CURTISS-WRIGHT

Dyna-Flo 570 Series

Control Valve Operation, Parts and Instruction Manual

Figure 1 Model 571 Control Valve and DFR-070 Actuator

570 Series segmented ball rotary control valves are well suited to high flow - low pressure drop services that require throttling and on/off control of liquids or gases. The straight through unrestricted flow path delivers a higher capacity flow than globe style valves.

The flangeless Model 570 valve mates with ASME class 150, 300, and 600 raised face flanges. Models 571 and 573 are raised-face flanged valves for ASME class 150 (571) and 300 (573).

Table of Contents

P-570M0325A | March 2025

Dyna-Flo Control Valves

CURTISS-WRIGHT

Notice

These instructions are meant to be used with the Dyna-Flo 570 Series Technical Bulletin as they refer to Figures and Tables therein. If you do not have the Technical Bulletin, contact Dyna-Flo immediately, or visit **www.cw-dynaflo.com**

It is the responsibility of the purchaser and end user to source and reference the latest edition of any technical or instructional literature related to the safe operation of this equipment.

Each control valve is factory checked. Check the calibration for the specific application, before a valve is put into service.

It is the intention of this document to provide users with an accurate guide for safe installation and maintenance of the Model 570/571/573 Control Valves. Revisions are available at above mentioned website.

⚠ WARNING - GENERAL INFORMATION

The following instructions are to be thoroughly reviewed and understood prior to installing, operating or performing maintenance on this equipment. Work on this equipment should be done by experienced personnel and it is the responsibility of the end user to perform regular maintenance and inspections on this equipment. Throughout the manual, safety warnings and caution notes appear and must be strictly followed to prevent serious injury or equipment malfunction.

⚠ WARNING - SCOPE OF MANUAL

The control valve configuration and construction materials were selected to meet particular pressure, temperature, and process conditions. Some material combinations are limited in their pressure and temperature ranges. It is the responsibility of the purchaser and end user to ensure that this equipment meets the required construction material combinations for safe usage in the intended process control application. Do not apply any conditions outside the intended factory manufactured specifications to the valve without first contacting your Dyna-Flo sales office.

This manual is written to be a practical and useful guide to maintaining the Dyna-Flo 570 Series Control Valve.

⚠ WARNING - SAFETY INFORMATION

Only well trained experienced technicians should perform these procedures. Use safe work practices and lock out procedures when isolating valves and actuators. It is also important to wear the proper protective equipment when performing any installation or maintenance activity. It is the responsibility of the end user of this product to select the proper parts and materials rated for the process being used, temperature requirements/limitations, operating conditions, and environmental conditions products will be used in. Special paint systems are available to alleviate effects of corrosion.

To avoid personal injury or installation damage as a result of the sudden release of process pressure or damage to equipment, do not install the valve assembly where service conditions could exceed the limits stated in this manual, sales bulletin or on the equipment nameplates. Use government codes, accepted industry standards, good piping practices and select proper pressure-relieving equipment for protection of your installation. Always be aware of flammable process and instrument gas.

Always be aware of the hazards of actuators, especially spring-loaded actuators. Be sure that the actuator is de-energized or in the failed position before performing any maintenance procedure. Refer to any appropriate auxiliary equipment, instrumentation, and actuator instruction manuals; also enquire with your safety department or process engineer for additional protection measures.

These valves have dangerous pinch points. Never put your hands inside the valve unless you are certain that the ball (Key 6) will not move.

Specifications

Sizes and Connection Styles (Refer to Table 1)

Model:	570 / 571 / 573
Size:	1" to 24" NPS 25 DN to 600 DN
Body Style:	Wafer and Flanged
Rating:	ASME 150 / 300 / 600
Connection:	RF

Maximum Inlet Pressures and Temperatures

Consistent with ASME Class 150, 300, and 600 rating as per ASME B16.34, unless limited. Refer to Tables 17 to 19 of Sales Bulletin.

Maximum Pressure Drops

Refer to Tables 18 & 19 of Sales Bulletin.

750 Psig (5,171 kPag) @ 100°F (38°C) (Standard Construction)

Characteristic and Flow Direction

Modified Equal Percent - Flow Forward through Seal into Ball

NOTE: Reverse flow has a maximum allowable pressure drop of 100 Psi (689 kPa).

Dimensions - Refer to the Sales Bulletin

Valve Outline Dimension Diagram: Refer to Figure 3.

Valve and Actuator Outline Dimension Diagram: Refer to Figure 2.

Valve and Actuator Assembly Dimensions: Refer to Tables 4 to 15.

Line Flange Bolting Dimensions: Refer to Tables 7, 8, 12 & 13.

Approximate Valve Body and Actuator Weights

Refer to Tables 2 & 3.

Maximum Ball Rotation

90 degrees.

Actuator Mounting

Right-hand, or Left-hand (as viewed from seal end of valve). In one of 4 positions (12 standard, 3, 6, and 9 o'clock) with respect to the valve body in a horizontal pipe.

Valve Cross-Section

Refer to Figures 76 to 79.

Material and Temperature Capabilities

Valve Body:

LCC (ASTM A352): -50°F to 650°F (-46°C to 343°C)

CG8M (ASTM A351): -325°F to 1000°F (-198°C to 538°C)

WCC (ASTM A216): -20°F to 800°F (-29°C to 427°C)

Packing:

PTFE: -50°F to 450°F (-46°C to 232°C)

Graphite: -325°F to 1000°F (-198°C to 538°C)

Live Loaded PTFE: -50°F to 450°F (-46°C to 232°C) for 100 ppm service requirements.

Live Loaded Graphite: 20°F to 600°F (-7°C to 316°C).

Ball Seals:

Composition Ultra: -50°F to 450°F (-46°C to 232°C)

Metal: -50°F to 550°F (-46°C to 288°C)

Flow Ring: -325°F to 800°F (-198°C to 425°C)

NOTE: Refer to Tables 17 to 19 of Sales Bulletin for more temperature limitations.

Construction Materials

Refer to Table 16 of Sales Bulletin.

Shut-Off Classification

Composition Ball Seal: Class VI

Metal Ball Seal: Class IV

Flow Ring Construction: 5% of valve capacity at full travel

NOTE: Classes and testing per ANSI/FCI 70-2 and IEC 60534-4.

