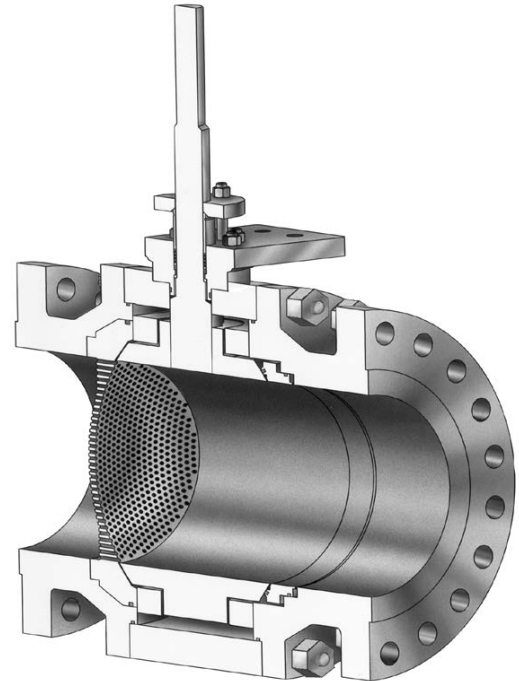


# Fisher™ V260 Rotary Pipeline Ball Valve

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Figure 1. Fisher V260 Sectional View



W6365-2

## Introduction

### Scope of Manual

This instruction manual provides installation, operation, maintenance, and parts information for the Fisher V260 control valve. Refer to separate manuals for information concerning the actuator, positioner, and accessories (see figure 1).

Do not install, operate, or maintain a V260 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.

### Description

V260 throttling ball valves are available in single-seal, double block-and-bleed, dual-seal, and bidirectional flow constructions with or without attenuators. Valves with dome-style attenuators combine the efficiency of a rotary valve with the noise reducing capability of a special trim (figure 4). Valves without attenuators present little or no restriction to flow at full travel.

Table 1. Specifications

<p><b>Valve Body Size and End Connection Styles<sup>(1)</sup></b> NPS 6, 8, 10, 12, 16, 20, and 24 flanged valves with CL150, CL300, and CL600 raised-face or ring-type joint flanges compatible with ASME B16.5. See table 2 for face-to-face dimensions. Consult factory for other pressure ratings.</p> <p><b>Maximum Inlet Pressures and Temperatures<sup>(1)</sup></b> Consistent with CL150, CL300, and CL600 pressure-temperature ratings per ASME B16.34</p> <p><b>Maximum Allowable Shutoff Pressure Drop<sup>(1)</sup></b> For Single-Seal and Dual-Seal Construction: (Except where further limited by the pressure-temperature rating of valve body material) For LF2 valve body material: CL150: 19.6 bar (285 psi) at 38°C (100°F) CL300: 51 bar (740 psi) at 38°C (100°F) CL600: 103 bar (1480 psi) at 38°C (100°F)</p> <p><b>Seal Material and Temperature Capability<sup>(1)</sup></b></p> <ul style="list-style-type: none"><li>■ POM<sup>(2)</sup> (Standard) -29 to 82°C (-20 to 180°F)</li><li>■ PTFE/PEEK<sup>(2)(3)</sup> (Optional) -29 to 93°C (-20 to 200°F)</li></ul> <p><b>Flow Characteristic</b> Modified equal percentage</p>	<p><b>Flow and Shutoff Direction</b> Unidirectional flow for Fisher V260 is forward flow. Seal is upstream.</p> <ul style="list-style-type: none"><li>■ <b>Single Seal Constructions:</b> Should be used for unidirectional flow and unidirectional shutoff only.</li><li>■ <b>Dual Seal Constructions:</b> V260A and V260C may be used for unidirectional or bidirectional flow. V260B should be used for unidirectional flow only for most effective anti-cavitation protection. Bidirectional shutoff requires the dual seal construction.</li></ul> <p><b>Shutoff Classification (per ANSI/FCI 70-2 and IEC 60534-4)</b> Single-Seal Composition Constructions: Class IV, optional Class VI Dual-Seal Composition Constructions: Class IV, optional Class VI</p> <p><b>Maximum Ball Rotation</b> 90 degrees</p> <p><b>Actuator Mounting</b> Right-hand or left-hand mounted as viewed from the valve inlet for forward flow</p> <p><b>Approximate Weight</b> See table 2</p>
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1. The pressure-temperature limits in this instruction manual and any applicable standard or code limitation for valve should not be exceeded.  
2. POM stands for polyoxymethylene, PTFE stands for polytetrafluorethylene, and PEEK stands for poly-ether-ether-ketone.  
3. Temperature limits of PTFE/PEEK is limited due to standard nitrile O-ring. Contact your [Emerson sales office](#) for higher temperature options, up to 232°C (450°F).

