPS 4 / DN 100 Body only                                    | M6020117X12 |      | Nitrile (NBR) and Fluorocarbon (FKM)                                | ERAA00260A0 |
| 75*   | O-ring, Fluorocarbon (FKM), NPS 4 / DN 100 only             |             |      | Fluorocarbon (FKM)  | GE45201X012 |
| 77    | Screw, Zinc-plated steel                                    | M5009048X12 | 159  | Check valve   | 15A6011E182 |
|       | NPS 4 / DN 100 Body only (8 required)                       |             | 160* | Back-up ring (2 required), PTFE                                     | 1N659106242 |
| 82    | Lower Spring Seat, EZH Series only, Carbon steel            |             | 192  | Travel Indicator Scale  | M0201990X12 |
|       | NPS 4 / DN 100 Body only <sup>(4)</sup>                     | M0300080X12 | 193  | Washer (EZHSO Series only)  | FA405007X12 |
| 83    | Ball Bearing (2 required), Steel                            |             |      |   |             |
|       | NPS 4 / DN 100 Body only <sup>(4)</sup>                     | M4500574X12 |      |   |             |
| 138   | Travel Indicator Cover, Plastic                             |             |      |   |             |
|       | NPS 1 / DN 25 Body  | M0194580X12 |      |   |             |
|       | NPS 2 / DN 50 Body  | M0196770X12 |      |   |             |
|       | NPS 3 / DN 80 Body  | M0194870X12 |      |   |             |
|       | NPS 4 / DN 100 Body   | M0210910X12 |      |   |             |
| 139   | Travel Indicator Stem, Stainless steel                      |             |      |   |             |
|       | NPS 1 / DN 25 Body  | ERSA01803A0 |      |   |             |
|       | NPS 2 / DN 50 Body  | ERSA01801A0 |      |   |             |
|       | NPS 3 / DN 80 Body  | ERSA01803A0 |      |   |             |
|       | NPS 4 / DN 100 Body   | ERSA02571A0 |      |   |             |
| 140   | Indicator Bushing, Brass                                    | ERSA02798A0 |      |   |             |
| 141   | Travel Indicator Fitting, Brass                             |             |      |   |             |
|       | NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies                    | ERSA02569A0 |      |   |             |
|       | NPS 4 / DN 100  | ERSA01824A0 |      |   |             |
| 142A* | O-ring  |             |      |   |             |
|       | Nitrile (NBR)   | M6010001X12 |      |   |             |
|       | Fluorocarbon (FKM)  | M6020066X12 |      |   |             |
| 142B* | O-ring  |             |      |   |             |
|       | Nitrile (NBR)   | 1H2926X0032 |      |   |             |
|       | Fluorocarbon (FKM)  | 1H2926X0022 |      |   |             |
| 143*  | O-ring, Fluorocarbon (FKM)                                  | M6020005X12 |      |   |             |
| 144   | Spring Collet, Carbon steel                                 | M0192180X12 |      |   |             |
| 145   | Retaining Ring  | M4500325X12 |      |   |             |
| 146   | Protective Cap (EZHSO Series only), Plastic <sup>(4)</sup>  | GE30222X012 |      |   |             |
| 147   | Stem (EZHSO Series only), Steel <sup>(4)</sup>              |             |      |   |             |
|       | NPS 1 / DN 25 Body  | GE29590X012 |      |   |             |
|       | NPS 2 / DN 50 Body  | GE26223X012 |      |   |             |
|       | NPS 3 / DN 80 Body  | GE44786X012 |      |   |             |
|       | NPS 4 / DN 100 Body   | M0303340X12 |      |   |             |
| 148   | Upper Spring Seat (EZHSO Series only), Steel <sup>(4)</sup> |             |      |   |             |
|       | NPS 1 / DN 25 Body  | GE29587X012 |      |   |             |
|       | NPS 2 / DN 50 Body  | GE26227X012 |      |   |             |
|       | NPS 3 / DN 80 Body  | GE29302X012 |      |   |             |
|       | NPS 4 / DN 100 Body   | GE36696X012 |      |   |             |
| 149   | Lower Spring Seat (EZHSO Series only), Steel <sup>(4)</sup> |             |      |   |             |
|       | NPS 1 / DN 25 Body  | GE29586X012 |      |   |             |
|       | NPS 2 / DN 50 Body  | GE26250X012 |      |   |             |
|       | NPS 3 / DN 80 Body  | GE29303X012 |      |   |             |
|       | NPS 4 / DN 100 Body   | M0303360X12 |      |   |             |
| 150   | Ring Guide (EZHSO Series only), Plastic <sup>(4)</sup>      |             |      |   |             |
|       | NPS 1 / DN 25 Body  | GE29602X012 |      |   |             |
|       | NPS 2 / DN 50 Body  | GE28486X012 |      |   |             |
|       | NPS 3 / DN 80 Body  | GE29307X012 |      |   |             |
|       | NPS 4 / DN 100 Body   | M0303380X12 |      |   |             |
| 151   | Stem Nut (2 required), Steel <sup>(4)</sup>                 |             |      |   |             |
|       | EZHSO Series only   | M5002006X12 |      |   |             |
| 152   | Hex Nut, Zinc-plated steel                                  |             |      |   |             |
|       | (NPS 2, 3 and 4 / DN 50, 80 and 100 <sup>(4)</sup> )        |             |      |   |             |
|       | Bodies EZHSO Series only                                    | M5036006X12 |      |   |             |
| 153*  | O-ring (EZHSO Series only) <sup>(5)</sup>                   |             |      |   |             |
|       | NPS 1 and 2 / DN 25 and 50                                  | M6010246X12 |      |   |             |
|       | NPS 3 and 4 / DN 80 and 100 (EZHSO Series only)             | T1230906382 |      |   |             |
| 154*  | Hex Socket Cap Screw, Stainless steel                       |             |      |   |             |
|       | EZHSO Series only (1 required)                              |             |      |   |             |
|       | NPS 1 / DN 25 Body  | FA402505X12 |      |   |             |
|       | NPS 2 / DN 50 Body  | M5011014X12 |      |   |             |
|       | NPS 3 / DN 80 Body  | FA402036X12 |      |   |             |
|       | NPS 4 / DN 100 Body <sup>(5)</sup> (6 required)             |             |      |   |             |
|       | Nitrile (NBR) or Fluorocarbon (FKM) Disk                    | FA402505X12 |      |   |             |
|       | Polyurethane (PU) Disk                                      | M5011131X12 |      |   |             |
| 155   | Stem Nut  |             |      |   |             |
|       | NPS 1 / DN 25 Body EZHSO Series only <sup>(4)</sup>         | GE29864X012 |      |   |             |

## Mounting Parts (Figures 10 through 12)

### Standard Configurations for Single Pilot and Working Monitor Pilots

| Key | Description  | Part Number |
|-----|--|-------------|
| 46  | Pipe Nipple  | GE13860X012 |
| 47  | Pipe Nipple, for NPS 1, 2 and 3 / DN 25, 50 and 80 Bodies (3 required for Working Monitor Pilots) (45° Internal Elbow for Working Monitor Pilots only) | 1C488226232 |
| 50  | Pipe Tee (3 required)  |             |
|     | NPS 4 / DN 100, for Working Monitor Pilots   | 1B8606X0032 |
| 51  | Pipe Cross, NPS 4 / DN 100   | 1L3719X0012 |
| 52  | Tubing (2 required), NPS 4 / DN 100  | -----       |
| 54  | Pipe Nipple, NPS 4 / DN 100, for Working Monitor Pilots  | 1C210026232 |
| 56  | 45° Elbow, NPS 4 / DN 100, for Working Monitor Pilots  | 15A6002XFU2 |

### Pre-Piped Pilot Supply Single-Pilot Configuration (with standard body or tapped inlet body)

| Key | Description   | Part Number |
|-----|---|-------------|
| 47  | Pipe Nipple (NPS 1, 2 and 3 / DN 25, 50 and 80, 4 required; NPS 4 / DN 100, 1 required)                                 | 1C488226232 |
| 48  | Tube Elbow (NPS 1, 2 and 3 / DN 25, 50 and 80, 4 required; NPS 4 / DN 100, 5 required)                                  | -----       |
| 49  | External Tube Connector (NPS 1 and 2 / DN 25 and 50, 4 required; NPS 3 / DN 80, 1 required; NPS 4 / DN 100, 3 required) | -----       |
| 50  | Pipe Tee (2 required)   | 1B8606X0032 |
| 51  | Pipe Cross (not available for NPS 4 / DN 100)   | 1L3719X0012 |
| 52  | Tubing  | -----       |

### Pre-Piped Pilot Supply and Pilot Exhaust Single-Pilot Configuration (with tapped inlet and outlet body)

| Key | Description   | Part Number |
|-----|---|-------------|
| 47  | Pipe Nipple (NPS 1, 2 and 3 / DN 25, 50 and 80, 6 required; NPS 4 / DN 100, 3 required)             | 1C488226232 |
| 48  | Tube Elbow (NPS 1, 2 and 3 / DN 25, 50 and 80, 4 required; NPS 4 / DN 100, 6 required)              | -----       |
| 49  | External Tube Connector (NPS 1, 2 and 3 / DN 25, 50 and 80, 5 required; NPS 4 / DN 100, 3 required) | -----       |
| 50  | Pipe Tee (3 required)   | 1B8606X0032 |
| 51  | Pipe Cross, (not available for NPS 4 / DN 100)  | 1L3719X0012 |