Shaft Connections

Splined (Standard)

Square (Optional) for sizes 1 to 6" NPS (25 to 150 DN)

Keyed (Optional) for sizes 8 to 24" NPS (200 to 600 DN)

For more information and other options contact your Dyna-Flo sales office.

Table 1

Available Valve Configurations

Valve Model	End Connection	Body Material	Valve Size	Valve Rating
570	Flangeless (Wafer) Mates with ASME Class 150/300/600 Raised Face Flanges	LCC WCC CG8M	1 / 1-1/2 / 2" NPS (25 / 40 / 50 DN)	ASME Class 150/300/600
			3" NPS (80 DN)	ASME Class 150
				ASME Class 300/600
			4 / 6 / 8" NPS (150 & 200 DN)	ASME Class 150/300/600
571	Flanged Mates with ASME Class 150 Raised Face Flanges	LCC WCC CG8M	1 / 1-1/2 / 2 / 3 / 4 / 6 / 8 / 10 / 12 / 16 / 20 / 24" NPS (25 / 40 / 50 / 80 / 100 / 150 / 200 / 300 / 400 / 500 / 600 DN)	ASME Class 150
573	Flanged Mates with ASME Class 300 Raised Face Flanges	LCC WCC CG8M	1 / 1-1/2 / 2 / 3 / 4 / 6 / 8 / 10 / 12 / 16 / 20 / 24" NPS (25 / 40 / 50 / 80 / 100 / 150 / 200 / 300 / 400 / 500 / 600 DN)	ASME Class 300

Table 2

570 Valve and Actuator Assembly Weights

Valve Size / Actuator Model		Weight
1" NPS (25 DN)	570 Valve Only	10 lbs (4.5 Kg)
	Model 570 Valve & DFR026	40 lbs (18 Kg)
1-1/2" NPS (40 DN)	570 Valve Only	14 lbs (6.4 Kg)
	Model 570 Valve & DFR026	44 lbs (20 Kg)
	Model 570 Valve & DFR047	60 lbs (27 Kg)
2" NPS (50 DN)	570 Valve Only	23 lbs (10 Kg)
	Model 570 Valve & DFR026	53 lbs (24 Kg)
	Model 570 Valve & DFR047	69 lbs (31 Kg)
3" NPS (80 DN)	570 Valve Only	34 lbs (15 Kg)
	Model 570 Valve & DFR047	80 lbs (36 Kg)
4" NPS (100 DN)	570 Valve Only	48 lbs (22 Kg)
	Model 570 Valve & DFR047	94 lbs (43 Kg)
	Model 570 Valve & DFR070	147 lbs (67 Kg)
6" NPS (150 DN)	570 Valve Only	80 lbs (36 Kg)
	Model 570 Valve & DFR156	283 lbs (128 Kg)
8" NPS (200 DN)	570 Valve Only	136 lbs (62 Kg)
	Model 570 Valve & DFR156	339 lbs (154 Kg)
	Model 570 Valve & DFR220	408 lbs (185 Kg)

Table 3

571 & 573 Valve and Actuator Assembly Weights

Valve Size / Actuator model		Model	
		571	573
1" NPS (25 DN)	Valve Only	13 lbs (5.9 Kg)	17 lbs (7.7 Kg)
	DFR026	43 lbs (19.5 Kg)	47 lbs (21 Kg)
1-1/2" NPS (40 DN)	Valve Only	19 lbs (8.6 Kg)	27 lbs (12 Kg)
	DFR026	49 lbs (22 Kg)	57 lbs (26 Kg)
	DFR047	65 lbs (29.5 Kg)	73 lbs (33 Kg)
2" NPS (50 DN)	Valve Only	21 lbs (9.5 Kg)	38 lbs (17 Kg)
	DFR026	51 lbs (23 Kg)	68 lbs (31 Kg)
	DFR047	67 lbs (30 Kg)	84 lbs (38 Kg)
3" NPS (80 DN)	Valve Only	43 lbs (19.5 Kg)	61 lbs (28 Kg)
	DFR047	89 lbs (40 Kg)	107 lbs (49 Kg)
4" NPS (100 DN)	Valve Only	57 lbs (26 Kg)	81 lbs (37 Kg)
	DFR047	103 lbs (47 Kg)	127 lbs (58 Kg)
	DFR070	156 lbs (71 Kg)	145 lbs (66 Kg)
6" NPS (150 DN)	Valve Only	93 lbs (42 Kg)	133 lbs (60 Kg)
	DFR156	296 lbs (134 Kg)	336 lbs (152 Kg)
8" NPS (200 DN)	Valve Only	158 lbs (72 Kg)	226 lbs (103 Kg)
	DFR156	361 lbs (164 Kg)	429 lbs (195 Kg)
	DFR220	430 lbs (195 Kg)	498 lbs (226 Kg)
10" NPS (250 DN)	Valve Only	235 lbs (107 Kg)	440 lbs (200 Kg)
	DFR220	507 lbs (230 Kg)	712 lbs (323 Kg)
12" NPS (300 DN)	Valve Only	347 lbs (157 Kg)	645 lbs (293 Kg)
	DFR220	619 lbs (281 Kg)	917 lbs (416 Kg)
16" NPS (400 DN)	Valve Only	735 lbs (333 Kg)	1125 lbs (511 Kg)
	DFRP 113	980 lbs (445 Kg)	1370 lbs (621 Kg)
20" NPS (500 DN)	Valve Only	1155 lb (524 Kg)	1661 lbs (755 Kg)
	DFRP 113	1400 lbs (635 Kg)	1906 lbs (866 Kg)
	DFRP 154	1450 lbs (769 Kg)	1956 lbs (889 Kg)
24" NPS (600 DN)	Valve Only	2122 lbs (965 Kg)	2877 lbs (1308 Kg)

Unpacking Valve From Shipping Container

Special Tools Required:

- Properly Rated Lifting Straps (2 – 4 Straps) refer to Table 3 for valve weights.
- Lifting Device (Example: Crane)

Check the packing list, verify that the list includes all the materials in the shipping container before unpacking. Valve information can be found on the nameplate (Key 42). Refer to Figure 2 for nameplate location.

⚠ WARNING

Avoid sharp edges and corners when removing equipment from shipping container.