## Educational Services

For information on available courses for Fisher V260 valves, as well as a variety of other products, contact:

Emerson Automation Solutions  
Educational Services - Registration  
Phone: 1-641-754-3771 or 1-800-338-8158  
E-mail: [education@emerson.com](mailto:education@emerson.com)  
[emerson.com/fishervalvetraining](http://emerson.com/fishervalvetraining)

# Installation

## ⚠ WARNING

- To avoid personal injury, always wear protective gloves, clothing, and eyewear when performing any installation operations.
- To avoid personal injury or property damage resulting from the bursting of pressure retaining parts, be certain the service conditions do not exceed the limits given in this manual.
- To avoid personal injury or property damage that can result from the sudden release of process pressure if valve or mating pipe flange pressure ratings are exceeded, provide a relief valve for over-pressure protection as required by government or accepted industry codes and good engineering practices.
- Service conditions are limited for valve and trim material combinations. Do not apply any other service condition to the valve without first contacting your [Emerson sales office](#).
- Personal injury could result from packing leakage. The valve packing was tightened before shipment however, the packing might require some readjustment to meet specific service conditions.
- 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.
- To avoid personal injury or property damage, a minimum of two swivel hoists must be used when lifting NPS 24 CL600 assemblies.

Table 2. Face-to-Face Dimensions and Approximate Weights

VALVE SIZE, NPS (CL600 <sup>(1)</sup> )	FACE-TO-FACE DIMENSIONS	APPROXIMATE WEIGHT
	mm	kg
6	559	311
8	661	424
10	788	653
12	840	882
16	990.6	2472
20	1144	4313
24	1397	7257
	Inches	lbs
6	22	686
8	26.04	975
10	31.04	1550
12	33.07	2025
16	39	5450
20	47	9500
24	55	16000

1. For CL150 and CL300 valves, face-to-face dimensions are the same as CL600 valves.

Key number locations are shown in figure 6, unless otherwise noted.

1. Install a three-valve bypass around the control valve assembly if continuous operation will be necessary during inspection and maintenance of the valve.
2. The valve is normally shipped as part of a control valve assembly, with an actuator mounted on the valve. The valve/actuator assembly is adjusted at the factory before the unit is shipped.

If the valve or actuator has been purchased separately or if the actuator has been removed, mount the actuator according to the Actuator Mounting section and the appropriate actuator instruction manual. Make any necessary

adjustments on the bench before installing the valve in the pipeline. With the valve in the pipeline, you cannot see the exact position of the ball to determine the fully open or closed positions.

3. Standard flow direction is shown in figure 6. If possible, install the valve in a horizontal pipeline with the drive shaft horizontal. The actuator can be right- or left-hand mounted in any of the positions shown in the actuator instruction manual. If necessary, refer to the appropriate actuator instruction manual for installation and adjustment procedures.
4. Be certain the valve and adjacent pipelines are free of any foreign material that could damage the valve sealing surfaces. Impurities or entrained solids in the process fluid could plug the passages in the trim. If the process fluid is not clean, install a filter upstream to keep the pipeline free of impurities or entrained solids.
5. Provide appropriate flange gaskets, and place the valve in the pipeline. Tighten flange bolting in a criss-cross sequence to ensure the flange gaskets are loaded evenly.

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#### Note

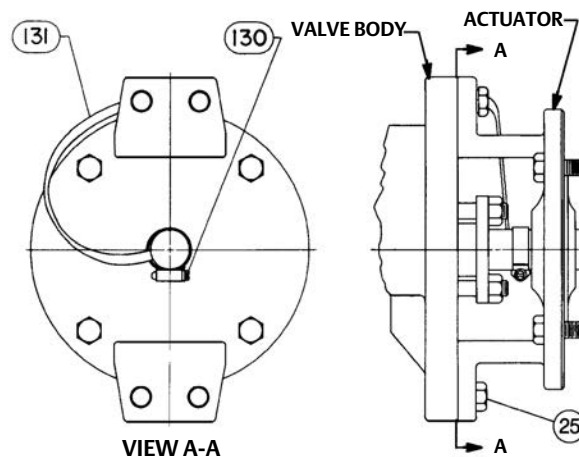
Standard Fisher V260 valve packings (key 105) are composed of:

- Conductive packing ring (graphite ribbon packing), or
- Partially conductive packing rings (For example: a carbon-filled PTFE female adaptor with PTFE V-ring packing or a graphite-composition packing ring with PTFE/composition packing ring)

In order to electrically bond the drive shaft to the valve body for hazardous area service, an alternate shaft-to-body bonding strap can be provided by using the following step.

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Figure 2. Optional Shaft-to-Body Bonding Strap Assembly



6. For hazardous applications, attach the optional bonding strap assembly (key 131) to the valve drive shaft (key 6) with the clamp (key 130) and connect the other end of the bonding strap assembly to the valve body with the mounting cap screw as shown in figure 2.
7. Connect pressure lines to the actuator as indicated in the actuator instruction manual. When an auxiliary manual actuator is used with a power actuator, install a bypass valve on the power actuator (if one is not supplied) for use during manual operation.
8. If the valve has ENVIRO-SEAL™ live-loaded packing installed, an initial re-adjustment may not be required, depending on your application. See the Fisher instruction manual titled ENVIRO-SEAL Packing System for Rotary Valves ([D101643X012](#)) for packing instructions and adjustments (see figure 3).

## Maintenance

Valve parts are subject to normal wear and must be inspected and replaced as necessary. The frequency of inspection and replacement depends upon the severity of service conditions.

Key numbers are shown in figure 6, unless otherwise noted.