\*Recommended spare part

1. When retrofitting an EZH Series with pins with the new cage, it is also necessary to order the Seat Ring.

4. Included also in sleeve subassembly.

5. Included also in sleeve subassembly (NPS 1, 2 and 3 / DN 25, 50 and 80).

# EZH and EZHSO Series

| Key | Description        | Part Number |
|-----|--------------------|-------------|
| 52  | Tubing             | -----       |
| 55  | Internal Connector | -----       |

## Pre-Piped Pilot Supply Working Monitor Pilot Configuration (with standard body or tapped inlet body)

| Key | Description   | Part Number |
|-----|---|-------------|
| 47  | Pipe Nipple (NPS 1, 2 and 3 / DN 25, 50 and 80, 3 required; NPS 4 / DN 100, 1 required)             | 1C488226232 |
| 48  | Tube Elbow (NPS 1, 2 and 3 / DN 25, 50 and 80, 3 required; NPS 4 / DN 100, 5 required)              | -----       |
| 49  | External Tube Connector (NPS 1, 2 and 3 / DN 25, 50 and 80, 5 required; NPS 4 / DN 100, 3 required) | -----       |
| 50  | Pipe Tee (NPS 1, 2 and 3 / DN 25, 50 and 80, 4 required; NPS 4 / DN 100, 1 required)                | 1B8606X0032 |
| 52  | Tubing  | -----       |
| 54  | Pipe Nipple (not available for NPS 4 / DN 100)  | 1C210026232 |

## Pre-Piped Pilot Supply and Pilot Exhaust Working Monitor Pilot Configuration (with tapped inlet and outlet body)

| Key | Description   | Part Number |
|-----|---|-------------|
| 47  | Pipe Nipple (NPS 1, 2 and 3 / DN 25, 50 and 80, 5 required; NPS 4 / DN 100, 3 required)             | 1C488226232 |
| 48  | Tube Elbow (NPS 1, 2 and 3 / DN 25, 50 and 80, 4 required; NPS 4 / DN 100, 6 required)              | -----       |
| 49  | External Tube Connector (NPS 1, 2 and 3 / DN 25, 50 and 80, 5 required; NPS 4 / DN 100, 3 required) | -----       |
| 50  | Pipe Tee (3 required) not available for NPS 4 / DN 100  | 1B8606X0032 |
| 51  | Pipe Cross (not available for NPS 4 / DN 100)   | 1L3719X0012 |
| 52  | Tubing  | -----       |
| 53  | 90° NPT Pipe Elbow  | 1B8608X0012 |
| 54  | Pipe Nipple (not available for NPS 4 / DN 100)  | 1C210026232 |
| 55  | Internal Connector  | -----       |

## PRX Series Pilots (Figure 13)

| Key | Description   | Part Number |
|-----|---|-------------|
|     | Parts Kits  |             |
|     | Elastomer Parts Kits<br>(include keys 4, 5, 14, 17, 18, 25 and 28)<br>Types PRX/120, PRX/120-AP, PRX/125 and PRX/125-AP |             |
|     | Nitrile (NBR)   | RPRX00X0N12 |
|     | Fluorocarbon (FKM)  | RPRX00X0F12 |
| 1   | Adjusting Screw, Stainless steel  | M0253340X12 |
| 2   | Locknut   | M5036008X12 |
| 3   | Cap, Steel  | M0253350X12 |
| 4*  | Upper Cover O-ring (1 required for Type PRX/120 or PRX/125, 2 required for Type PRX/120-AP or PRX/125-AP)               |             |
|     | Nitrile (NBR)   | M6010178X12 |
|     | Fluorocarbon (FKM)  | M6020112X12 |
| 5*  | O-ring  |             |
|     | Nitrile (NBR)   | M6010005X12 |
|     | Fluorocarbon (FKM)  | M6020001X12 |
| 6   | Upper Spring Seat, Stainless steel  | M0253360X12 |
| 7   | Spring  | See Table 2 |
| 8   | Upper Cover, Steel  | M0298540X12 |

\*Recommended spare part

| Key | Description   | Part Number |
|-----|---|-------------|
| 9   | Lower Spring Seat, Stainless steel                  | M0253380X12 |
| 10  | Machine Screw, Zinc-plated steel (12 required)      | M5011018X12 |
| 11  | Washer (14 required)                                | M5055001X12 |
| 12  | Filter  | M4500367X12 |
| 13  | Upper Diaphragm Plate, Stainless steel (2 required) | M0253390X12 |
| 14* | Diaphragm   |             |
|     | Nitrile (NBR)                                       | GG05785X012 |
|     | Fluorocarbon (FKM)                                  | GG05785X022 |
| 15  | Lower Diaphragm Plate, Stainless steel              | M0253410X12 |
| 16  | Body, Steel   | M0253310X12 |
| 17* | Orifice O-ring                                      |             |
|     | Nitrile (NBR)                                       | M6010003X12 |
|     | Fluorocarbon (FKM)                                  | M6020126X12 |
| 18* | Lower Cover O-ring (2 required)                     |             |
|     | Polyurethane (PU)                                   | M6010098X12 |
|     | Fluorocarbon (FKM)                                  | M6020132X12 |
| 19  | Orifice, Steel                                      | M0253440X12 |
| 20  | Nut, Steel  | M5002004X12 |
| 21  | Lower Cover, Steel                                  | M0298600X12 |
| 22* | Disk  |             |
|     | Polyurethane (PU)                                   | ERAA11220A0 |
|     | Fluorocarbon (FKM)                                  | M0279950X12 |
| 23  | Stem, Steel   | M0253430X12 |
| 24  | Nameplate   | -----       |
| 25* | Stem O-ring   |             |
|     | Nitrile (NBR)                                       | M6010223X12 |
|     | Fluorocarbon (FKM)                                  | M6020133X12 |
| 26  | Upper Diaphragm Nut                                 | M5028005X12 |
| 27  | Damper Adjusting Screw with Hole, Stainless Steel   | M0253480X12 |
| 28* | Restrictor/Damper O-ring (2 required)               | M6020054X12 |
| 29  | Damper/Restrictor Plate                             |             |
|     | Types PRX/120 and PRX/120-AP                        | M0254400X12 |
|     | Types PRX/125 and PRX/125-AP                        | M0257930X12 |
| 30  | Ring Nut (2 required)                               | M0253490X12 |
| 31  | Nameplate Screw                                     | M5061001X12 |
| 32  | Restrictor Adjusting Screw with Hole                | M0253480X12 |
| 33  | Plug (Types PRX/125 and PRX/125-AP only)            | M0257920X12 |
| 34  | Plug (Types PRX/125 and PRX/125-AP only), Brass     | M4500328X12 |
| 35  | Spring Barrel Extension for AP, Steel               | M0274100X12 |

## Type SA/2 Pilot Supply Filter Regulators (Figure 14)

| Key | Description   | Part Number |
|-----|---|-------------|
|     | Parts Kits  |             |
|     | Elastomer Parts Kits<br>(include keys 6, 12, 13, 15 and 18) |             |
|     | Nitrile (NBR)   | GD89995X012 |
|     | Fluorocarbon (FKM)  | GD89995X022 |
| 1   | Spring  | M0192560X12 |
| 2   | Socket Head Cap Screw (4 required)                          | M5058003X12 |
| 3   | Washer  | M0248490X12 |
| 4   | Plate   | M0174470X12 |
| 5   | Regulator Seat  | M0200830X12 |
| 6*  | O-ring, Nitrile (NBR)                                       | M6010013X12 |
| 7   | Body, Steel   | M0297920X12 |
| 8   | Filter Screen (2 required)                                  | M0102200X12 |
| 9   | Washer (4 required)   | M5057002X12 |
| 10  | Nut (4 required)  | M5060005X12 |
| 11  | Filter Case, Steel  | M0174411X12 |
| 12* | Felt  | M0102210X12 |
| 13* | O-ring, Nitrile (NBR)                                       | M6010095X12 |
| 14  | Spring  | M0105970X12 |
| 15* | Disk Holder   | M0233370X12 |
| 16  | Nameplate   | -----       |
| 17  | Pusher Post   | M0200790X12 |
| 18* | Diaphragm, Nitrile (NBR)                                    | M0174460X12 |
| 19  | Regulator Case, Steel                                       | M0239890X12 |
| 20  | Spring Washer   | M5001003X12 |
| 21  | Nut   | M5006012X12 |