When lifting the valve assembly from shipping container, place properly rated lifting straps securely around the neck of the actuator and valve body, refer to Figure 2 for strap placement. Straps should be placed to avoid damage to tubing and other mounted accessories.

For valve assemblies without an attached actuator, use caution when lifting or positioning straps so as not to damage the valve shaft.

Lift the valve/actuator assembly using proper lifting techniques.

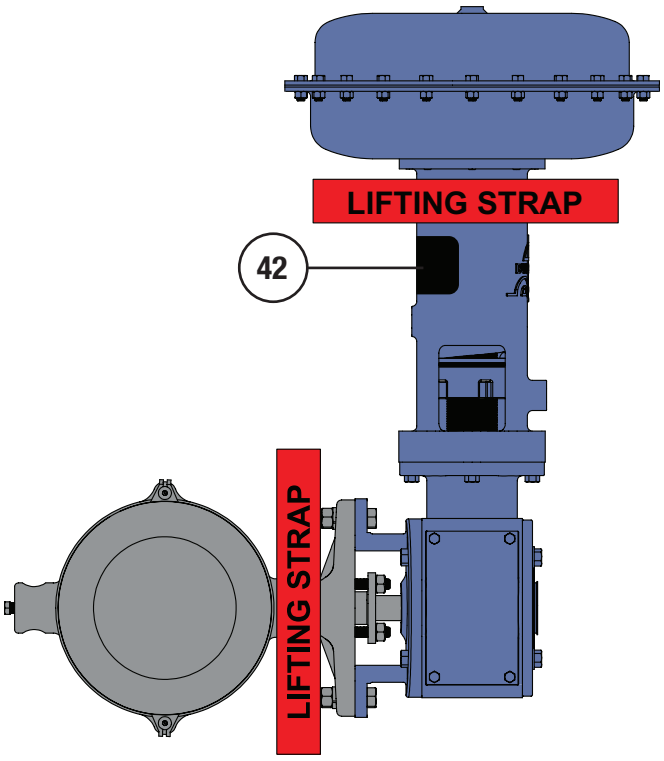


Figure 2 Actuator Lifting Strap Placement Suggestion

Installation

⚠ WARNING

Before You Begin:

- Read the Warnings on Page 2.
- Sudden movement of actuator can cause damage or injury. It helps to have the actuator de-energized as long as the valve remains in the OPEN position.
- Use safe work practices and lock out procedures before placing valve or actuator in-line.
- Always wear the appropriate personal protective equipment.
- Standard actuators accept ¼" (6 mm) NPT connections.
- Do not use operating pressure that exceeds the Maximum Actuator Casing Pressure.
- Property damage, environmental harm, and personal injury can result from the use of supply gas other than clean, non-corrosive, oil and moisture free air.
- Operating medium must be controlled and directed, if a positioner was not ordered or unavailable, use a loading device such as a 4-way switching valve or regulator. For more information on positioner installation and operation, refer to the appropriate positioner instruction manual for your positioner type.
- Valve packing leakage could cause property damage or personal injury. Valve packing was properly tightened in factory, however, it is recommended that packing tightness be checked prior to installation.
- Place the valve into the OPEN position, this helps to prevent damage to the valve ball (Key 6) during installation. It is important that the back edge of the ball never be rotated past the ball seal, damage to the seal will occur.
- Leakage or excessive wear to the valve may be caused if the valve is installed with the drive shaft (Key 11) in a vertical orientation (perpendicular to the ground).

Parts Required:

- Appropriate Line Flange Nuts and Bolts. Refer to the Sales Bulletin for stud size and quantity. The Model 570 is designed to utilize long studs to assist in centering the valve in-line, Models 571 and 573 use shorter studs to connect the valve flanges with line flanges.
- Appropriate Line Flange Gaskets.
- If the valve has small internal flow passages, the installation of an upstream strainer should be considered to prevent clogging of these small passages.

Lubricants Required:

- Permatex® Nickel Anti-Seize or equivalent (Key A)

Installation (Continued)

Installation Steps:

1 Clean dirt, welding chips, scale, or other foreign material from the line and flange surfaces.

2 Install the valve so the flow through the valve is in the direction indicated by the arrow on the valve body (standard flow direction has the seal protector ring (Key 31) facing upstream). The valve assembly may be installed in any position as long as the drive shaft (Key 11) is in the horizontal position, refer to Figures 5 & 6.

Model 570 Installation:
(Refer to Figures 2 and 3, and Tables 4 to 7 of the Sales Bulletin for flange stud (Key 44 I) dimensions)

1 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the threads of the two centering flange studs (Key 44 I). Install the centering studs into the flanges (refer to Figure 3) before placing the valve body in-line. The centering studs are used to help properly center the valve between the pipeline flanges.

2 Set the appropriate line gaskets in place between the valve body and pipeline.

3 Set the valve on to the line centering studs from Step 1. Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the remaining studs (Key 44 I) and install them. With the valve properly centered between the pipeline flanges, tighten the flange stud nuts evenly in a crisscross pattern to the correct torque specifications. Proceed to **Air Piping**.

Models 571 & 573 Installation:
(Refer to Figures 2 and 3, and Tables 4 to 7 of the Sales Bulletin for flange stud (Key 44 K & L) dimensions)

NOTE: Longer flange studs are needed for the seal protector ring (Key 31) side of the valve. DO NOT use standard length studs for the seal protector side of the valve, refer to Table 5 of Sales Bulletin.

1 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the threads of the flange studs (Key 44 K & L) and have them ready to hold the valve in line.

2 Set the appropriate line gaskets in place between the valve body and pipeline.

3 Lift and lower the valve in-line, support the valve during installation. Install the studs (Key 44 K & L). With the valve properly centered between the pipeline flanges, tighten the flange stud nuts evenly in a crisscross pattern to the correct torque specifications. Proceed to **Air Piping**.