## **⚠ WARNING**

**Avoid personal injury or equipment damage from sudden release of process pressure or uncontrolled movement of parts. 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, electric power, or a control signal to the actuator. Be sure the actuator cannot suddenly open or close the valve.
- Vent the power actuator loading pressure and relieve any actuator spring precompression.
- Use bypass valves or completely shut off the process to isolate the valve from process pressure. Relieve process pressure from both sides of the valve. Drain the process media from both sides of the valve.
- Dual-seal valve constructions can retain pressure and process fluid even after process pressure has been removed from both sides of the valve. Relieve this pressure before disassembling or removing the valve from the line. Take additional care if the process fluid is hot, flammable, caustic, or hazardous.
- Carefully secure the valve in an upright position. The roundness of the flanges and valve body allow it to easily roll from side-to-side. The combined weight of the valve/actuator assembly could cause injury or property damage when falling to the side.
- 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, or when loosening the packing box pipe plug.
- Avoid injury by keeping hands, tools, and other objects away from the ball while stroking the valve.
- Check with your process or safety engineer for any additional measures that must be taken to protect against process media.
- To avoid personal injury or property damage, a minimum of two swivel hoists must be used when lifting NPS 24 CL600 assemblies.

## Packing Maintenance

### Note

For the ENVIRO-SEAL Packing System, refer to the separate ENVIRO-SEAL Packing System for Rotary Valves instruction manual ([D101643X012](#)), for maintenance instructions.

## Stopping Leakage

For standard PTFE V-ring packing, leakage around the packing follower may be stopped by tightening the packing follower nuts.

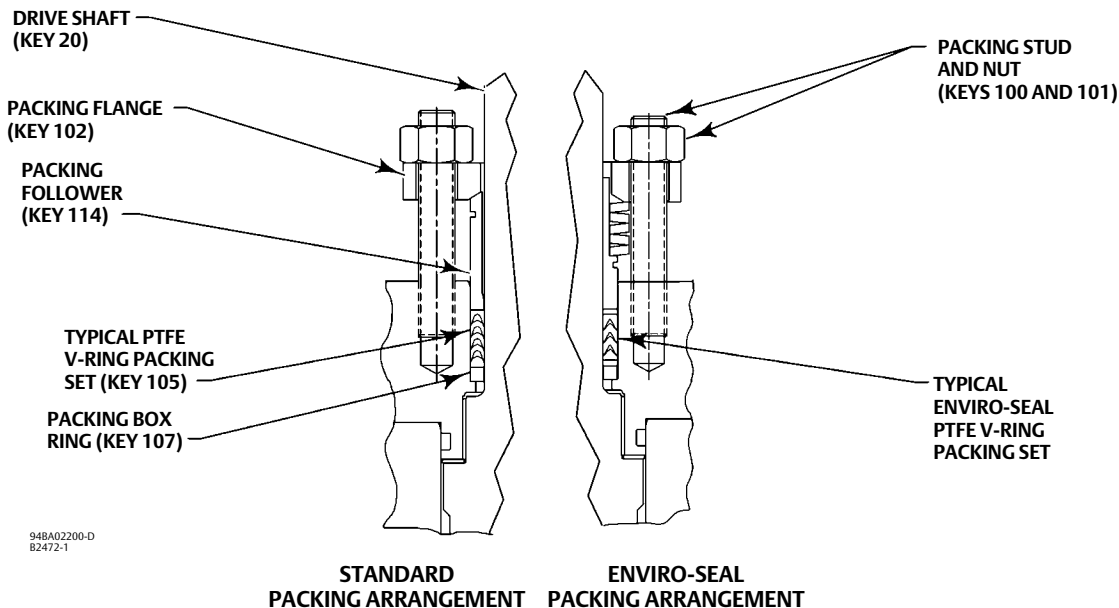
If the packing is relatively new and tight on the drive shaft, and if tightening the packing follower nuts does not stop the leakage, the drive shaft may be worn or nicked so that a seal cannot be made. If the leakage comes from the outside diameter of the packing, the leakage may be caused by nicks or scratches on the packing box wall. Inspect the drive shaft and packing box wall for nicks or scratches while performing the following procedure.

## Replacing Packing

Replacing the packing requires bleeding off the system and removing the actuator from the valve. Valve/actuator adjustments cannot be made correctly without observing the fully open or closed position of the ball (key 11). It is not

necessary to remove the valve from the pipeline, if care is taken to note the position and alignment of the lever and shaft and to not disturb the turnbuckle position.

Figure 3. Packing Arrangement Details



## 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. If using a power actuator, shut off all pressure lines (or other power source) to the power actuator, release pressure from the actuator, and disconnect the pressure lines from the actuator. Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.

### **⚠ WARNING**

See the **WARNING** at the beginning of the Maintenance section for more information before removing the valve from the pipeline.

2. Remove line bolting, remove the control valve from the pipeline, and place the actuator/valve assembly on a flat surface.
3. Remove the actuator cover. Note and mark the orientation of the actuator with respect to the valve body and the lever orientation with respect to the valve drive shaft, to assist with reassembly.
4. Loosen the lever locking device cap screw. Loosening the lever turnbuckle adjustment is not necessary during disassembly. When remounting the actuator, the turnbuckle will be used for actuator adjustments.
5. Removing the actuator from the valve:
  - a. Remove the actuator mounting screws, bolts, or nuts.