# EZH and EZHSO Series

Key 1, EZH and EZHSO Series Main Valve Body Part Numbers

| BODY SIZE        |                            | BODY MATERIAL | END CONNECTION STYLE | BODY STYLE                              |                                |
|------------------|----------------------------|---------------|----------------------|---|--------------------------------|
| NPS              | DN                         |               |                      | Standard or Tapped Inlet (Pilot Supply) | Tapped Inlet and Tapped Outlet |
| 1                | 25                         | Cast Iron     | NPT                  | GE11518X012                             | -----                          |
|                  |                            |               | CL125 FF             | GE11528X012                             | 14B5623X012                    |
|                  |                            |               | CL250 RF             | GE11580X012                             | 14B5623X022                    |
|                  |                            | WCC Steel     | NPT                  | GE11581X012                             | -----                          |
|                  |                            |               | SWE                  | GE11440X012                             | -----                          |
|                  |                            |               | CL150 RF             | GE11583X012                             | 14B5623X032                    |
|                  |                            |               | CL300 RF             | GE11607X012                             | 14B5623X042                    |
|                  |                            |               | CL600 RF             | GE11608X012                             | 14B5623X052                    |
|                  |                            |               | SCH 40 BWE           | GE11610X012                             |                                |
|                  |                            |               | SCH 80 BWE           | GE11611X012                             |                                |
| PN 16/40 RF      | GE13625X012                |               |                      |   |                                |
| 2                | 50                         | Cast Iron     | NPT                  | GE10583X012                             | -----                          |
|                  |                            |               | CL125 FF             | GE10585X012                             |                                |
|                  |                            |               | CL250 RF             | GE10587X012                             |                                |
|                  |                            | WCC Steel     | NPT                  | GE10588X012                             |                                |
|                  |                            |               | SWE                  | GE10682X012                             |                                |
|                  |                            |               | CL150 RF             | GE10676X012                             | 14B5834X032                    |
|                  |                            |               | CL300 RF             | GE10678X012                             | 14B5834X042                    |
|                  |                            |               | CL600 RF             | GE10679X012                             | 14B5834X052                    |
|                  |                            |               | SCH 40 BWE           | GE10680X012                             |                                |
|                  |                            |               | SCH 80 BWE           | GE10681X012                             |                                |
| PN 16/40         | GE12898X012 <sup>(1)</sup> | -----         |                      |   |                                |
| 3                | 80                         | Cast Iron     | CL125 FF             | GE10689X012                             |                                |
|                  |                            |               | CL250 RF             | GE10698X012                             |                                |
|                  |                            |               | CL150 RF             | GE10699X012                             | 14B5835X032                    |
|                  |                            | WCC Steel     | CL300 RF             | GE10700X012                             | 14B5835X042                    |
|                  |                            |               | CL600 RF             | GE10701X012                             | 14B5835X052                    |
|                  |                            |               | SCH 40 BWE           | GE10702X012                             |                                |
|                  |                            |               | SCH 80 BWE           | GE10703X012                             |                                |
|                  |                            |               | PN 25/40             | GE13594X012 <sup>(1)</sup>              | -----                          |
|                  |                            |               | CL125 FF             | GE10707X012                             |                                |
|                  |                            |               | CL250 RF             | GE10822X012                             |                                |
| 4 <sup>(2)</sup> | 100 <sup>(2)</sup>         | Cast Iron     | CL150 RF             | GE10835X012                             | 14B5836X032                    |
|                  |                            |               | CL300 RF             | GE10839X012                             | 14B5836X042                    |
|                  |                            | WCC Steel     | CL600 RF             | GE10842X012                             | 14B5836X052                    |
|                  |                            |               | SCH 40 BWE           | GE10843X012                             |                                |
|                  |                            |               | SCH 80 BWE           | GE10844X012                             | -----                          |
|                  |                            |               |                      |   |                                |

1. Not available for Standard body.  
2. Not available for Tapped Inlet (Pilot Supply) body.

Table 5. EZH/EZHSO Series Travel Indicator Assemblies Part Numbers<sup>(1)</sup>

| DESCRIPTION          | MATERIAL      | NPS 1 / DN 25 | NPS 2 / DN 50 | NPS 3 / DN 80 | NPS 4 / DN 100 |
|----------------------|---------------|---------------|---------------|---------------|----------------|
| EZH and EZHSO Series | Nitrile (NBR) | ERSA01539A0   | ERSA01546A0   | ERSA01547A0   | ERSA01549A0    |

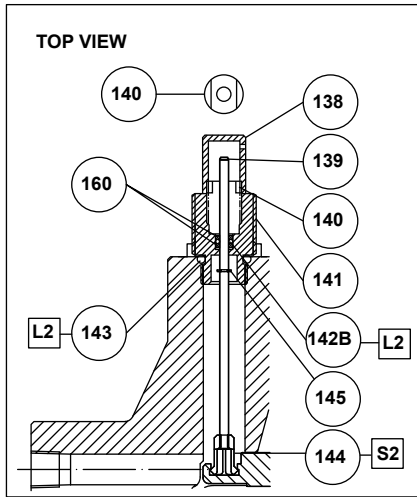
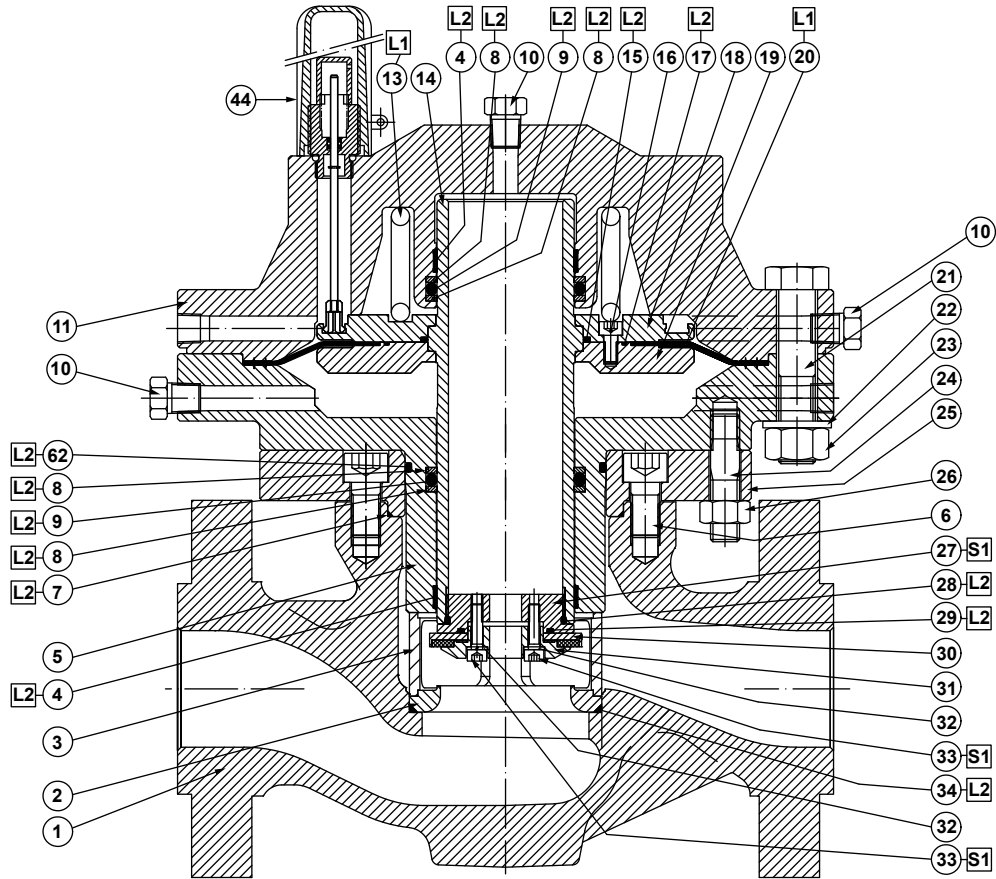
1. The assemblies include keys 138, 139, 140, 141, 142B, 143, 144, 145, 160 and 192.

Table 6. EZH/EZHSO Series Sleeve Assemblies Part Numbers

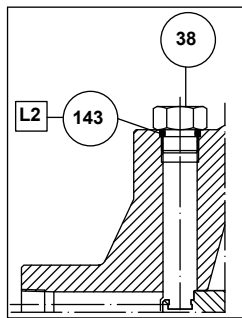
| DESCRIPTION  | NPS 1 / DN 25 | NPS 2 / DN 50 | NPS 3 / DN 80 | NPS 4 / DN 100   |
|--------------|---------------|---------------|---------------|--|
| EZHSO Series | ERCA02689A0   | ERCA02690A0   | ERCA02691A0   | For Nitrile (NBR) and (Fluorocarbon (FKM) disk:<br>M2201053X12<br><br>For Polyurethane (PU) disk:<br>M2201053X32 |
| EZH Series   | -----         | -----         | -----         | M2201052X12  |



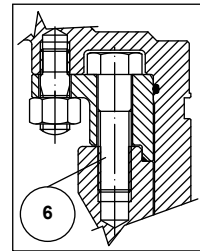
# EZH and EZHSO Series



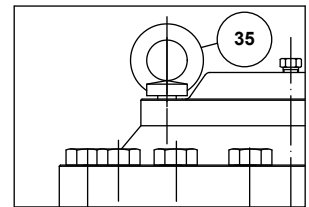
**IMPROVED TRAVEL INDICATOR DETAIL**



**VERSION WITHOUT TRAVEL INDICATOR DETAIL**



**FOR NPS 1 / DN 25 EZH SERIES VERSION ONLY**



**FOR NPS 3 / DN 80 EZH SERIES VERSION ONLY**

**NPS 1 THROUGH 3 / DN 25 THROUGH 80**

GD89918\_H

- APPLY LUBRICANT (L) / SEALANT (S)<sup>(1)</sup>:
  - L1 = LITHIUM HYDROXYSTEGRATE NLGI 2 GRADE GREASE
  - L2 = SILICONE-BASED GREASE
  - S1 = ANAEROBIC METHACRYLATE SEALANT FOR NUTS AND BOLTS
  - S2 = ANAEROBIC METHACRYLATE SEALANT FOR THREADS