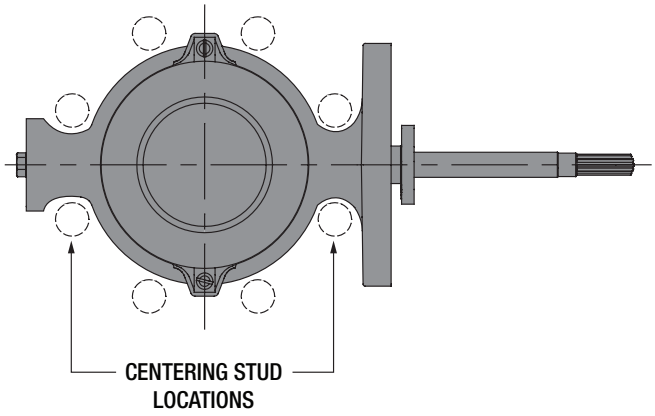


Figure 3 Model 570 Centering Stud Locations

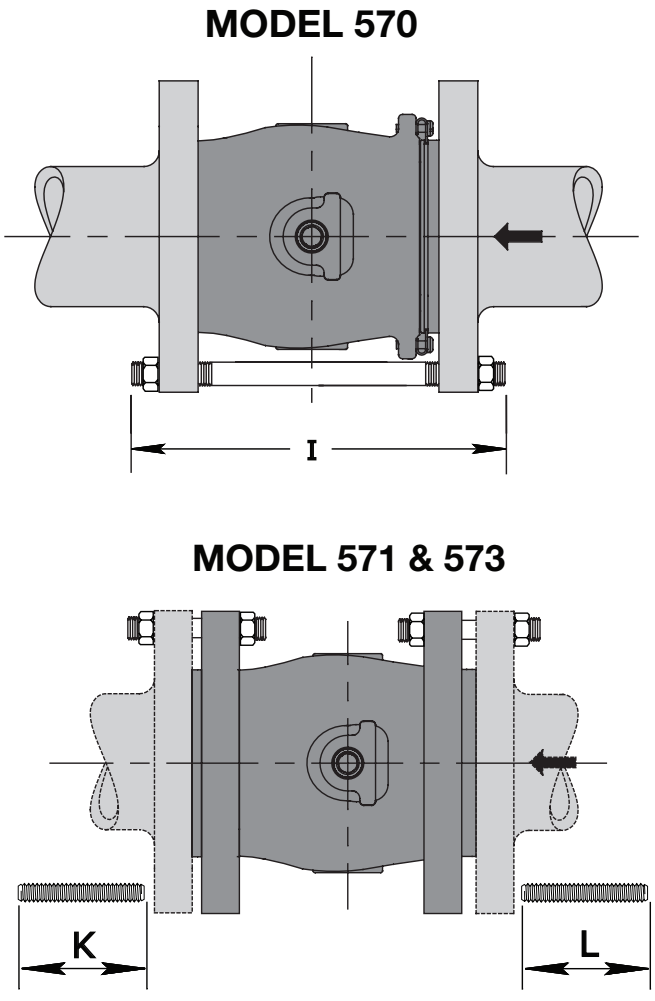


Figure 4 Flange Stud Examples

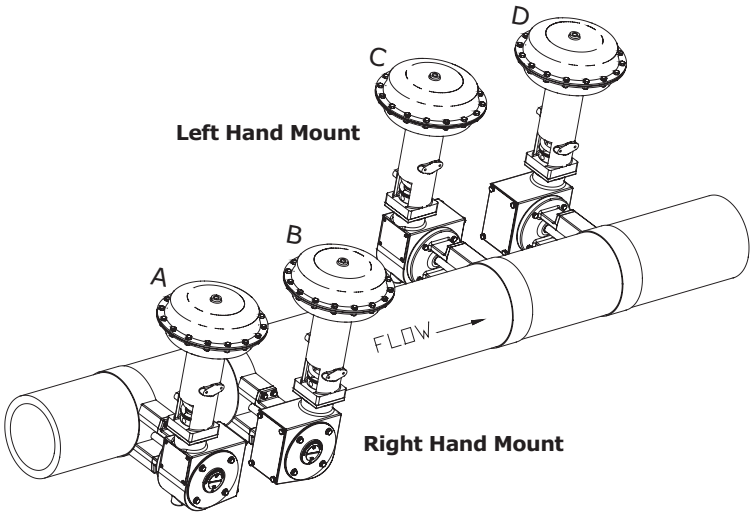


Table 4

Mounting Styles and Positions
(Refer to Figures 5 & 6)

Mounting	Action	Position
Right Hand Mount	Fail Open	Style A
Right Hand Mount	Fail Close	Style B
Left Hand Mount	Fail Open	Style C
Left Hand Mount	Fail Close	Style D

