

Fisher™ D2T FloPro and D2 Angle Control Valves



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Section 1: Introduction

1.1 Scope of the Manual

This instruction manual provides installation, maintenance and parts information for the Fisher D2T and D2 Angle control valves and actuators.

WARNING



Do not install, operate or maintain a D2T or D2 Angle control valve without being fully trained and qualified in valve, actuator and accessory installation, operation and maintenance. To avoid personal injury or property damage, it is important to carefully read, understand and follow all the contents of this manual, including all safety cautions and warnings. If you have any questions about these instructions, contact your [Emerson sales office](#) before proceeding.

1.2 Description

The D2T and D2 Angle control valves (Figure 1) are compact, rugged valves designed for on/off control of a variety of fluids at pressures up to 155 bar / 2250 psig. This valve is ideal for use as a dump valve on gas separators and scrubbers. It is also well suited for other high pressure applications in natural gas production, compression and processing. The valve has threaded end connections and is available in an NPS 1 globe style or angle style valve body.

Figure 1. Fisher D2T FloPro Control Valve and D2 Angle Control Valve



Table 1. Specifications

Valve Assembly Pressure Class	Port Diameter
ASME B16.34 CL900	13 mm / 0.5 in.
Maximum Inlet Pressure and Temperature ⁽¹⁾	Maximum Travel
155 bar from -46 to +93°C and 150 bar at 149°C / 2250 psig from -50 to +200°F and 2185 psig at 300°F	13 mm / 0.5 in.
Maximum Allowable Pressure Drop ⁽¹⁾	Approximate Weight
Flow Down⁽²⁾ Maximum Inlet Pressure: 155 bar / 2250 psig Maximum Outlet Pressure: 103 bar / 1500 psig	7.7 kg / 17 lb
Flow Up Maximum Inlet Pressure: 103 bar / 1500 psig Maximum Outlet Pressure: 103 bar / 1500 psig	Material Temperature Capabilities
	Valve Body Assembly: -46 to +149°C / -50 to +300°F Actuator Assembly: -46 to +93°C / -50 to +200°F
Shutoff Classification	Bonnet/Body Connection
Class IV ANSI/FCI 70-2 and IEC 60534-4	Threaded with leakoff bleed
End Connections	Standard Actuator Configuration
1 in. FNPT inlet and outlet connections D2 Angle has 2 in. NPT vessel connection.	The actuator is an on/off spring-and-diaphragm. Globe or Angle Valve Body: Supplied as either Air-to-Open or Air-to-Close.
Construction Materials	Maximum Actuator Casing Pressure
Valve Body and Bonnet: ASME SA 352 LCC Valve Plug and Seat: ■ R30006 (Alloy 6) or ■ S17400 double H1150 Valve Stem: S31600 O-rings: HNBR (Hydrogenated Nitrile) Packing: PTFE/Carbon PTFE Packing Springs: N07718 Stem Bushing: PPS (polyphenylene sulfide) Actuator Diaphragm: Nitrile/Polyester Actuator Springs: Zinc-plated steel	2.8 bar / 40 psig
	Minimum Required Actuator Casing Pressure
	2.1 to 2.4 bar / 30 to 35 psig
	Actuator Diaphragm Effective Area
	194 cm ² / 30 in ²
Flow Characteristic	Actuator Pressure Connections
FloPro Characterized	1/4 NPT internal
1. The pressure or temperature limits in the referenced tables and any applicable ASME code limitations should not be exceeded. 2. Standard flow direction.	

1.3 Education Services

Emerson's Education Services
Phone: 800-338-8158
Email: education@emerson.com
emerson.com/en/final-control/services/valve-training

1.4 Specifications

Table 1 lists specifications for the D2T and D2 Angle control valves. Some of the specifications for a given control valve as it originally comes from the factory are stamped on a nameplate located on the upper diaphragm casing flange.

Section 2: Installation

WARNING

Always wear protective gloves, clothing and eyewear when performing any installation operations to avoid personal injury.

Personal injury or equipment damage caused by sudden release of pressure may result if the valve assembly is installed where service conditions could exceed the limits given in Table 1 or on the appropriate nameplates. To avoid such injury or damage, provide a relief valve for overpressure protection as required by accepted industry or local, state and Federal codes and good engineering practices.

Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

If installing into an existing application, also refer to the WARNING at the beginning of the Maintenance section in this instruction manual.

WARNING

When ordered, the valve configuration and construction materials were selected to meet particular pressure, temperature, pressure drop and controlled fluid conditions. Responsibility for the safety of process media and compatibility of valve materials with process media rests solely with the purchaser and end-user. Since some body/trim material combinations are limited in their pressure drop and temperature ranges, do not apply any other conditions to the valve without first contacting your [Emerson sales office](#).

NOTICE

To avoid product damage, inspect the valve before installation for any damage or any foreign material that may have collected in the valve body. Also, remove any pipe scale, welding slag or other foreign material from the pipeline.

1. Before installing the valve, inspect it to be certain that the valve body cavity is free of foreign material. Clean out all pipelines to remove scale, welding slag and other foreign materials.
2. The control valve assembly may be installed in any orientation unless limited by seismic criteria.
The standard flow direction is indicated by the arrow on the valve body.
3. Use accepted piping practices when installing the valve in the pipeline.
4. If continuous operation is required during inspection or maintenance, install a three-valve bypass around the control valve assembly.