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

**Figure 8. EZH Series Main Valve Assembly**

# EZH and EZHSO Series

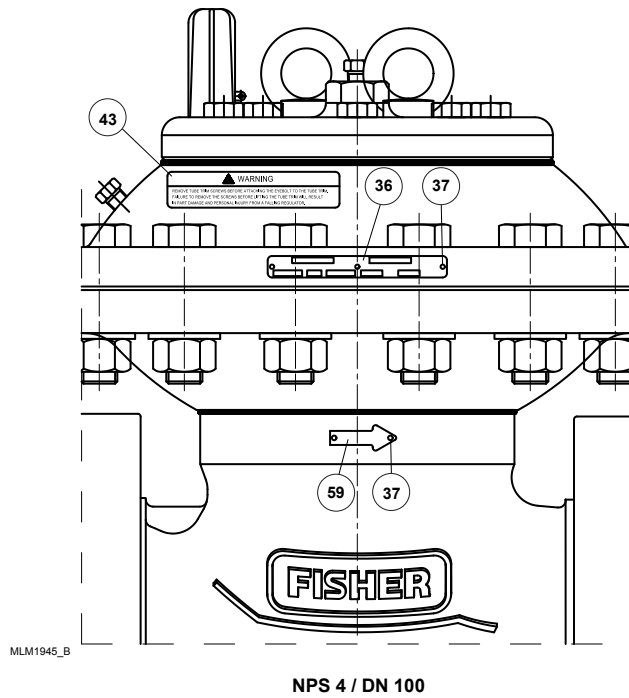
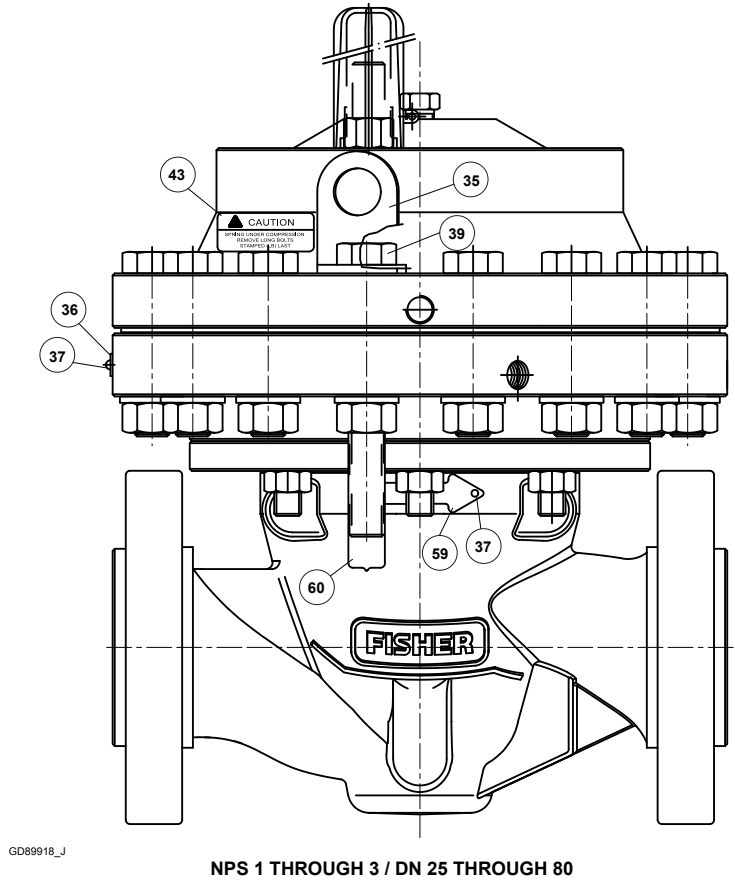
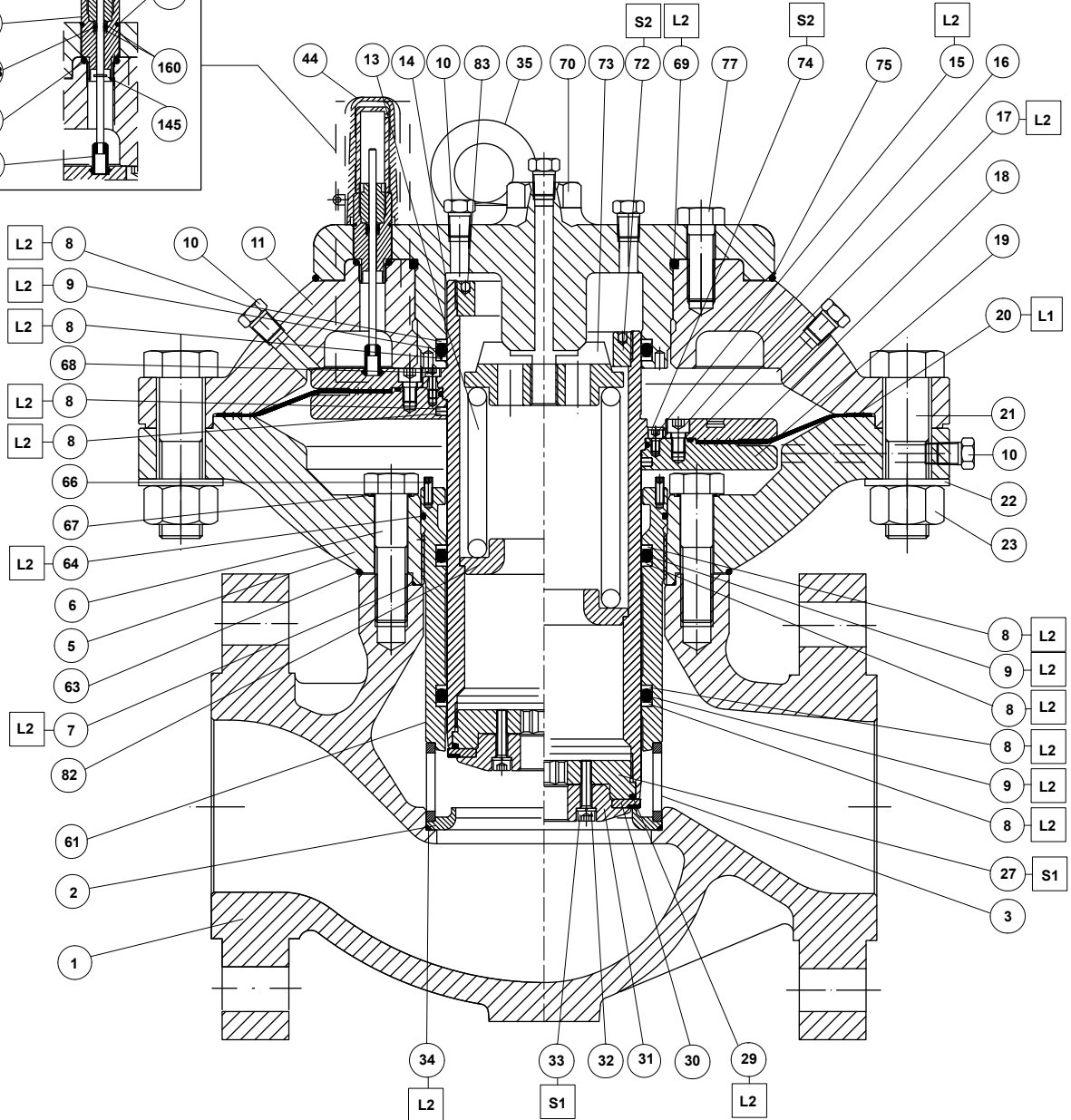
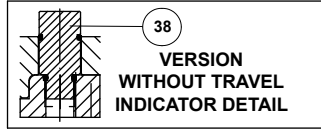
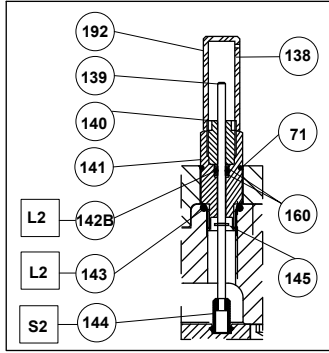


Figure 8. EZH Series Main Valve Assembly (continued)