Figure 5 Mounting Orientation Diagram

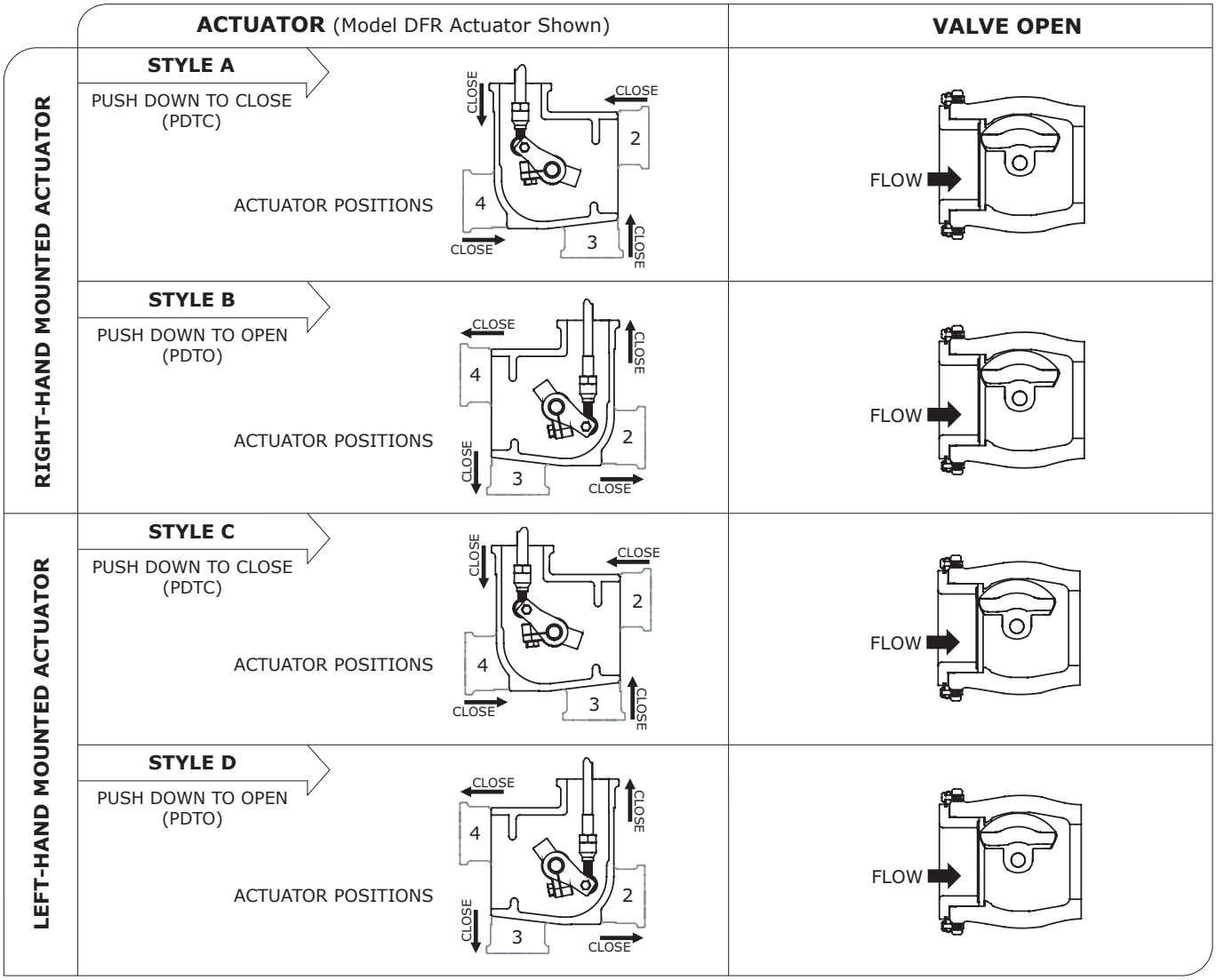


Figure 6 Actuator / Valve Position Chart

Installation (Continued)

Air Piping:

NOTE: Standard actuators are designed to accept a 1/4" (6.35 mm) NPT connection. Always follow good piping practices when installing piping or tubing. For more information refer to the appropriate actuator instruction manual for your product.

Piping Installation Steps:

1 Use 3/8" (9.5 mm) (outside diameter) tubing (or equivalent) for air lines.

2 Install the required line vents, valves, drains, seals, and filters to the actuator.

Actuator Mounting:

Refer to the appropriate Actuator Instruction Manual for additional mounting instructions. For mounting and fail position orientations refer to Figures 5 & 6.

NOTE: For applications other than Spring Return Fail Open Actuators, placing the valve in the fully closed position will help ensure the correct centering of the ball (Key 6) on the seal (Keys 26 or 27).

1 Set the valve to the desired fail position.

2 Clean the connection area of the drive shaft (Key 11) and insert the drive shaft into the actuator lever or mounting connection.

3 Adjust the position of the valve, lever, and actuator so that the lever is centered and the actuator shaft is parallel within the actuator housing. The lever should be able to move within the housing freely and unobstructed.

4 Insert the actuator mounting bolts (Key 40). Actuator mounting bolts are generally inserted through the actuator mounting bracket side first, unless space is limited.

5 Install the lock washers (39), and thread the actuator mounting nuts (Key 41) on to the mounting bolts. Tighten the actuator mounting nuts to the appropriate torque specifications listed in the appropriate actuator instruction manual.

6 Tighten the lever clamp of the actuator to the drive shaft (Key 11) of the valve if the connection is of that type.

7 Once the mounting bolts are tight, the valve may need to be re-adjusted in order to center the valve ball (Key 6). Refer to the appropriate actuator instruction manual for information on adjusting the actuator turnbuckle to re-center the ball.

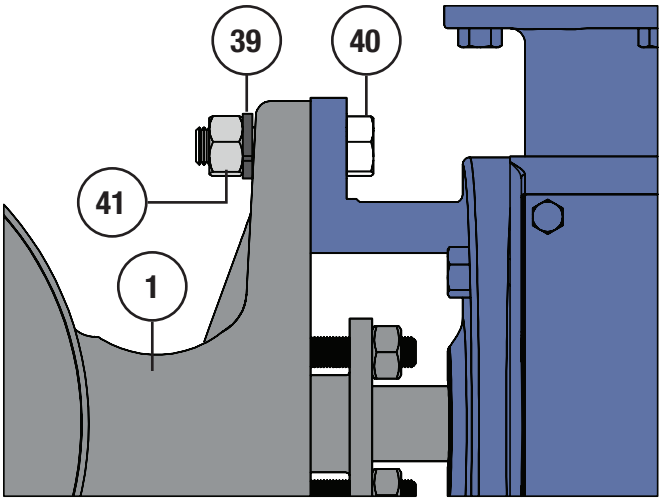


Figure 7 Actuator Mounting Detail

Periodic Inspection

⚠ WARNING

Before You Begin:

- Read the Warnings on Page 2.
- Sudden movement of actuator can cause damage or injury. De-energized the actuator before performing any work, vent any pneumatic loading pressure and relieve any spring preload. Disconnect supply lines (air or gas), electric power, or control signal to the actuator.
- Use safe work practices and lock out procedures before taking valve out of line.
- Relieve process pressure and drain the process fluid from up and down stream of valve.
- Be aware of potentially hazardous process material that may be present in-line and in-valve (especially valve packing). Isolate the valve from process pressure. Use a bypass or block valve if necessary, or completely shut off the process. Refer to the appropriate instruction manuals and enquire with your safety department or process engineer for additional protection measures.
- It is the responsibility of the end user to perform regular maintenance and inspections on this equipment.