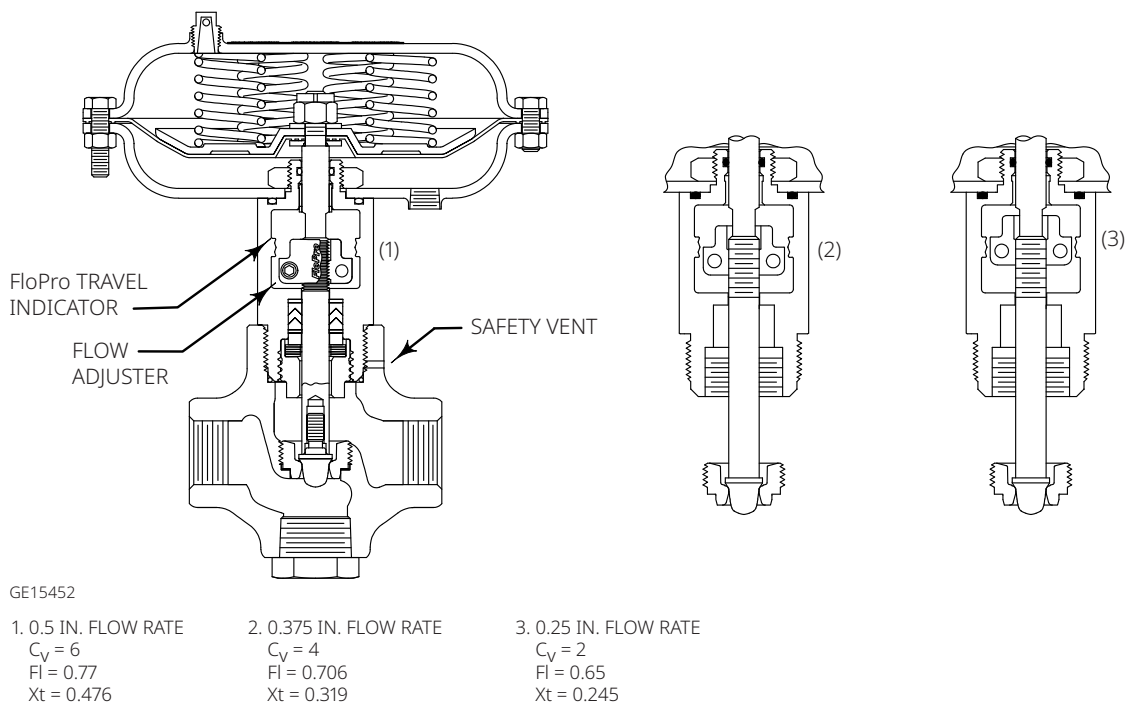
NOTE

The D2T and D2 Angle valves are equipped with Fisher ENVIRO-SEAL™ packing.

The actuator is available from the factory as either air-to-open or air-to-close.

Additionally, the actuator as shipped from the factory, has the FloPro flow adjuster set at a 0.375 in. port flow rate position. If some other flow rate is desired, see the Setting Valve FloPro Flow Adjuster section in this manual.

Figure 2. Flow Rate Adjustments



2.1 Setting Valve FloPro Flow Adjuster

Air-to-Open Actuator Action

1. To change the valve flow rate, loosen the flow adjuster socket head cap screws (key 29) and reposition the flow adjuster halves (keys 14 and 15) to the desired flow rate position. See Figure 2 for flow rate settings.

Air-to-Close Actuator Action

1. Attach a pressure line to the actuator. Supply pressure to the actuator to seat the plug in the seat ring.
2. To change the valve flow rate, loosen the flow adjuster socket head cap screws (key 29) and reposition the flow adjuster halves (keys 14 and 15) to the desired flow rate position. See Figure 2 for flow rate settings.

2.2 Changing Actuator Action from (Air-to-Open) to (Air-to-Close)

Key numbers are referenced in Figures 6 and 7.



WARNING

To prevent possible personal injury or property damage from removing the casing cap screws in the wrong sequence, follow the procedure as outlined below for removing the upper casing.

1. Remove the six short actuator casing cap screws (key 22) first. Once these have been removed from the actuator assembly, remove the two long actuator cap screws (key 30) by alternating between them as you loosen them, to keep the upper casing (key 21) level during this procedure.

NOTE

Be aware as you loosen and remove the actuator cap screws that the actuator springs are under compression.

2. Remove the upper casing (key 21) and the springs (key 27).
3. Do not turn the valve stem (key 4) while removing the diaphragm hex nut (key 26). Keep the stem from turning by using an open end wrench on the machined flats located on the valve stem above the flow adjuster for this procedure. Continue the actuator disassembly by removing the washer (key 24) diaphragm plate (key 25), diaphragm (key 19), washer (key 36) and O-ring (key 37). Inspect the diaphragm for any wear or damage. Replace with a new one if necessary.

4. Unscrew the socket head cap screws (key 29) and remove the flow adjuster halves (keys 14 and 15). Position the stem (key 4) to its most upward position.
5. Place 2 of the springs (key 27) from the actuator into the bottom casing (key 20), equally spaced, 180 degrees apart. Place the washer (key 36) over the valve stem, as shown in view A of Figure 7. Then place the O-ring (key 37) over the valve stem. Next install the diaphragm plate (key 25) and, using the diaphragm plate, correctly position the actuator springs.
6. Place the diaphragm (key 19) over the stem, along with washer (key 24). Position the diaphragm so the holes in the diaphragm align with the holes in the bottom casing.
7. Insert a 1/8 in. diameter drift punch or other suitable device through the 5/32 in. diameter hole in the valve stem located below the bottom of the previously removed flow adjuster. Install hex nut (key 26) and tighten to 10 N•m / 90 lbf•in. Use the 1/8 in. drift punch or other holding device to turn the stem to align the holes of the diaphragm (key 19) to the lower casing (key 20).
8. Position the upper casing and install the two long cap screws (key 30) opposite one another. Install the six shorter cap screws (key 22) and the hex nuts, tightening the actuator casing cap screws evenly using a cross-tightening procedure. Torque to 10 N•m / 8 lbf•ft.
9. Connect a pressure line to the top actuator pressure connection and apply pressure to the actuator. Stroke the actuator until the valve plug is seated on the seat ring. Install the flow adjuster, positioning it to the desired travel. Tighten the flow adjuster socket head cap screws to 3 N•m / 26 lbf•in.
10. Release the actuator pressure and install the vent plug (key 28) into the bottom casing pressure connection.

Section 3: Maintenance

Valve parts are subject to normal wear and must be inspected and replaced as necessary. Inspection and maintenance frequency depends on the severity of service conditions. This section includes instructions for packing and trim maintenance and replacing actuator parts.

All maintenance operations can be performed with the valve in the line.

NOTE

Whenever a gasket seal or O-ring is disturbed by removing or shifting gasketed parts, a new gasket should be installed upon reassembly. This is necessary to ensure a good gasket seal, since the used gasket or O-ring will not seal properly.

⚠ WARNING

Avoid personal injury from sudden release of process pressure. Before performing any maintenance operations:

- **Do not remove the actuator from the valve while the valve is still pressurized.**
- **Always wear protective gloves, clothing and eyewear when performing any maintenance operations to avoid personal injury.**
- **Disconnect any operating lines providing air pressure or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.**
- **Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure on both sides of the valve. Drain the process media from both sides of the valve.**
- **Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.**
- **The valve packing box may contain process fluids that are pressurized, even when the valve has been removed from the pipeline. Process fluids may spray out under pressure when removing the packing hardware or packing rings.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**

3.1 Valve Trim Maintenance

NOTE

The following maintenance procedures apply to both air-to-open and air-to-close actuator configurations, except for steps 2 and 8 as noted.

Key numbers are referenced in Figures 6 and 7.