## TRAVEL INDICATOR DETAIL



NPS 4 / DN 100

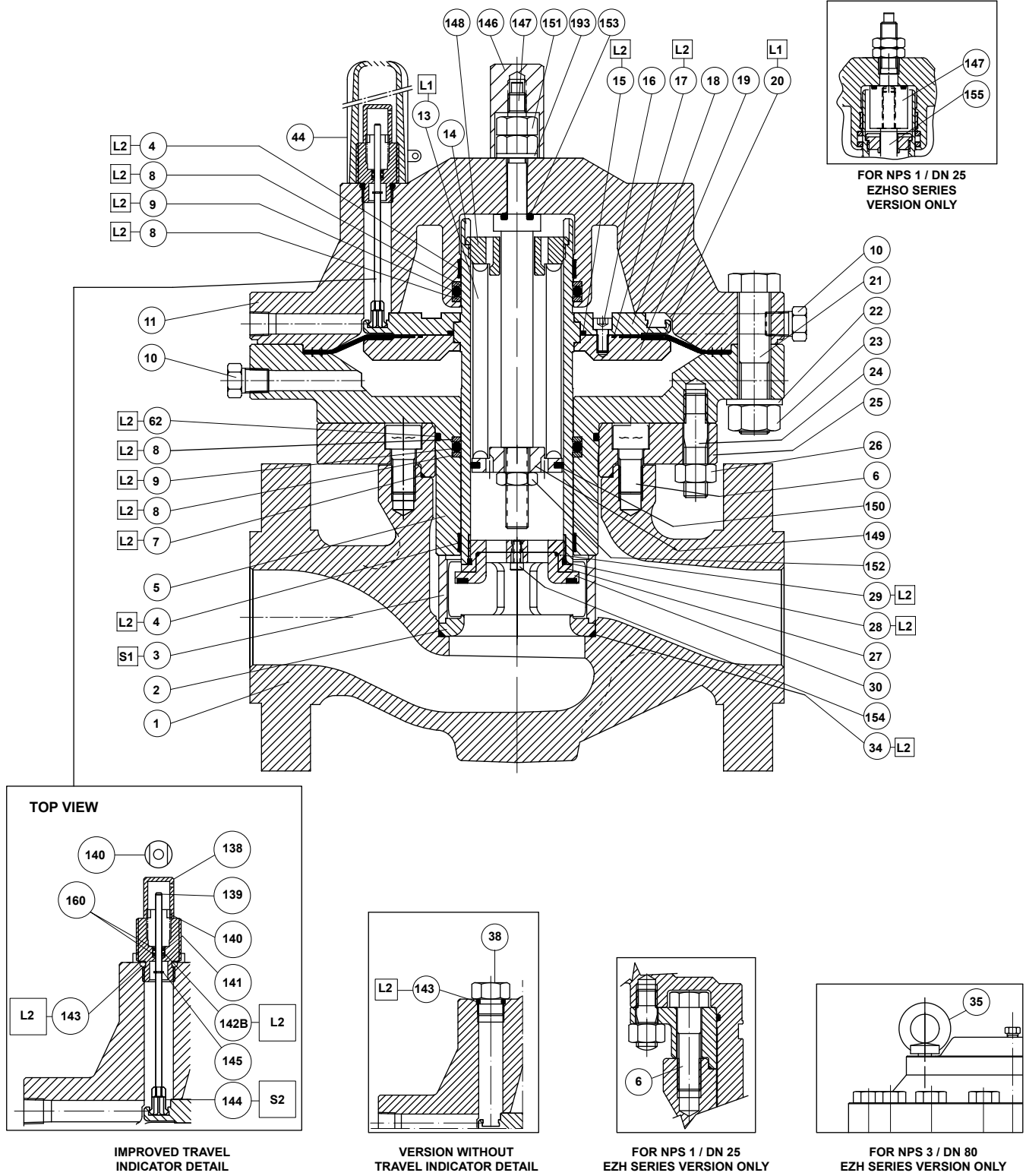
MLM1945\_B

- APPLY LUBRICANT (L) / SEALANT (S)<sup>(1)</sup>:
- L1 = LITHIUM HYDROXYSTEGRATE NLGI 2 GRADE GREASE
- L2 = SILICONE-BASED GREASE
- S1 = ANAEROBIC METHACRYLATE SEALANT FOR NUTS AND BOLTS
- S2 = ANAEROBIC METHACRYLATE SEALANT FOR THREADS

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

Figure 8. EZH Series Main Valve Assembly (continued)

# EZH and EZHSO Series



NPS 1 THROUGH 3 / DN 25 THROUGH 80

GE42373\_D

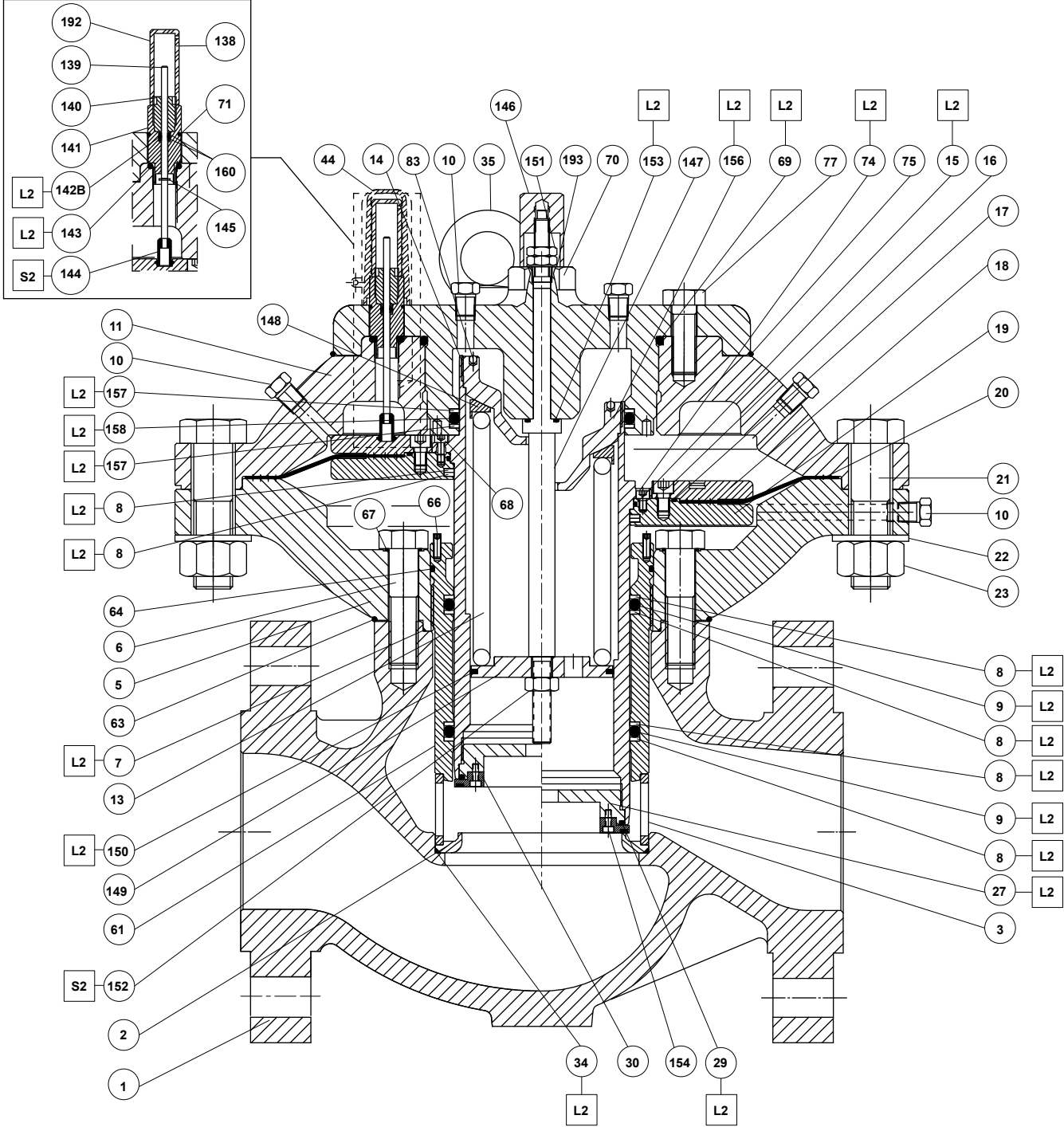
- APPLY LUBRICANT (L) / SEALANT (S)<sup>(1)</sup>:
  - L1 = LITHIUM HYDROXYSTEGRATE NLGI 2 GRADE GREASE
  - L2 = SILICONE-BASED GREASE
  - S1 = ANAEROBIC METHACRYLATE SEALANT FOR NUTS AND BOLTS
  - S2 = ANAEROBIC METHACRYLATE SEALANT FOR THREADS