**CAUTION**

**When removing the actuator from the valve, do not use a hammer or similar tool to drive the lever or actuator off the valve shaft. Driving the lever or actuator off the valve shaft could damage the ball, seal(s), and valve.**

**If necessary, use a wheel puller to remove the lever or actuator from the valve shaft. Tap the wheel puller screw lightly to loosen the lever or actuator. Do not hit the screw with excessive force. Using excessive force could damage the ball, seal(s), and valve.**

- b. Slide the lever along the valve shaft while removing the actuator from the valve.
6. If necessary, remove the bonding strap assembly, shown in figure 2, from the valve before attempting to remove the packing box parts.
7. Remove the packing follower nuts, packing flange, and packing follower (keys 101, 102, and 114, figure 3).
8. Remove the packing parts:
  - a. If the packing housing (key 16) is mounted on the valve: Use a formed wire hook with a sharp end to pierce the packing rings, and pull the rings out of the packing box. Do not scratch the drive shaft or packing box wall. Scratching these surfaces could cause leakage. Clean, inspect, and obtain replacement parts as necessary for reassembly.
  - b. If the packing housing is removed from the valve: Remove the drive shaft (key 20) from the packing housing. With the drive shaft removed, remove all internal parts. Clean, inspect, and obtain replacement parts as necessary for reassembly.

The packing sets (key 105) listed in the parts list do not include any metal parts. Either clean and reuse metal packing parts or obtain replacements by ordering them individually.

## Assembly

If the valve is equipped with the ENVIRO-SEAL packing system, refer to the ENVIRO-SEAL Packing System Rotary Valves instruction manual ([D101643X012](#)) for assembly.

1. If the packing housing assembly (key 16) is removed from the valve, use the valve assembly steps to reinstall the drive shaft (key 20) and packing housing assembly on the valve.
2. For standard packing arrangements, install the new packing parts using the parts sequence shown in figure 3.
3. Secure the packing follower and packing flange with the packing nuts (keys 114, 102, and 101). Tighten the nuts far enough to stop leakage during operating conditions.
4. If necessary, install the bonding strap assembly shown in figure 2.
5. Use the steps provided in the Actuator Mounting section to install the actuator on the valve. For actuator travel adjustments, refer to the appropriate actuator instruction manual.
6. When the control valve is installed in the pipeline and in operation, check around the packing follower for leakage and retighten the packing nuts as necessary.

## Seal Ring Maintenance

### Disassembly

## **⚠ WARNING**

**For valves with dual-seals, fluid and/or a hazardous material may be trapped under pressure in the valve body cavity. To avoid personal injury, relieve the pressure, and drain any remaining fluid or hazardous material from the valve body cavity. If necessary, disassemble the valve in a safe area for cleaning.**

**See the WARNING at the beginning of the Maintenance section for more information before removing the valve from the pipeline.**

Disassemble the valve only to the extent necessary to accomplish the needed inspection and repairs. For some repairs (for example, the trim parts only) complete disassembly of the valve is not necessary. Follow the disassembly procedures to the point necessary to accomplish the repair, then skip to the appropriate assembly steps to complete the reassembly of the valve. Always clean and protect sealing surfaces from damage.

Mark parts as necessary to allow them to be returned to the same position as removed. For example: Be sure to return the tailpiece to the same end of the valve from which it was removed. Also, the seal assembly within the tailpiece should be returned to the same tailpiece from which it was removed. The bearing plates should be marked and reinstalled on the ball in the same position as they were, when removed.

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. If using a power actuator, shut off all pressure lines to the power actuator, release pressure from the actuator, and disconnect the pressure lines from the actuator. Use lock-out procedures to be sure that the above measures stay in effect while you work on the equipment.
2. Remove line bolting, remove the control valve from the pipeline, and clean all valve surfaces. Place the actuator/valve assembly on a flat working surface.
3. Mark parts as necessary to allow them to be returned to the same position during re-assembly.
4. Perform the procedure in the Packing Maintenance section to remove the actuator from the valve. When valve maintenance is complete, refer to the Mounting Actuator procedure at the end of the Maintenance section to re-install the actuator on the valve.
5. Provide a clean soft working surface to protect the tailpiece-flange sealing surface.
  - a. If the valve does not have an attenuator dome, lift the valve and place it on its side with either tailpiece flange resting on the flat surface. Be sure the valve is in a stable, upright position before releasing the hoist connection.
  - b. If the valve has a single attenuator dome, it is best to position the valve body so the tailpiece with the dome is in the down position. Be sure the valve is stable, in an upward position before releasing the hoist connection.

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### **Note**

If the packing is in good condition, it is possible to remove and replace the seal assembly, or dome assembly without removing the packing box assembly. However, the packing assembly must be removed to remove the ball (key 11) from the valve body.

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6. Remove the packing housing nuts (key 23). Remove the packing housing assembly from the valve. The assembly includes all the packing box parts, drive shaft, O-ring seals, bearing, and other parts.
7. Remove the nuts from the studs (keys 19 and 3) to remove the tailpiece/valve connection. (Refer to figure 6).