1. Isolate the control valve from the line pressure, release pressure from both sides of the valve body and drain the process media from both sides of the valve.
2. For air-to-open actuator action only, apply pressure to the actuator to fully stroke it open. This will raise the plug off its seat so that the valve stem serrations are visible inside the flow adjuster window (see Figure 3). Loosen the socket head screws (key 29) and lower the flow adjuster (key 14 and 15) to its lowest position on the valve stem. Retighten the socket head screws (key 29) to 3 N•m / 26 lbf•in. Relieve pressure to the actuator, shut off all pressure lines to the actuator and disconnect. Use lockout procedures to be sure that the above measures stay in effect while you work on the equipment.

NOTICE

The preceding step is intended to prevent damage to the valve plug (key 3) and seat ring (key 5) during the removal of the bonnet and actuator.

3. Unscrew the bonnet from the valve body.

⚠ WARNING

Avoid personal injury from sudden release of process pressure. If the process media starts to escape from the safety vent (see Figure 2) located in the bonnet neck of the valve body,

STOP DISASSEMBLY IMMEDIATELY!

The escape of process media indicates that the valve has NOT been isolated from the process media or process pressure is trapped in the valve body.

Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

4. Once the bonnet has been removed from the valve body, inspect the seat ring (key 5) for wear or damage. If the seating surface has been damaged, remove it from the valve body. Also remove the seat ring gasket (key 6). Clean and inspect the valve body gasket surface for damage. Visually inspect the valve body interior below the seat ring for erosion. Replace the valve body if necessary.

To replace the seat ring, first install a new seat ring gasket. Install the new seat ring and tighten to 230 N•m / 170 lbf•ft.

Cover the opening in the valve body to prevent foreign material from getting into the valve body cavity.
5. Inspect the valve stem for scratches or wear and valve plug for wear or damage. Replace if necessary.
6. If the valve plug requires replacement, use an open end wrench on the machined flats located on the valve stem above the flow adjuster and unscrew the valve plug from the valve stem. Replace it with a new valve plug. Screw the valve plug into the valve stem, being careful not to damage the plug seat or plug contour. Tighten to 18 N•m / 13 lbf•ft.

⚠ WARNING

Upon reassembly, ensure that no foreign material blocks the safety vent hole as shown in Figure 2. If the safety vent hole is blocked or plugged, possible personal injury from the sudden release of process pressure during maintenance disassembly may occur.

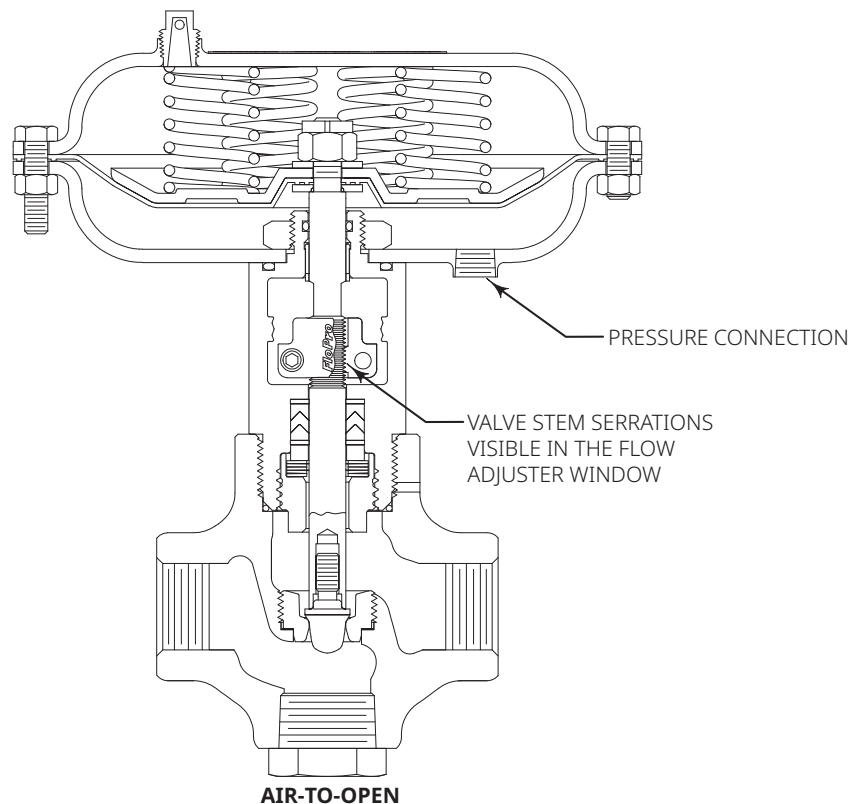
7. Lubricate a new O-ring (key 13) with lithium grease and place it into the valve body as shown in Figure 6 or 7. Ensure that no foreign material blocks the safety vent hole. Screw the bonnet into the valve body and torque to a range of 542 to 678 N•m / 400 to 500 lbf•ft.
8. For air-to-open actuator action only, attach the pressure line to the actuator and supply pressure to the actuator. Loosen the socket head screws (key 29) and remove the flow adjuster (keys 14 and 15). Release the pressure to the actuator. This allows the plug to find its seated position.
9. Set the flow adjuster to the desired travel position (see Figure 2) and tighten the flow adjuster socket head cap screws to 3 N•m / 26 lbf•in.

3.2 Packing, Valve Trim and Actuator Maintenance

NOTE

The following maintenance procedures apply to both air-to-open and air-to-close actuator configurations, except as noted.

Figure 3. Fisher D2T FloPro Construction



Key numbers are referenced in Figures 6 and 7.

Disassembly

1. Isolate the control valve from the line pressure, release pressure from both sides of the valve body and drain the process media from both sides of the valve.
2. For air-to-open actuator action only, apply pressure to the actuator to fully stroke it open. This will raise the plug off its seat so that the valve stem serrations are visible inside the flow adjuster window (see Figure 3). Loosen the socket head screws (key 29) and lower the flow adjuster (keys 14 and 15) to its lowest position on the valve stem. Retighten the socket head screws (key 29) to 3 N•m / 26 lbf•in. Relieve pressure to the actuator, shut off all pressure lines to actuator and disconnect. Use lockout procedures to be sure that the above measures stay in effect while you work on the equipment.

NOTICE

The preceding step is intended to prevent damage to the valve plug (key 3) and seat ring (key 5) during the removal of the bonnet and actuator.

3. Unscrew the bonnet from the valve body.

WARNING

Avoid personal injury from sudden release of process pressure. If the process media starts to escape from the safety vent (see Figure 2) located in the bonnet neck of the valve body,

STOP DISASSEMBLY IMMEDIATELY!

The escape of process media indicates that the valve has NOT been isolated from the process media or process pressure is trapped in the valve body.