Inspection Steps:

1 Check for visible signs of leakage around all seal and gasket areas.

2 Check the valve for damage, especially damage caused by corrosive fumes or process drippings.

3 Check for process fluid leakage to the atmosphere through the packing and any NPT connections.

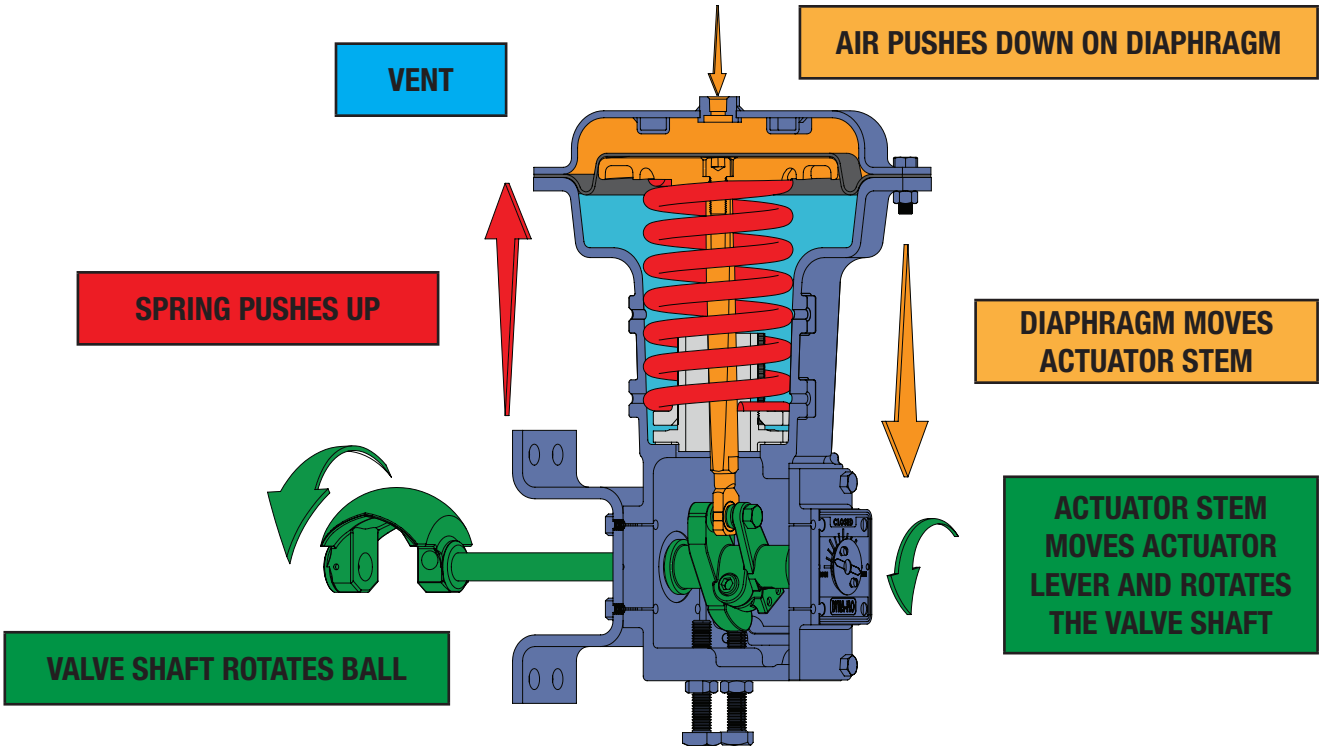


Figure 8 Principles of Operation - Actuator & Valve Mechanics

Periodic Inspection (Continued)

Inspection Steps:

4 Ensure all accessories, mounting brackets, and fasteners are secure.

5 Clean and repaint areas as required.

Maintenance

NOTE: Seals, soft parts, and packing (including live loaded packing) should all be inspected frequently for leaks, wear and damage. Recommended maintenance for 570 Series valves without disassembly is limited to checking for proper packing tightness. Maintenance to the packing can be performed while the valve is still in-line, the actuator must be removed to replace packing (Refer to Page 12 for **Actuator Removal** instructions). Ball seal maintenance must be performed with the valve removed from the pipe line, refer to **Valve Removal** on Page 11.

⚠ WARNING

Before You Begin:

- Read the Warnings on Page 2.
- Refer to the **Periodic Inspection WARNING** on Page 9 and the **Actuator Removal WARNING** on Page 12.

⚠ WARNING (Continued)

- Use safe work practices and lock out procedures before working on equipment.
- Be aware of potentially hazardous process material that may be present in-line and in-valve (especially valve packing).
- It is the responsibility of the end user to perform regular maintenance and inspections on this equipment.
- Determine if valve has standard or live loaded packing (Refer to Figures 60, 61, 62, 63 & 64).
- Follow Steps 1 – 5 from Periodic Inspection (Page 9).

Special Tools Required:

- Mechanic Pick Set

Packing Maintenance:

If the packing is leaking, tightening the packing flange may stop the leak. If extra tightening of the packing flange does not stop the leak, it is possible that the packing, shaft (Key 11) or bore of the packing box is damaged. Replace or repair parts as necessary.

NOTE: To remove and replace the valve packing, it will be necessary to remove the actuator from the vale, refer to Page 12 for **Actuator Removal** instructions.

Maintenance (Continued)

Packing Maintenance (Continued):

1 Determine the type of packing installed in the valve. Refer to Figures 60, 61 and 62 for packing styles. Refer to Pages 31 to 35 for instructions on proper packing tightening procedures. **NOTE:** If the packing continues to leak after re-tightening, extra tightening may stop the leak but could also cause added packing friction.

2 Remove the actuator. Next, refer to **Disassembly / Packing Removal** on Page 12 and then to **Assembly / Packing Installation** on Page 31.

3 Refer to **Installation / Actuator Mounting** on Page 9 to reassemble the valve and actuator after packing replacement.

Ball Seal Maintenance:

NOTE: Maintenance on the ball seal (Key 26) should be performed when the control valve will not shut off properly. Ball seal maintenance can be performed without removing the actuator from the valve, but cannot be performed with the valve still in-line. When removing the valve from the pipeline, be sure it is in the OPEN position, and verify the position by using the indicator scale on the actuator before removal.

Maintenance for ball seals (Key 26) means seal replacement.