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### **Note**

While lifting the tailpiece (key 2 or 6) from the valve body, check to see if the seal assembly is lifting with the tailpiece. (Note: Some valve constructions do not have a seal assembly installed in the tailpiece.) If it is, slide something between the ball and tailpiece to protect the ball in case the seal assembly falls out of the tailpiece.

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8. If the valve has dual attenuator domes, tap the dome to loosen it from the top tailpiece before the top tailpiece is lifted from the valve body.
9. Turn the tailpiece over so the seal assembly is facing up, and place it on a clean soft surface with the flange face down.
10. For NPS 6, from the tailpiece assembly or from the valve, remove the seal assembly (key 9), wave spring (key 8), retaining ring (key 41), and o-ring seal (key 7). Clean and protect all sealing surfaces.

For NPS 8 through 24, from the tailpiece assembly or from the valve, remove the seal assembly, wave spring, and O-ring seal (keys 8 and 7). Clean and protect all sealing surfaces.

## **⚠ WARNING**

**In the next step, be sure to secure the bearing plates on the ball to prevent them from falling. When lifting the ball, the bearing plates may slide-off the ball trunnions which may cause personal injury or property damage.**

11. Turn the ball (key 11) to the closed position. Use a nylon sling through the ball bore to lift the ball out of the valve body. Lift the ball and set it on a clean soft surface.
12. Remove the two bearing plates and thrust washers (key 4 and 30) from the ball (key 11). Inspect the bearing in the bearing plates and thrust washers (keys 29 and 30). If necessary, remove and replace the bearings (key 29).
13. Evenly loosen the hex nuts from the studs on the lower tailpiece (key 2 or 6). Remove the valve body from the tailpiece.
14. Remove from the tailpiece assembly, the dome assembly and/or the seal assembly, wave spring, and O-ring seal. Clean and protect all sealing surfaces.

## Assembly

Be sure to replace valve parts in the same position that they were removed. Use the following suggested sequence to reassemble the valve.

### Note

Clean and protect all sealing surfaces from damage while installing parts. Lubricate parts when necessary as an aid for installing parts, and to help protect sealing surfaces.

Key number locations are shown in figure 6.

1. Place the tailpiece (key 2 or 6), pipe flange end down on a clean soft surface with the seal assembly or attenuator dome cavity facing up.
2. Lubricate (key 42) and install the O-rings (key 12) on both tailpieces.

For characterized domes, install the grooved end of the dome groove pin (key 33) into the tailpiece, as far as it will go. Use only a light tapping force, taking care not to bend the pin. This groove pin will prevent the attenuator dome from rotating with respect to the tailpiece.

3. Install the inlet end attenuator dome (key 28 or 10) into the tailpiece (key 6). Use the lifting lugs in the two threaded holes for ease of handling.

For characterized attenuators, align the pin hole in the dome with the groove pin (key 33) placed in the tailpiece in step 3. High Density attenuators don't require this orientation.

4. For NPS 6 dual seal V260A or V260B constructions, install the the retaining ring (key 41) into the tailpiece (key 6). Take care not to damage the sealing surface of the tailpiece.

For NPS 8 through 24 dual seal V260A or V260B constructions, lubricate (key 42) and install the O-ring (key 15) on the dome spacer (key 13). If a dual dome is being assembled, install the dome spacer into the tailpiece, using the two threaded holes as lifting lugs.

5. Apply thread locking adhesive (key 45) to and install the two cap screws (key 36) that hold the washers (key 37) which help retain the dome or dome spacer (if applicable) in the tailpiece.

For constructions with dual dome and/or dual seals, lubricate (key 42) and install the O-ring (key 7) in the groove on the inlet seal (key 9). Install the wave spring (key 8) over the end of the seal. Install the seal assembly O-ring (key 7) between the dome spacer and the dome (key 10).

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**Note**

Verify that the ball opens into the dome windows last. (See figure 5)

If not, remove the dome and tailpiece and turn it 180 degrees to allow the windows to open last.

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6. Install the grooved end of the groove pins (key 5) into the bearing plates (key 4) as far as they will go. Use only a light tapping force, taking care not to bend the pins.
7. Apply dry film lubrication (key 43) between the trunnion surfaces on the ball and the trunnion bearings.
8. Install new bearings (key 29) in the bearing plates (key 4).

**▲ WARNING**

**In the next step, be sure to secure the bearing plates on the ball to prevent them from falling. When lifting the ball, the bearing plates may slide off the ball trunnions which may cause personal injury or property damage.**

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9. Lift the ball with a nylon sling through the bore and turn the ball until the port and trunnions are horizontal.
10. Slide one ball thrust washer (key 30) onto each side of the ball trunnions, and install a bearing plate (key 4) on each side of the ball trunnions.
11. Carefully lower the ball and bearing plates onto the lower (inlet) tailpiece taking care not to damage the ball surface.