Check with your process or safety engineer for any additional measures that must be taken to protect against process media.

4. Once the bonnet has been removed from the valve body, inspect the valve seat (key 5) for wear or damage. If the seating surface has been damaged, remove it from the valve body. Also remove the seat ring gasket (key 6). Clean and inspect the valve body gasket surface for damage. Visually inspect the valve body interior below the seat ring for erosion. Replace the valve body if necessary.

To replace the seat ring, first install a new seat ring gasket. Install the new seat ring and tighten to 230 N•m / 170 lbf•ft.

Cover the opening in the valve body to prevent foreign material from getting into the valve body cavity.

WARNING

To prevent possible personal injury or property damage from removing the casing cap screws in the wrong sequence, follow the procedure as outlined below for removing the upper casing.

5. Remove the six short actuator casing cap screws (key 22) first. Once these have been removed from the actuator assembly, remove the two long actuator cap screws (key 30) by alternating between them as you loosen them, to keep the upper casing (key 21) level during this procedure.

NOTE

Be aware as you loosen and remove the actuator cap screws that the actuator springs are under compression for the air-to-open configuration.

6. Remove the upper casing (key 21) and the springs (key 27).
7. Do not turn the valve stem (key 4) while removing the diaphragm hex nut (key 26). Keep the stem from turning by using an open end wrench on the machined flats located on the valve stem above the flow adjuster for this procedure. Continue the actuator disassembly by removing these parts: washer (key 24) diaphragm plate (key 25), diaphragm (key 19), washer (key 36) and O-ring (key 37). Inspect the diaphragm for any wear or damage. Replace with a new one if necessary.

If you wish to inspect/replace the bonnet to actuator casing O-ring (key 16), mark the orientation of the actuator pressure connection to the bonnet for later reference (see Figure 3). Unscrew the hex nut (key 18) from the bonnet. Remove the bottom casing (key 20).
8. Unscrew the flow adjuster socket head cap screws (key 29) and remove the flow adjuster halves.
9. Unscrew the packing retainer (key 7) from the bonnet (key 2). After the packing retainer has been unscrewed from the bonnet, pull the valve stem and plug out of the bonnet.
10. Remove the five Belleville springs (key 9), packing spacer (key 10), packing (key 11) and two anti-extrusion rings (key 12) from the bonnet. See Figure 4.
11. Clean and inspect the packing box wall to ensure that the packing surfaces are not damaged. If the surface condition is damaged and cannot be improved by light sanding, replace the bonnet by contacting your [Emerson sales office](#).
12. Inspect the valve stem for scratches or wear and valve plug for wear or damage. Replace if necessary.
13. If the valve plug requires replacement, use an appropriate tool on the machined flats located on the valve stem above the flow adjuster and unscrew the valve plug from the valve stem. Replace it with a new valve plug. Screw the valve plug into the valve stem, being careful not to damage the plug seat or plug contour. Tighten to 18 N•m / 13 lbf•ft.
14. Inspect the valve stem bushing (key 8) located in the upper end of the bonnet. If damaged, remove and replace it with new bushing (key 8). Replace the valve stem bushing by inserting the bushing, flange end first, into the bore located at the top of the bonnet flow adjuster window. Insert until the flange snaps into the groove provided for it.
15. Remove the O-ring (key 17) from the upper end of the bonnet. Replace it with a new one and lubricate it with lithium grease.

Assembly

1. Use the packing spacer (key 10) and a tube to push the upper anti-extrusion washer (key 12) into place. Using the packing spacer in this manner will ensure the upper anti-extrusion washer is fully seated and flat when installed in the packing bore.
2. Remove the packing spacer from the packing bore.

NOTE

All D2T and D2 Angle packing kits include a single use packet of high performance fluorinated grease. This is the only acceptable D2T or D2 Angle packing lubricant.

NOTE

In the following procedure, carefully install each packing ring individually over the valve stem and push completely into the packing box with a non-marring tube. A 12-in. length of 1/2 in. PVC pipe works well for this. It is recommended that the lubricated packing rings be installed individually rather than pushed in as a set.

3. Apply a 3 mm / 1/8 in. bead of the supplied high performance fluorinated grease (key 38) around the groove of the female packing adaptor as shown in Figure 5 and install over the valve stem.
4. Apply a 3 mm / 1/8 in. bead of the supplied high performance fluorinated grease (key 38) around the groove of the packing ring as shown in Figure 5 and install over the valve stem.
5. Install the male packing adaptor, lower anti-extrusion washer (key 12) and packing spacer over the valve stem as shown in Figure 4.
6. Firmly press all packing parts into the packing bore with a tube.
7. Install the five Belleville springs (key 9) over the valve stem as shown in Figure 4.
8. Lubricate the threads of the packing retainer with anti-seize and install into the bonnet using a 1-1/8 in. wrench. Make sure the Belleville springs are completely enclosed by the packing retainer as shown in Figure 4.
9. Torque the packing retainer to 81 N•m / 60 lbf•ft. The packing retainer has been installed correctly when a metal-to-metal contact has been made between the packing retainer end and the bonnet (key 2). The packing retainer threads should be flush with the bottom of the bonnet as shown in Figure 4.