1 Refer to **Valve Removal** instructions and remove the valve from pipeline.

2 Refer to **Disassembly / Ball Seal Removal** on Page 13 for seal removal instructions.

3 Refer to **Assembly / Ball Seal Installation** on Page 36 for instructions on replacing the seal.

4 Refer to the **Installation** instructions on Page 6 to place the valve back in-line.

Valve Removal

⚠ WARNING

Before You Begin:

- Read the Warnings on Page 2.
- Use safe work practices and lock out procedures before working on equipment.
- Sudden movement of actuator can cause damage or injury. It helps to have the actuator de-energized as long as the valve remains in the OPEN position.
- Always wear the appropriate personal protective equipment.
- Be aware of potentially hazardous process material that may be present in-line and in valve (especially valve packing). Isolate the valve from process pressure. Use a bypass or block valve if necessary, or completely shut-off the process. Enquire with your safety department or process engineer for additional protective measures.
- Standard actuators accept ¼" (6 mm) NPT connections.
- Do not use operating pressure that exceeds the Maximum Actuator Casing Pressure.
- Property damage, environmental harm, and personal injury can result from the use of supply gas other than clean, non-corrosive, oil and moisture free air.
- Operating medium must be controlled and directed, if a positioner was not ordered or unavailable, use a loading device such as a 4-way switching valve or regulator. For more information on positioner installation and operation, refer to the appropriate positioner instruction manual for your positioner type.
- Place the valve into the OPEN position, this helps to prevent damage to the valve ball (Key 6) during installation. It is important that the back edge of the ball never be rotated past the ball seal, damage to the seal will occur.

1 Support the valve or valve/actuator assembly, refer to **Unpacking Valve From Shipping Container** information on Page 6 for support details.

2 Remove the line bolting (Key 44), Refer to Figures 3 & 4.

3 Remove and replace the line flange gaskets. Gaskets cannot be reused.

4 Once the valve has been removed from the pipeline, place the valve assembly on a flat work surface with the seal protector ring (Key 31) facing up. Make sure that the work surface can support the assembled weight of the valve and actuator.

Actuator Removal

NOTE: Actuator removal does not require that the valve be removed from the pipeline.

⚠ WARNING

Before You Begin:

- Read the Warnings on Page 2.
- Use safe work practices and lock out procedures before working on equipment.
- Sudden movement of actuator can cause damage or injury. De-energized the actuator before performing any work, vent any pneumatic loading pressure and relieve any spring preload. Disconnect supply lines (air or gas), electric power, or control signal to the actuator.
- Always wear the appropriate personal protective equipment.
- Be aware of potentially hazardous process material that may be present in-line and in valve (especially valve packing). Isolate the valve from process pressure. Use a bypass or block valve if necessary, or completely shut-off the process. Enquire with your safety department or process engineer for additional protective measures.
- Do not separate the actuator from the valve while the actuator is still pressurized and do not remove the stem connector while spring force or loading pressure is applied.

1 Refer to the appropriate actuator instruction manual for more information regarding actuator removal.

2 If the valve has been removed from the pipeline, place the valve assembly on a flat work surface that can support the assembled weight of the valve and actuator, with the seal protector ring (Key 31) facing up.

For Typical DFR & DFRP Actuators:

3 Remove the actuator cover plate, mark the position/orientation of the lever in relation to the valve shaft for re-assembly purposes.

4 The actuator lever is typically clamped onto the valve shaft (Key 11), loosen the actuator lever (Key G) by loosening the lever cap screw (Key F). Refer to the appropriate actuator manual.

5 Support the actuator (use a lifting device if necessary) and remove the actuator mounting bolts (Key 40), nuts (Key 41), and lock washers (Key 39).

6 Separate the valve and actuator. Sometimes the actuator lever will bind on the valve shaft. Use caution when removing the actuator, forceful removal could damage the valve and actuator or cause the valve ball (Key 6) to be moved off center. Caution must also be taken as the valve ball may rotate during separation.

Disassembly

⚠ WARNING

Before You Begin:

- Read the Warnings on Page 2.
- Use safe work practices and lock out procedures before working on equipment.
- Always wear the appropriate personal protective equipment.
- Be aware of potentially hazardous process material that may be trapped in the valve (especially valve packing). Use CAUTION and relieve pressure where possible.
- Remove the valve from the pipeline before starting a complete valve disassembly.
- Remove the actuator from the valve before starting a complete valve disassembly.

Packing Removal:

⚠ WARNING

- Compressed gasses could be trapped between packing rings, sudden release of this pressure could cause damage or injury.
- Use CAUTION and avoid damaging or scratching the packing bore and drive shaft (Key 11) while removing packing.

NOTE: Packing may be removed without removing the drive shaft (Key 11) for maintenance purposes and complete disassembly, however it is easier to remove the packing when the drive shaft has been removed first. If you wish to remove the packing after the drive shaft has been removed, perform Steps 1 & 2 below, then continue disassembly with **Ball Seal Removal**, and return to **Packing Removal** Step 3 after the drive shaft has been removed.

1 Remove the packing nuts (Key 24).

2 **For Standard Packing:** Remove the packing follower (Key 20). Refer to Figure 9. **NOTE:** 16 Inch valves utilize a 2 piece packing follower (Key 20) and packing flange (Key 20A), refer to Figure 79.

For Live Loaded Packing: Remove the packing flange (Key 23) and remove the spring pack assembly (Keys 20, 21, and 22). If necessary for repair purposes, remove the o-ring (Key 22) and separate the spring washers (Key 21) from the packing follower (Key 20). Refer to Figure 10.

3 Using a mechanics pick set, carefully remove the packing box parts: anti-extrusion ring (Key 19), v-ring packing rings (Key 17), anti-extrusion rope (Key 18), graphite rings (Key 17A), and packing box ring (Key 16). Refer to Figures 9 & 10. **NOTE:** It may be possible to use a shaped wire with a sharp end to pierce the PTFE v-ring packing rings (Key 17) and pull them out.