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

**Figure 9. EZHSO Series Main Valve Assembly**

# EZH and EZHSO Series

## TRAVEL INDICATOR DETAIL



GE32477\_D

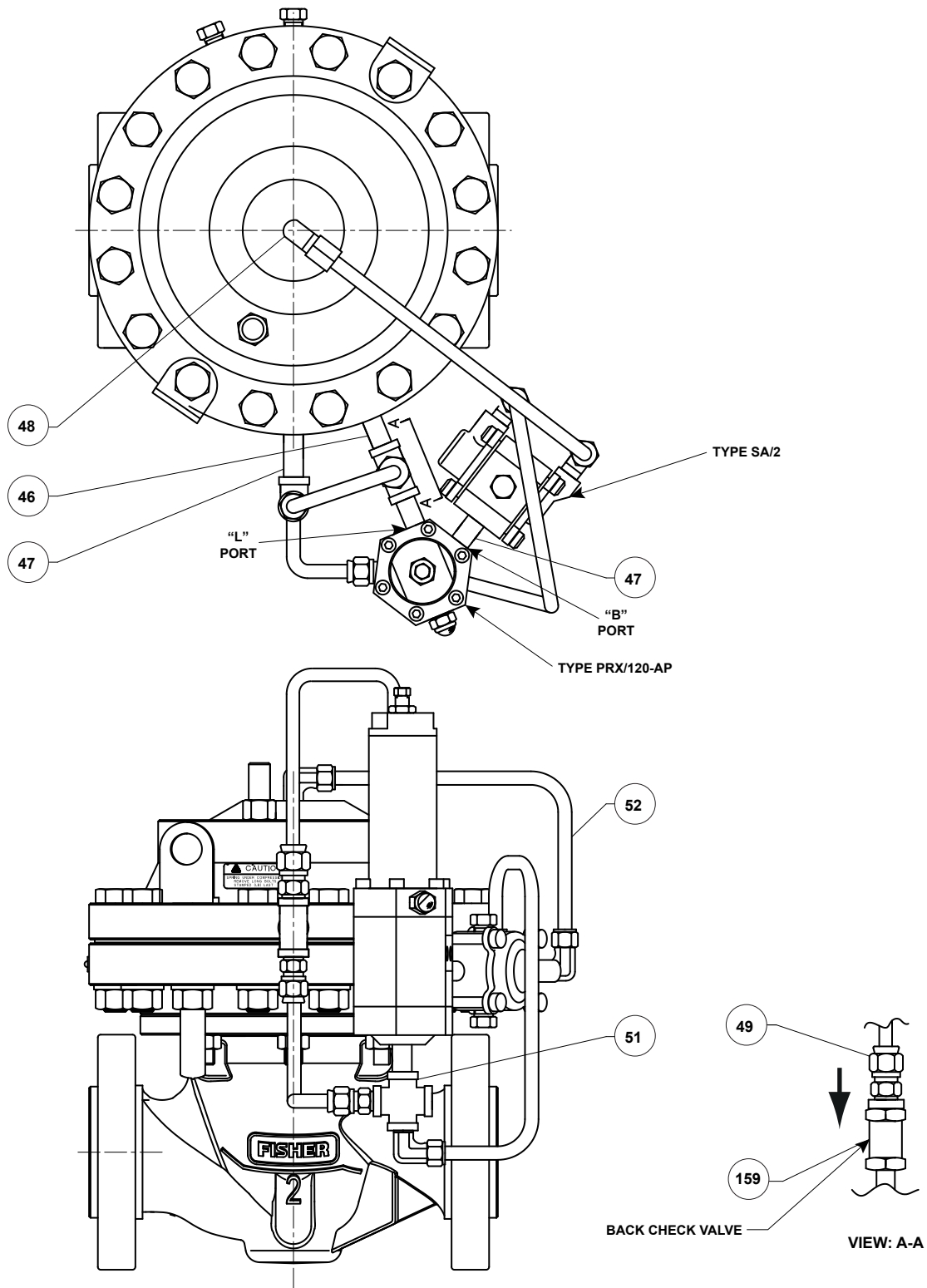
NPS 4 / DN 100

- APPLY LUBRICANT (L) / SEALANT (S)<sup>(1)</sup>:
  - L1 = LITHIUM HYDROXYSTEGRATE NLGI 2 GRADE GREASE
  - L2 = SILICONE-BASED GREASE
  - S1 = ANAEROBIC METHACRYLATE SEALANT FOR NUTS AND BOLTS
  - S2 = ANAEROBIC METHACRYLATE SEALANT FOR THREADS

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

**Figure 9. EZHSO Series Main Valve Assembly (continued)**

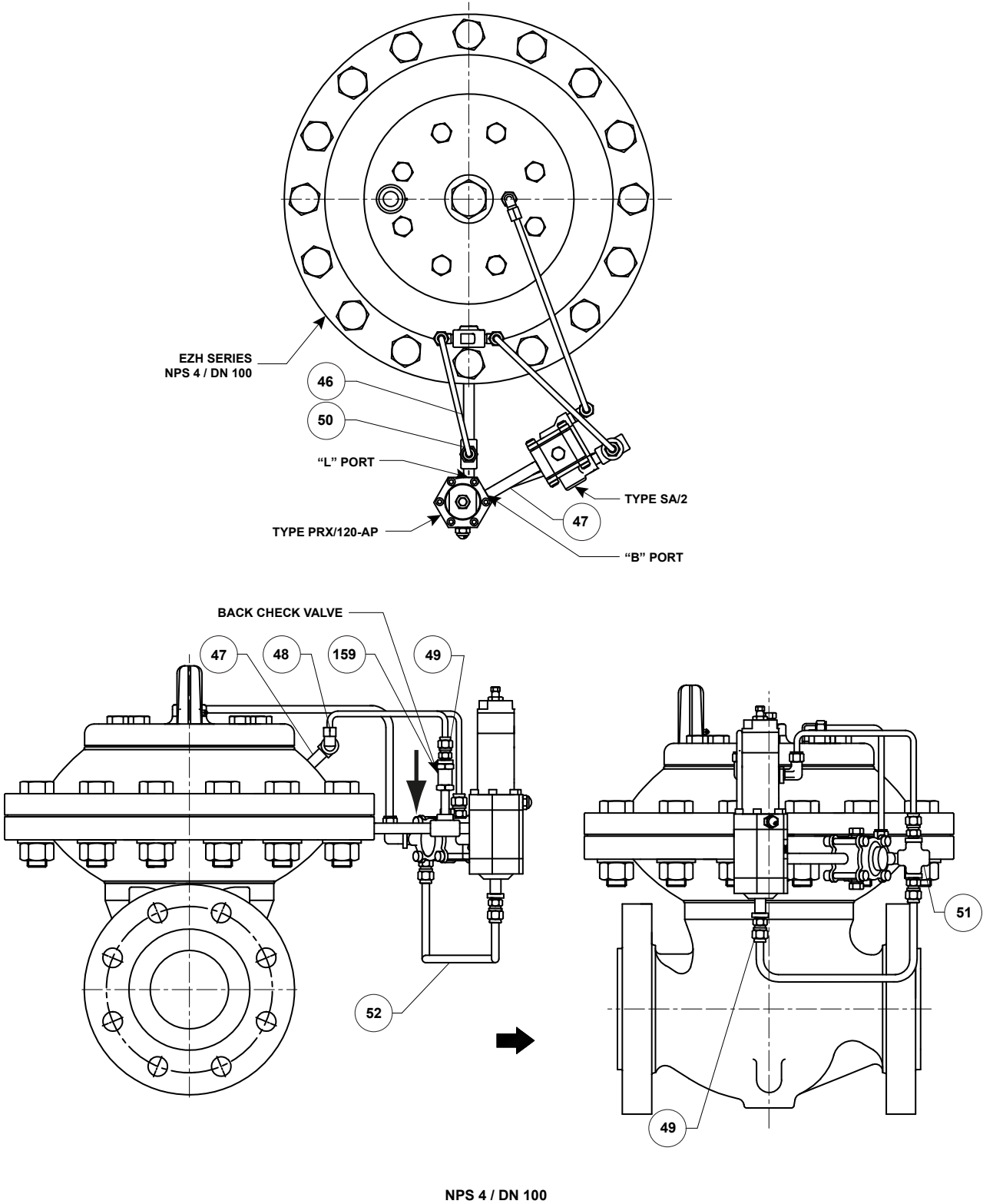
# EZH and EZHSO Series



NPS 1 THROUGH 3 / DN 25 THROUGH 80

GE01727\_E

Figure 10. EZH Series Single Pilot Mounting Assembly



GE46932\_C

Figure 10. EZH Series Single Pilot Mounting Assembly (continued)