Figure 4. Packing and Belleville Spring Stacking Order

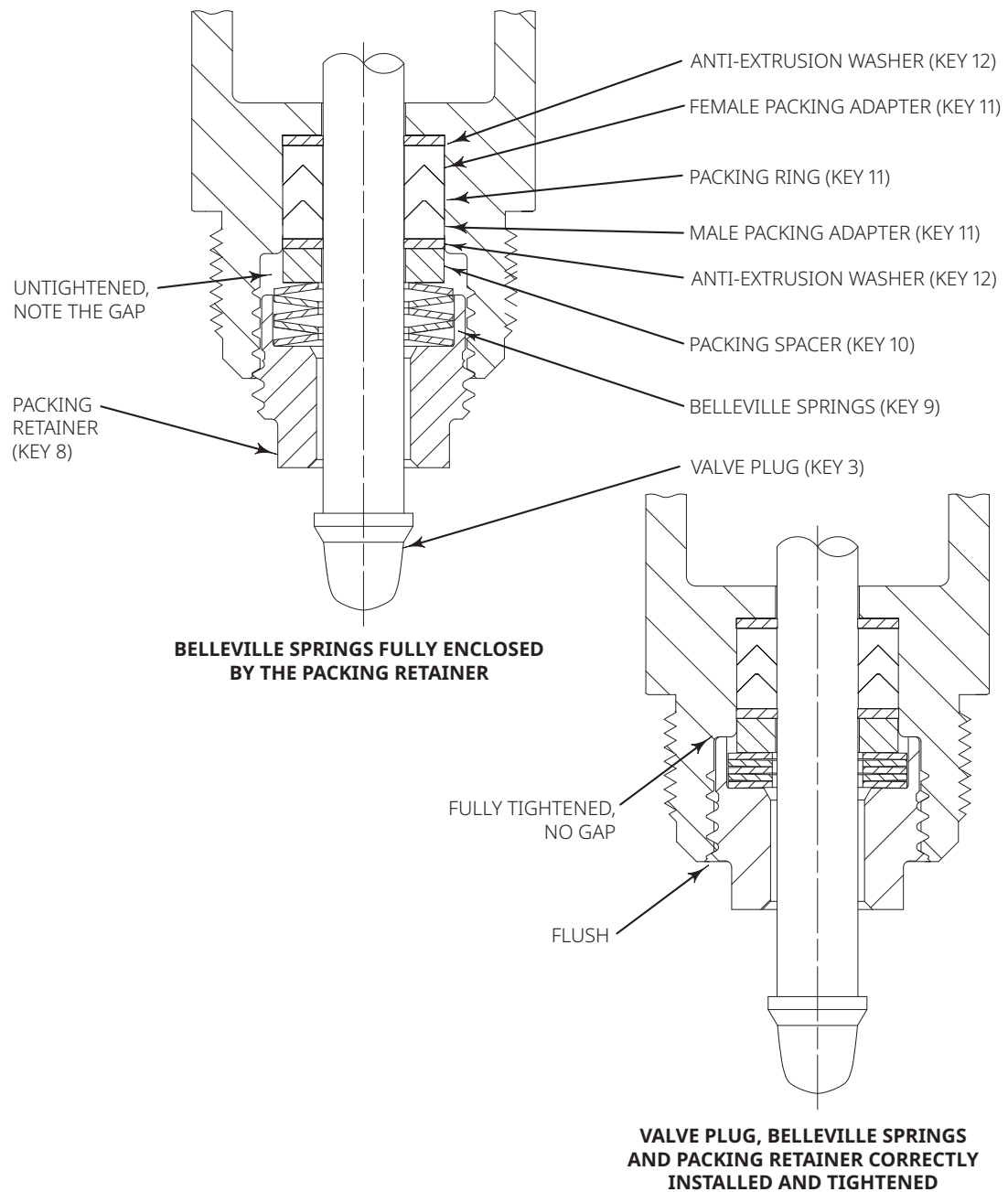
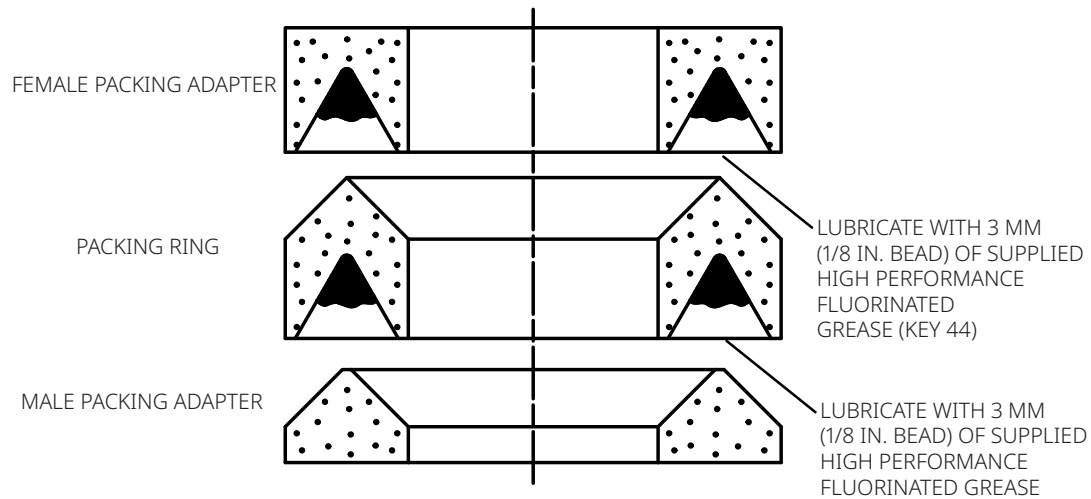


Figure 5. Lubrication Locations on Packing

10. If the bottom casing (key 20) has been removed, place O-ring (key 16) into the groove provided in the top of the bonnet. Place the bottom casing on the bonnet, oriented in the same position as marked in step 7 on page 11. Screw the hex nut (key 18) onto the bonnet and tighten to 203 N•m / 150 lbf•ft.
11. For air-to-open actuator action only (see Figure 6), assemble the actuator by first placing the O-ring (key 37) over the valve stem. Then place the washer (key 36) over the valve stem. Place the diaphragm (key 19) over the valve stem and position it so the holes in the diaphragm match the holes in the casing. Place the diaphragm plate (key 25) over the valve stem. Install the washer (key 24) and the diaphragm hex nut (key 26). Tighten the diaphragm hex nut to 10 N•m / 90 lbf•in., while holding the stem by the flats. Install six springs (key 27) and attach the upper casing (key 21) by first installing the two long cap screws (key 30) opposite one another.
12. For air-to-close actuator action only (see Figure 7), assemble the actuator by first placing 2 of the springs (key 27) from the actuator into the bottom casing (key 20), equally spaced, 180 degrees apart. Place the washer (key 36) over the valve stem, as shown in view A of Figure 7. Then place the O-ring (key 37) over the valve stem. Next install the diaphragm plate (key 25) and, using the diaphragm plate, correctly position the actuator springs.
 - a. Place the diaphragm (key 19) over the stem, along with the washer (key 24). Position the diaphragm so the holes in the diaphragm align with the holes in the bottom casing.
 - b. Insert a 1/8 in. diameter drift punch or other suitable device through the 5/32 in. diameter hole in the valve stem located below the bottom of the previously removed flow adjuster. Install the hex nut (key 26) and tighten to 10 N•m / 90 lbf•in. Use the 1/8 in. drift punch or other holding device to turn the stem to align the holes of the diaphragm (key 19) to the lower casing (key 20).

13. Position the upper casing and install the two long cap screws (key 30) opposite one another. Install the six shorter cap screws (key 22) and the hex nuts, tightening the actuator casing cap screws evenly using a cross-tightening procedure. Torque to 10 N•m / 8 lbf•ft.

**WARNING**

Upon reassembly, ensure that no foreign material blocks the safety vent hole as shown in Figure 2. If the safety vent hole is blocked or plugged, possible personal injury from the sudden release of process pressure during maintenance disassembly may occur.