While lowering the ball, guide the groove pins in the bearing plates into their proper location in the tailpiece. To determine the proper location for Right Hand Mounting, turn the splined trunnion so that it is on your right hand side when the attenuator dome is in front of you and the bottom of the valve is nearest you.
12. Install the grooved end of the groove pin (key 18) into the valve body, as far as it will go. Use only a light tapping force, taking care not to bend the pin. Apply lubricant (key 44) and install the body studs (key 3) in the valve body and install two swivel hoists for lifting the valve body.
13. Lift the valve body, using the swivel hoists, so it is centered over the ball and bearing plates. Be sure the shaft hole is aligned with the splined trunnion on the ball. When lowering the valve body, take care not to damage the ball. Guide the groove pins in the valve body into their proper location in the tailpiece.
14. Install the hex nuts(key 19) on the studs (key 3) and hand-tighten them.
15. Lubricate (key 42) and install the O-ring (key 14) on the packing housing (key 16). Install the shaft bearing (key 32) in the packing box housing.
16. Install the packing housing studs (key 22) in the valve body.
17. Apply anti-seize lubricant (key 44) to the large spline on the shaft. Line-up the missing spline tooth with the appropriate space in the ball, and install the drive shaft (key 20) into the ball.
18. Install the shaft thrust washer (key 24) onto the shaft.

19. Install the packing housing (key 16) and nuts (key 23), and tighten them evenly. Orient the length of the packing box housing perpendicular to the bore of the valve body.

**⚠ WARNING**

Refer to table 3 for bolt torque requirements. Exceeding any torque requirements could damage the valve and impair safe operation.

Table 3. Torque Values

VALVE SIZE, NPS	PRESSURE RATING	VALVE BODY HEX NUT (KEY 19)		MOUNTING FLANGE HEX NUT (KEY 23)	
		N•m	lbf-ft	N•m	lbf-ft
6	CL150	375	277	271	200
	CL300	525	387		
	CL600	710	524		
8	CL150	393	290		
	CL300	549	405		
	CL600	746	550		
10	CL150	549	405		
	CL300	746	550		
	CL600	990	730		
12	CL150	549	405		
	CL300	990	730		
	CL600	990	730		
16	CL150	746	550	746	550
	CL300	1750	1290		
	CL600	1750	1290		
20	CL150	990	730	990	730
	CL300	2237	1650		
	CL600	3470	2560		
24	CL150	1749	1290	990	730
	CL300	3470	2560	990	730
	CL600	6088	4490	1749	1290

20. Assemble the seal and install the second tailpiece using the following steps.

For dual seal and dual dome constructions, it is easier to lay the valve assembly on its side while installing the second tailpiece.

21. For NPS 6 install the dome, retaining ring, and alignment groove pin in the tailpiece.

For NPS 8 through 24 install the dome, dome spacer, and alignment groove pins (if a characterized attenuator is used) in the tailpiece.

22. Lubricate (key 42) and install the seal assembly O-ring (key 7) in the groove of the seal as shown in figure 6.
23. Install the wave spring (key 8) over the end of the seal (key 17 or 9). Note that the spring is not required with the attenuator dome (key 28, figure 6).
24. For single seal constructions, place the seal ring assembly into the tailpiece, taking care not to damage the O-ring (key 7) while sliding it into the tailpiece. Also, be careful to protect all sealing surfaces.

For dual seal constructions, place the seal assembly (key 17) into the dome, dome spacer and tailpiece.

25. Lift the second tailpiece assembly and align it with the valve body studs and pins. Slide the tailpiece onto the studs and bearing plate pins. The groove pins in the valve body should be guided into the pin holes in the tailpiece. Pull it up tightly, taking care not to damage the tailpiece O-ring as it is pulled into the valve body.

26. Install the hex nuts (key 19) on the studs (key 3) and hand-tighten them. Torque all the hex nuts evenly.

### **⚠ WARNING**

**Refer to table 3 for bolt torque requirements. Exceeding any torque requirements could damage the valve and impair safe operation.**

27. Refer to the Packing Maintenance section to install the packing parts.

## Actuator Mounting

Use the appropriate actuator instruction manual when mounting the actuator or changing actuator styles and positions.

### Determining Mounting Position

The actuator can be either right- or left-hand mounted.

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#### **Note**

Right-hand mounting means that the actuator is mounted on the right side of the valve when viewed from the valve inlet.

Left-hand mounting means that the actuator is mounted on the left side of the valve when viewed from the valve inlet.

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Right- or left-hand mounting can change the actuator action from push-down-to-close to push-down-to-open, or vice-versa.

### Determining Closed Position

1. You must remove the valve from the pipeline to check the position of the ball.
2. Adjust the actuator linkage or travel stops as described in the actuator instruction manual. Adjust the actuator so that the valve ball will be fully open or closed when the actuator is at the end of its stroke, depending on the actuator action selected.

## Parts Ordering

A serial number is assigned to each valve and stamped on the nameplate. Always refer to the valve serial number when corresponding with your [Emerson sales office](#) regarding spare parts or technical information. When ordering replacement parts, also specify the part name and desired material.