# EZH and EZHSO Series

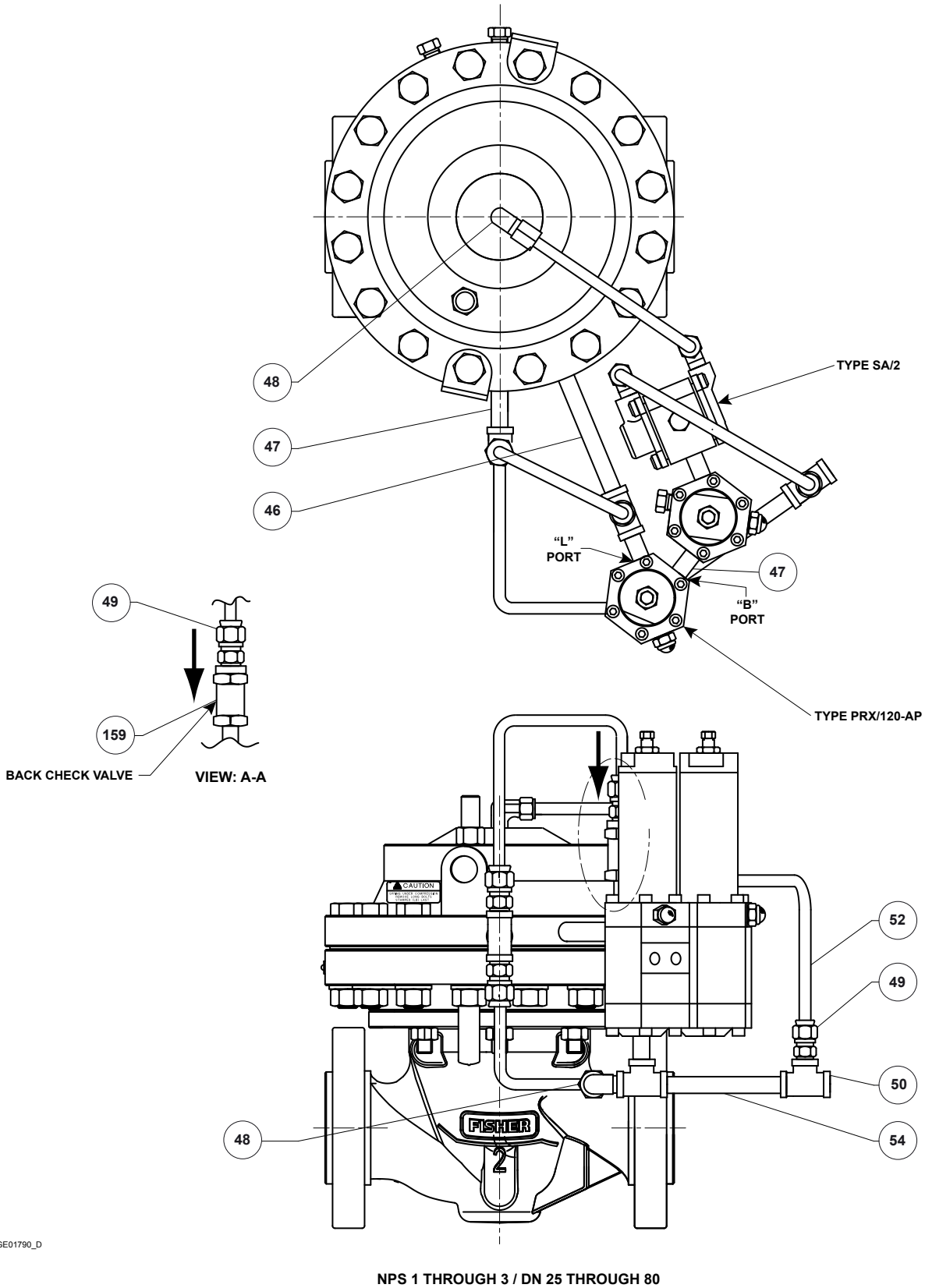
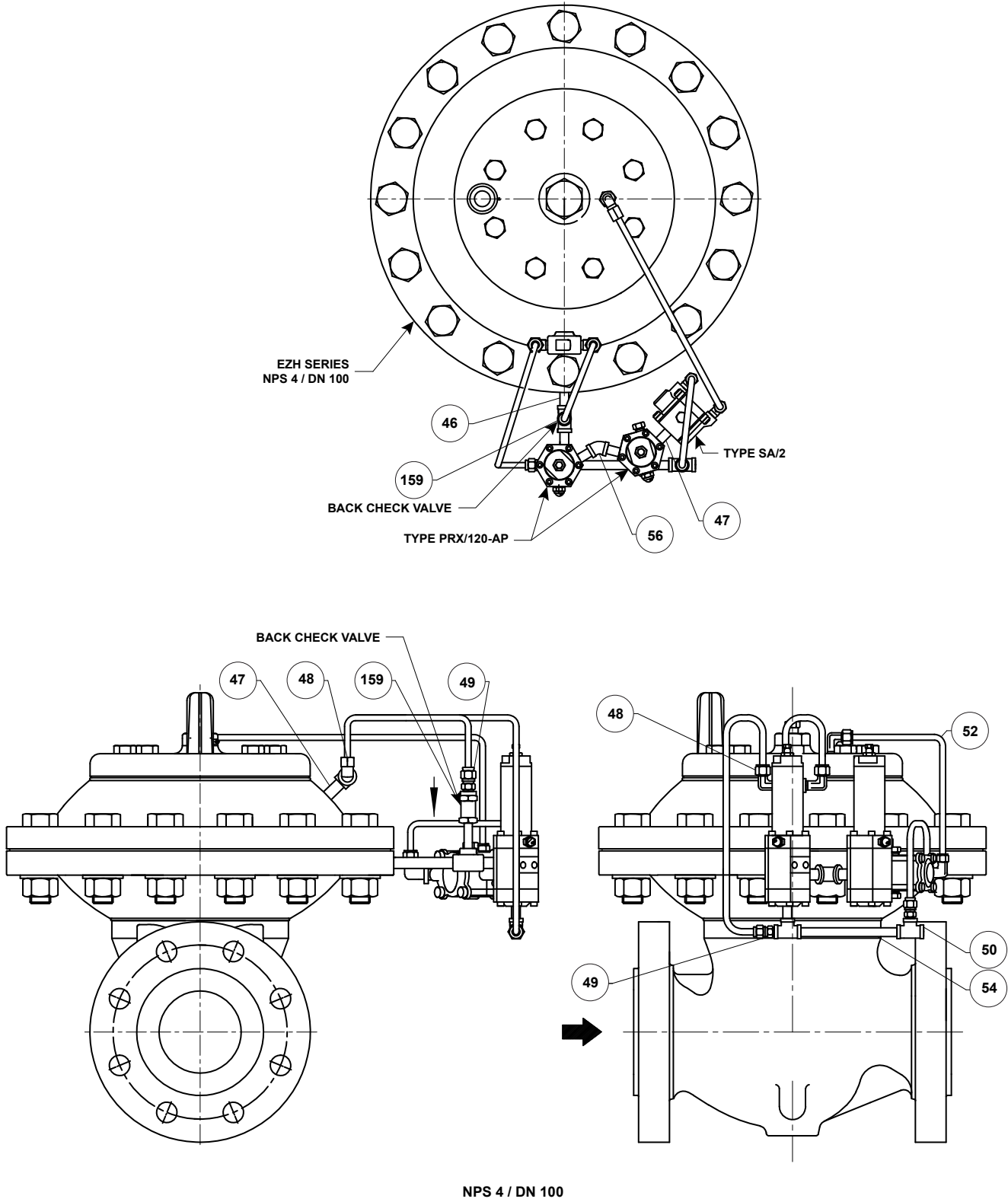


Figure 11. EZH Series Working Monitor Pilot Mounting Assembly





GE47004\_B

Figure 11. EZH Series Working Monitor Pilot Mounting Assembly (continued)