14. Lubricate a new O-ring (key 13) with lithium grease and place it into the valve body as shown in Figure 6 or 7. Ensure that no foreign material blocks the safety vent hole. Screw the bonnet into the valve body and torque to a range of 542 to 678 N•m / 400 to 500 lbf•ft.
15. For air-to-open actuator action only, attach the pressure line to the actuator and supply pressure to the actuator. Loosen the socket head screws (key 29) and remove the flow adjuster (keys 14 and 15). Release the pressure to the actuator. This allows the plug to find its seated position.
16. Set the flow adjuster to the desired travel position (see Figure 2) and tighten the flow adjuster socket head cap screws to 3 N•m / 26 lbf•in.
17. For air-to-close actuator action only, attach a pressure line to the actuator. Supply pressure to the actuator to seat the plug in the seat ring.
18. Set the flow adjuster to the desired travel position (see Figure 2) and tighten the flow adjuster socket head cap screws to 3 N•m / 26 lbf•in.

Section 4: NPT Port Location

WARNING

Avoid personal injury from sudden release of process pressure. Before performing any maintenance operations:

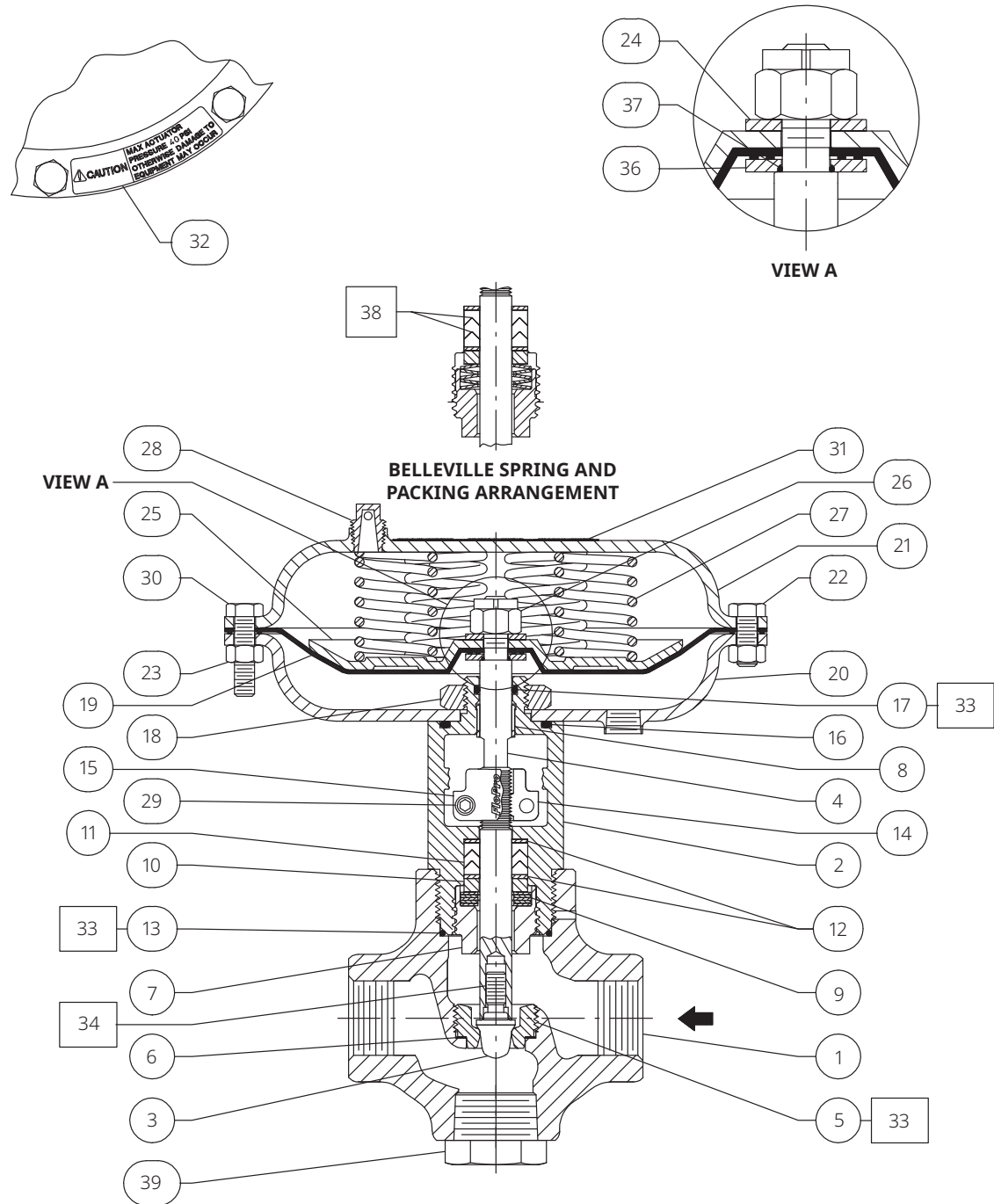
- **Do not remove the actuator from the valve while the valve is still pressurized.**
- **Always wear protective gloves, clothing and eyewear when performing any maintenance operations to avoid personal injury.**
- **Disconnect any operating lines providing air pressure or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.**
- **Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure on both sides of the valve. Drain the process media from both sides of the valve.**
- **Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.**
- **Check with your process or safety engineer for any additional measures that must be taken to protect against process media.**

NOTE

The NPT plug may be located in any port depending on customer installation requirements. The valve is shipped with the NPT plug installed in the bottom port.

1. The NPT plug shall be inserted into the desired port using NPT pipe sealant and/or pipe tape.
2. Tighten the NPT fitting until hand tight, then add 1 to 2-1/2 turns 149 to 163 N•m / 110 to 120 lbf•ft.