### **⚠ WARNING**

**Use only genuine Fisher replacement parts. Components that are not supplied by Emerson Automation Solutions 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.**

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Figure 4. Ball Attenuator Construction Details

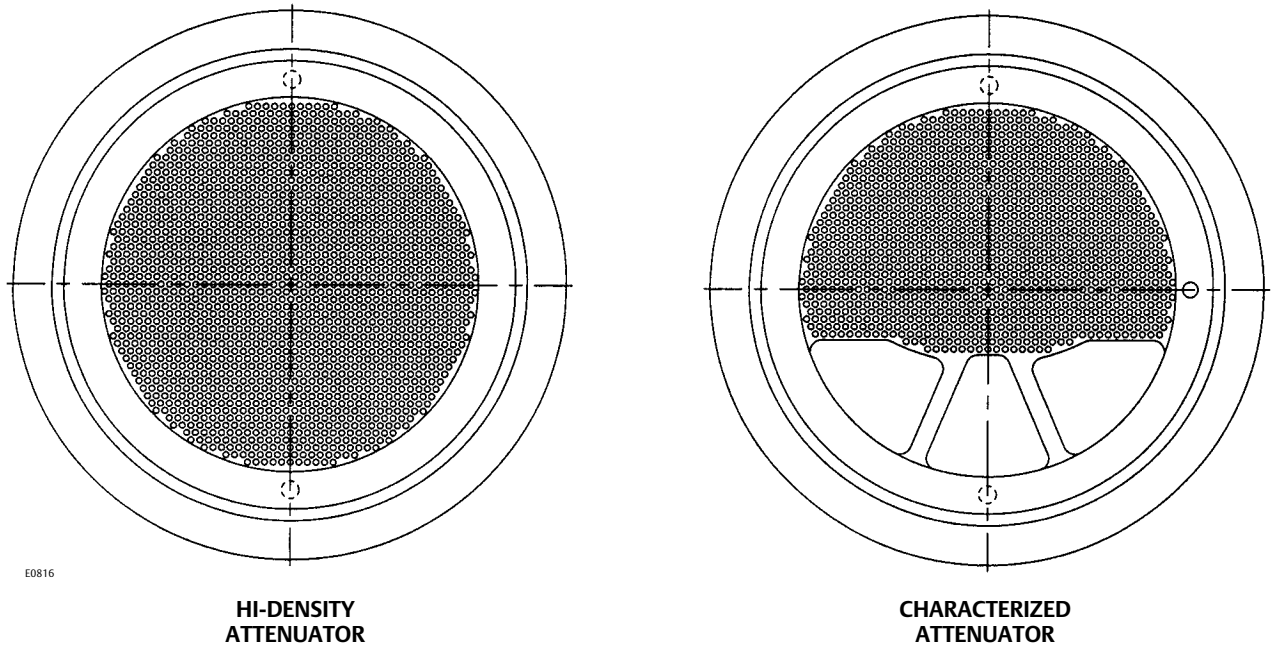
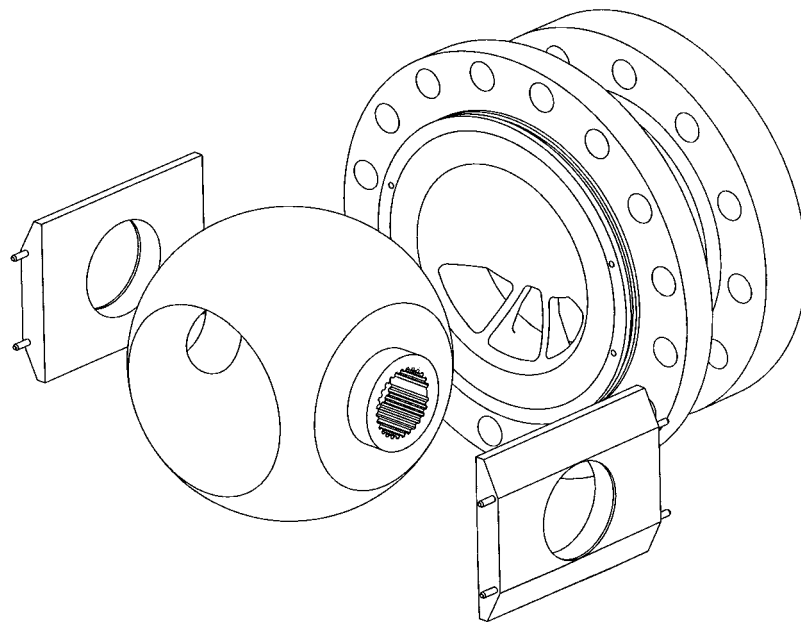