# EZH and EZHSO Series

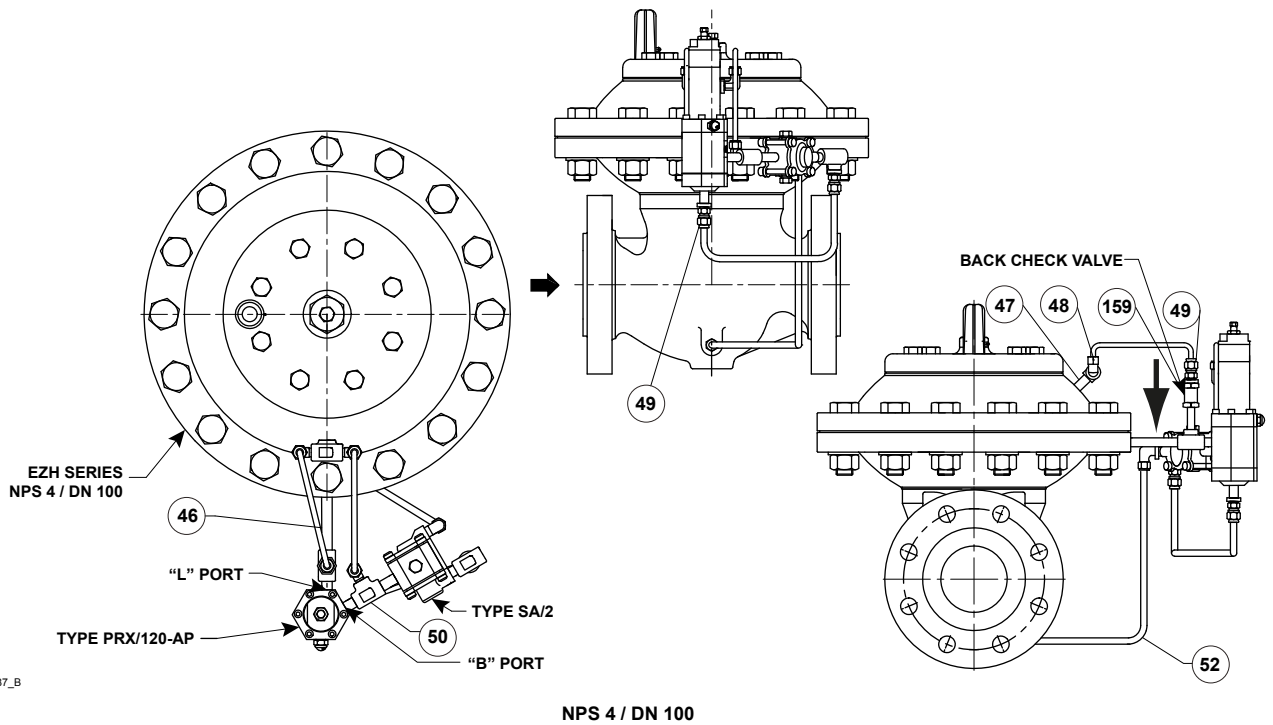
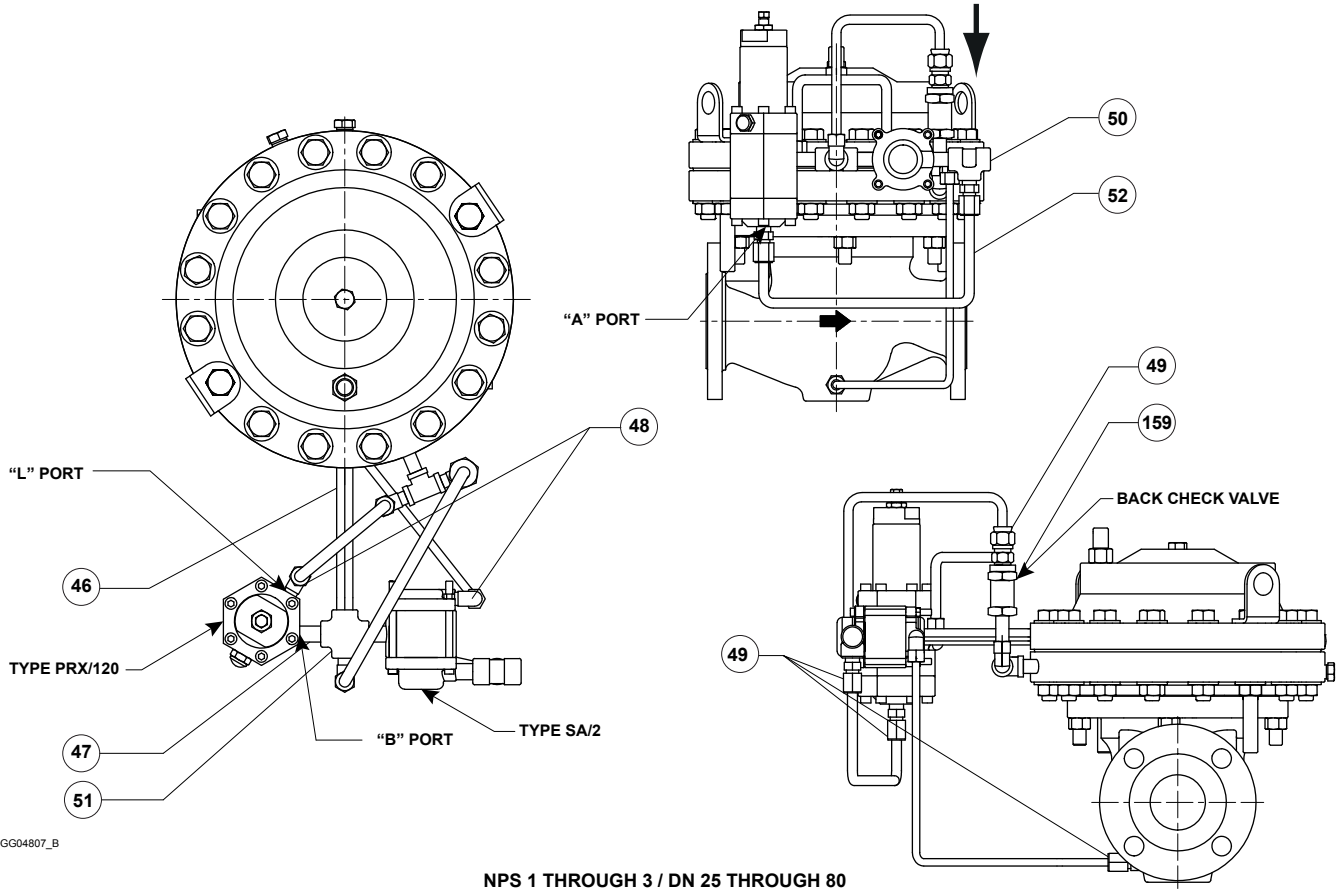
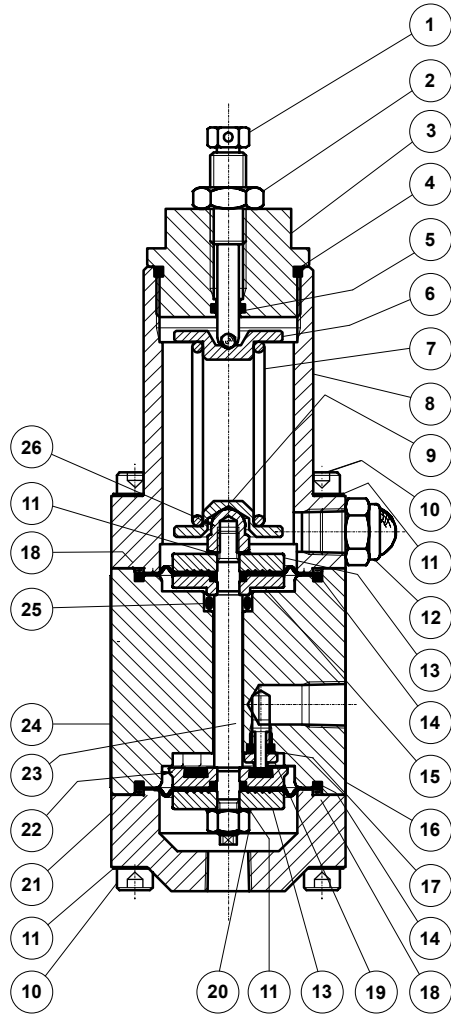
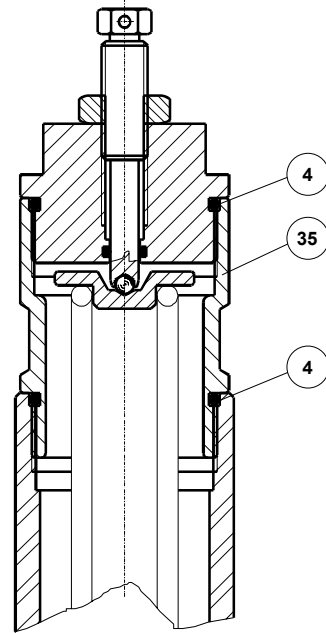


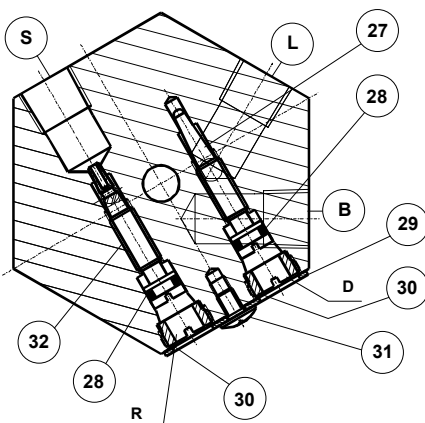
Figure 12. EZHSO Series Single Pilot Mounting Assembly



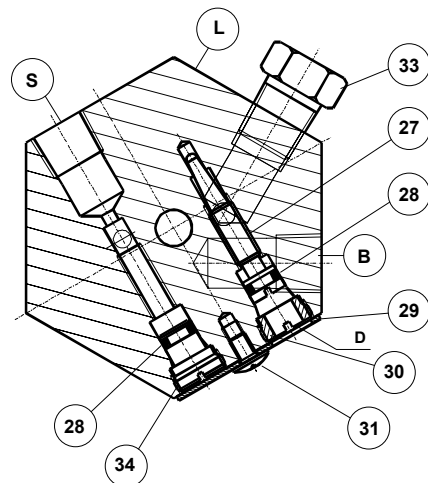
TYPE PRX/120 OR PRX/125



TYPE PRX/120-AP OR PRX/125-AP



TYPE PRX/120 OR PRX/120-AP

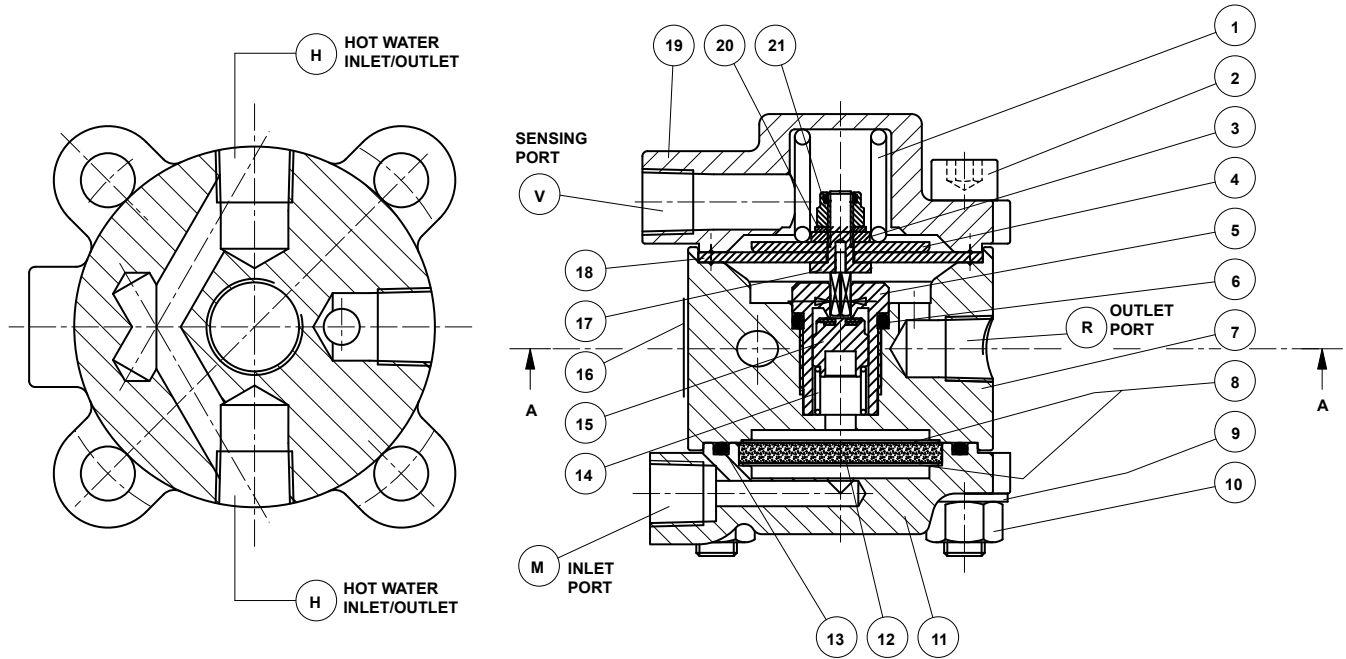


TYPE PRX/125 OR PRX/125-AP

- S - BLEED PORT
- B - SUPPLY PORT
- L - LOADING PORT
- A - SENSING PORT
- D - DAMPER
- R - RESTRICTOR

Figure 13. PRX Series Pilot Assemblies

# EZH and EZHSO Series



LM1162

Figure 14. Type SA/2 Pilot Supply Filter Assemblies

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