Figure 6. Fisher D2T FloPro Assembly—Air-to-Open



□ APPLY LUB/ADHESIVE

Figure 7. Fisher D2T FloPro Assembly—Air-to-Close

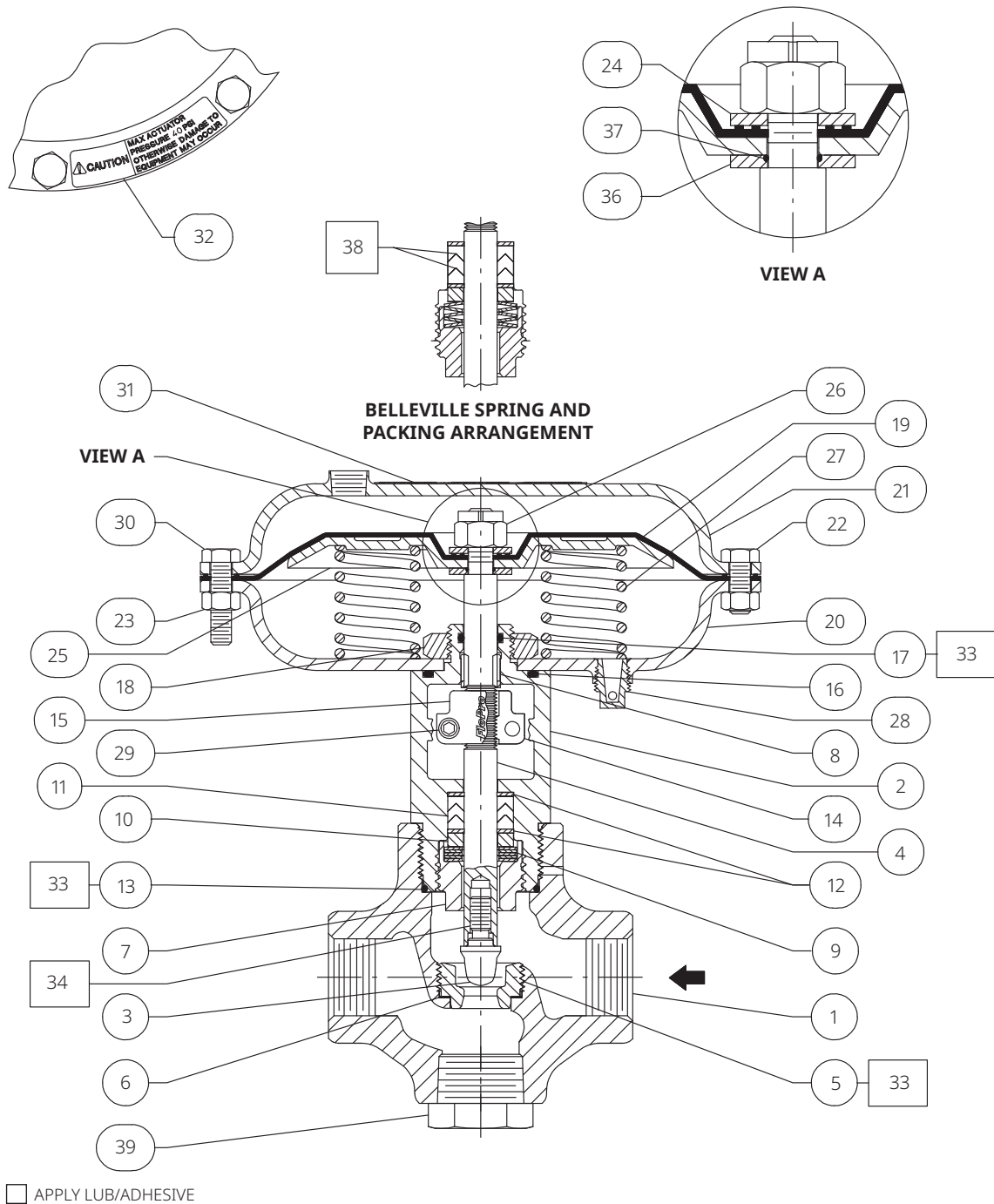
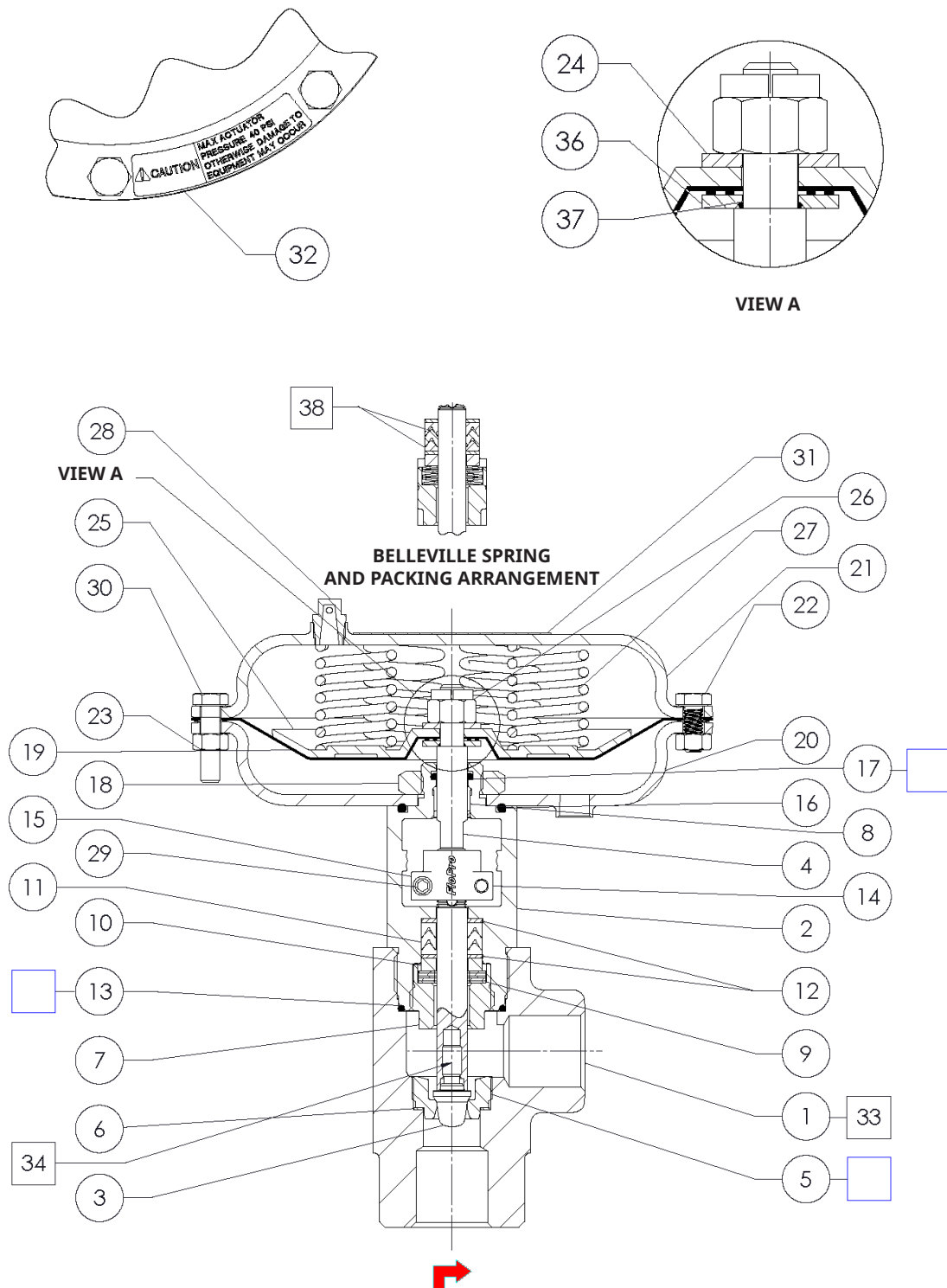
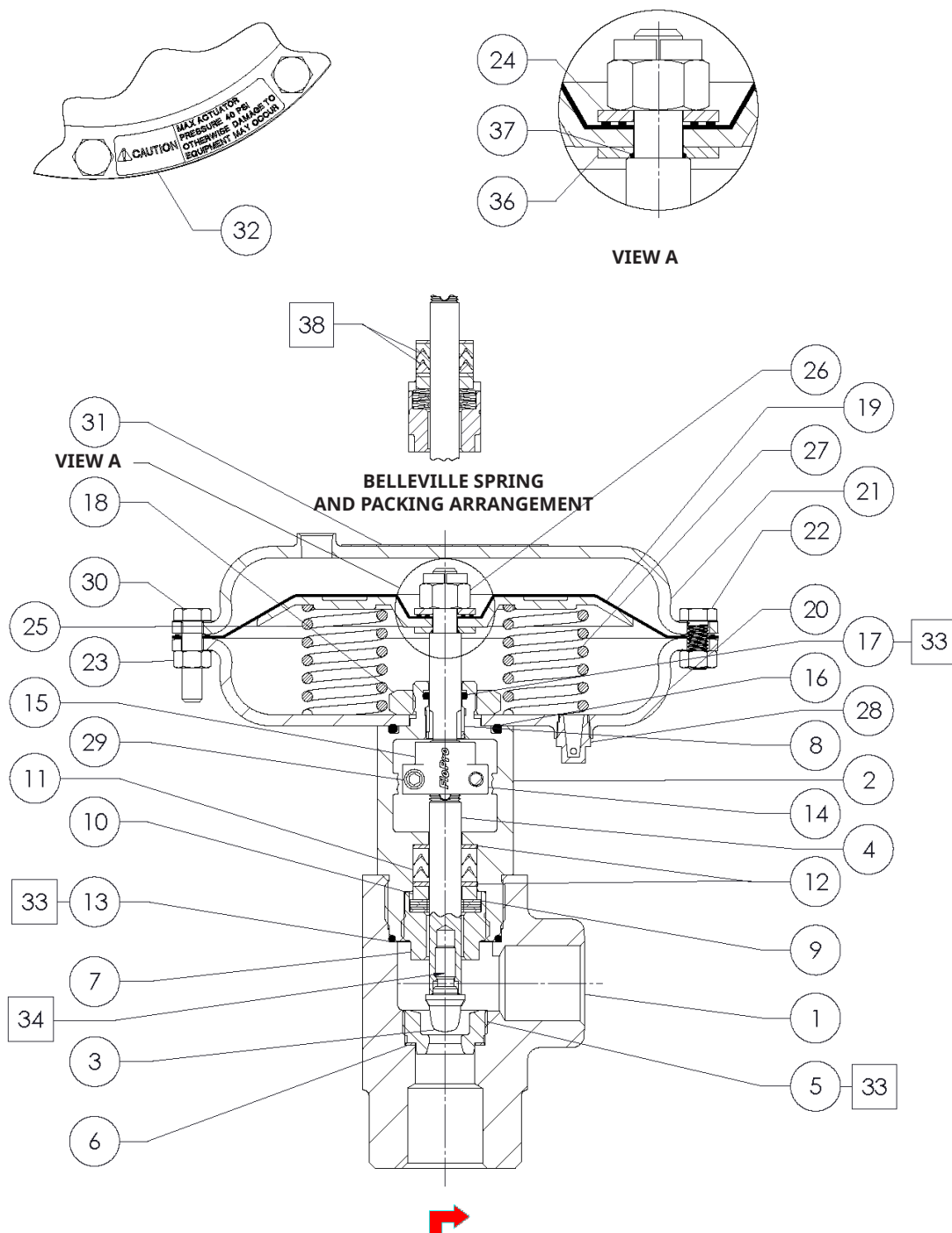