Figure 5. Exploded View of Dome, Ball, Tailpiece and Bearing Plates



## Parts List

### Note

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

Key	Description
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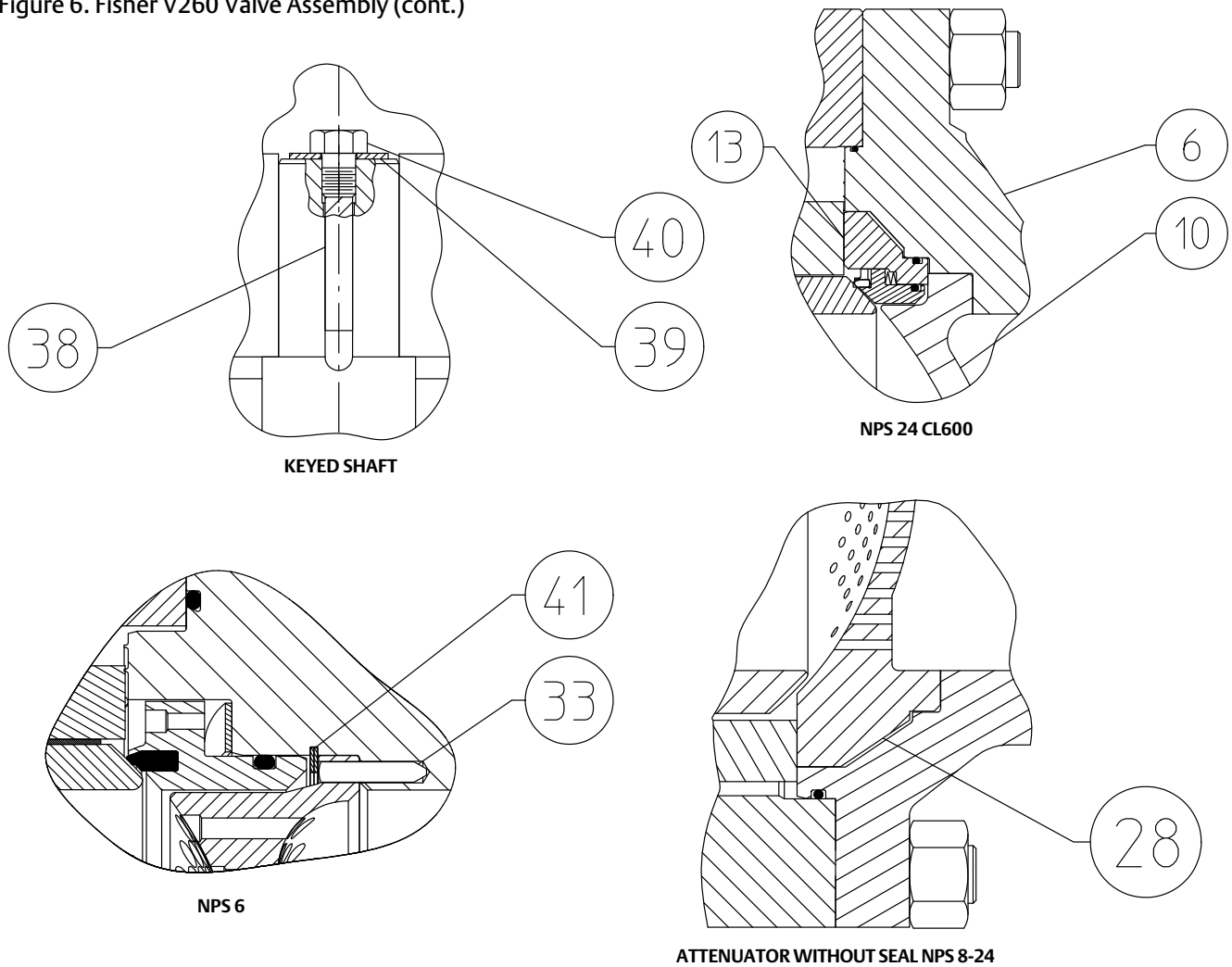
1	Valve Body If you need a valve body as a replacement part, order the valve size, pressure rating, serial number, and desired material. Contact your Emerson sales office.
2	Inlet Tailpiece
3	Body Stud
4	Bearing Plate (2 req'd)
5	Dowel Pin (8 req'd)
6	Outlet Tailpiece (same as inlet for NPS 6)
7*	Seal Assembly O-ring (1 req'd for single, 2 req'd for dual seal)
8	Wave Spring (1 req'd for single, 2 req'd for dual-seal)
9*	Outlet Seal Assembly (same as inlet for NPS 6)
10	Attenuator Dome for Dual Seal
11	Ball
12*	Tailpiece O-ring (2 req'd)
13	Dome Spacer (NPS 8 through 24)
14*	Packing Box O-ring
15	Dome Spacer O-ring (NPS 8 through 24)
16	Packing Box Housing

Key	Description
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17*	Inlet Seal Assembly
18*	Dowel Pin (4 req'd)
19	Body Hex Nut
20	Drive Shaft
21	Actuator Mounting Cap Screw (4 req'd)
22	Packing Housing Stud, Steel
23	Packing Housing Nut, Steel
24*	Shaft Thrust Washer
25	Pipe Plug (not shown)
26	Flow Arrow
27	Drive Screw, for nameplate
28	Attenuator Dome for Single Seal
29*	Trunnion Bearing (2 req'd)
30*	Ball Thrust Washer (2 req'd)
32*	Shaft Bearing
33	Pin, Attenuator Dome (not shown)
34	Nameplate (not shown)
36	Drive Screw (not shown)
37	Washer (not shown)
38	Square Key (Keyed Shaft only)
39	Flat Washer (Keyed Shaft only)
40	Hex Head Screw Cap (Keyed Shaft only)
41	Retaining Ring (NPS 6)
42	Lubricant, Silicon Grease
43	Lubricant, Dry Film
44	Lubricant, Anti-seize
45	Lubricant, Loctite
100	Packing Stud (2 req'd for NPS 6-12, 4 req'd for NPS 16-24)
101	Packing Nut (2 req'd for NPS 6-12, 4 req'd for NPS 16-24)
102	Packing Flange
105*	Packing Set ENVIRO-SEAL PTFE/Carbon-Filled PTFE Standard PTFE/Carbon Filled PTFE
106	Anti-Extrusion Ring, PTFE
107	Packing Box Ring
116	Clamp (grounding strap assembly)
117	Grounding Strap Assembly



Figure 6. Fisher V260 Valve Assembly (cont.)



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