Figure 8. Fisher D2 Angle Body Assembly—Air to Open



GK26234

Figure 9. Fisher D2 Angle Body Assembly—Air to Close



GK26236

APPLY LUB/ADHESIVE

Section 5: Parts

5.1 Parts Ordering

WARNING

Use only genuine Fisher replacement parts. Components that are not supplied by Emerson should not, under any circumstances, be used in any Fisher valve, because they may void your warranty, might adversely affect the performance of the valve and could cause personal injury and property damage.

5.2 Parts Kits

Table 2. Parts Kits

Description	Part Number
Valve Trim Kit*	
R30006 Valve Plug and Seat Includes key numbers 3, 5, 6 and 13	19B8485X012
S17400 double H1150 Valve Plug and Seat Includes key numbers 3, 5, 6 and 13	19B8485X022
Valve Packing Kit*	
Includes key numbers 8, 11, 12 (2 req'd), 13, 16, 17 and 38	19B8486X012
*Recommended spare parts.	

5.3 Parts List

NOTE

Contact your [Emerson sales office](#) for Part Ordering information.

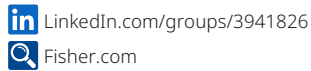
Table 3. Parts List

Key	Description	Key	Description
1	Valve body	21	Upper casing
2	Bonnet	22	Short actuator casing cap screws (6 req'd)
3*	Valve plug	23	Nut
4*	Valve stem	24	Washer
5*	Seat ring	25	Diaphragm plate
6*	Seat ring gasket	26	Diaphragm hex nut

- continued -

Table 3. Parts List (continued)

Key	Description	Key	Description
7	Packing retainer	27	Springs Air-to-open (use 6 springs) Air-to-close (use 2 springs)
8*	Valve stem bushing		
9	Belleville springs (3 req'd)		
10	Packing spacer	28	Vent plug
11*	ENVIRO-SEAL Packing set	29	Flow adjuster socket head cap screws (2 req'd)
12*	Anti-extrusion ring (2 req'd)	30	Long actuator casing cap screws (2 req'd)
13*	Valve body O-ring	31	Nameplate
14	Flow adjuster half	32	Caution label
15	Flow adjuster half	33	Lubricant, lithium grease
16*	Casing O-ring	36	Washer
17*	Valve stem O-ring	37*	O-ring
18	Hex nut	38*	High performance fluorinated grease packing lubricant
19*	Diaphragm		
20	Bottom casing	39	NPT plug
*Recommended spare parts.			



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