Disassembly (Continued)

Packing Removal (Continued):

4 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

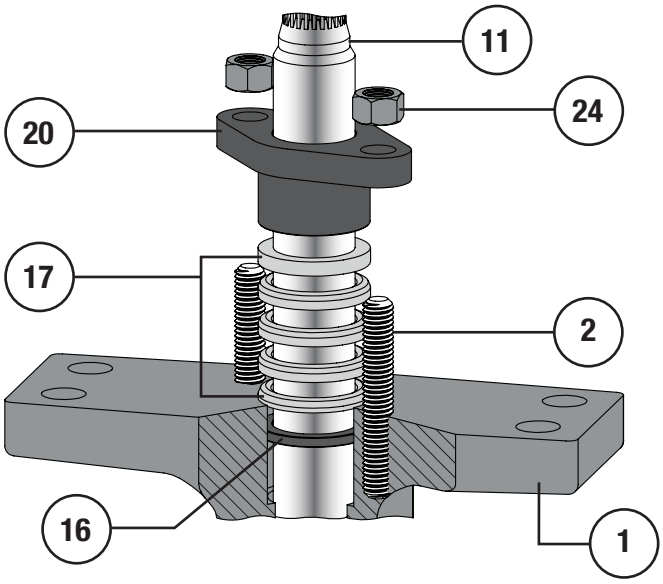


Figure 9 Standard Packing Removal

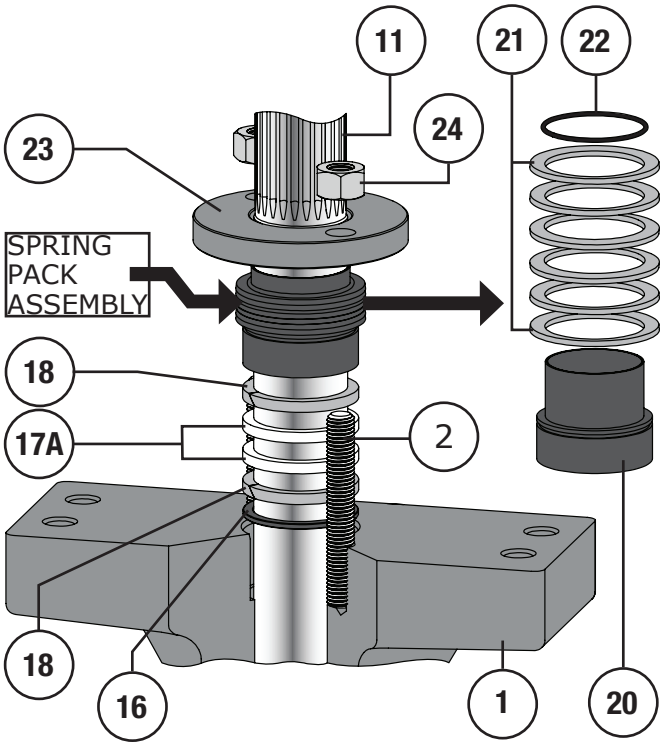


Figure 10 Sample Live Loaded Packing Removal

Ball Seal Removal:

NOTE: During ball seal removal, the actuator may remain mounted to the valve.

⚠ WARNING

Before You Begin:

- Place the valve in the OPEN position.
- Gaskets cannot be reused.
- 6 to 24" NPS (400 to 600 DN) seal protector rings have threaded holes, it may be necessary to install lifting hooks into the seal protector ring to safely lift it during disassembly.

For 1 to 8" NPS (25 to 200 DN) 570 Valves Composition Seals:

Refer to Figures 11 & 12.

1 Remove the seal protector screws (Key 35) and seal protector clips (Key 33).

2 Carefully remove the seal protector ring (Key 31), or seal protector ring assembly (for metal ball seals - Keys 31, 27, 28, 29), or flow ring (Key 32).

3 Remove the gasket (Key 30) and ball seal (Key 26) if present.

4 For 1 - 2" NPS (25 to 50 DN) valves, remove the back-up ring (Key 25). Refer to Figure 12.

5 Inspect all parts for damage or corrosion, pay close attention to gasket sealing surfaces. Clean, repair or replace parts as necessary.

For 1 to 24" NPS (25 to 600 DN) 571 & 573 Valves Composition Seals:

Refer to Figures 11 & 12.

1 Remove the seal protector screws (Key 36) and seal protector washers (Key 34), or seal protector cap screws (Key 37).

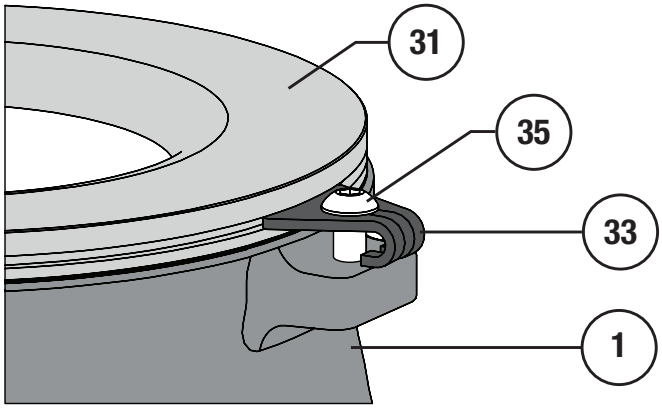
2 Carefully remove the seal protector ring (Key 31), or seal protector ring assembly (for metal ball seals - Keys 31, 27, 28, 29), or flow ring (Key 32).

3 Remove the gasket (Key 30) and ball seal (Key 26) if present.

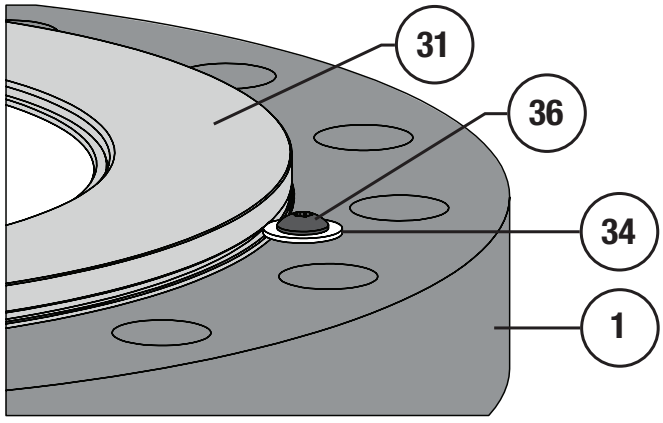
4 For 1 - 2" NPS (25 to 50 DN) valves, remove the back-up ring (Key 25). Refer to Figure 12.

5 Inspect all parts for damage or corrosion, pay close attention to gasket sealing surfaces. Clean, repair or replace parts as necessary.

FOR 1 - 8” NPS (25 - 200 DN) 570 VALVES



FOR 1 - 12” NPS (25 - 300 DN) 571 & 573 VALVES



FOR 16 - 24” NPS (400 - 600 DN) 571 & 573 VALVES

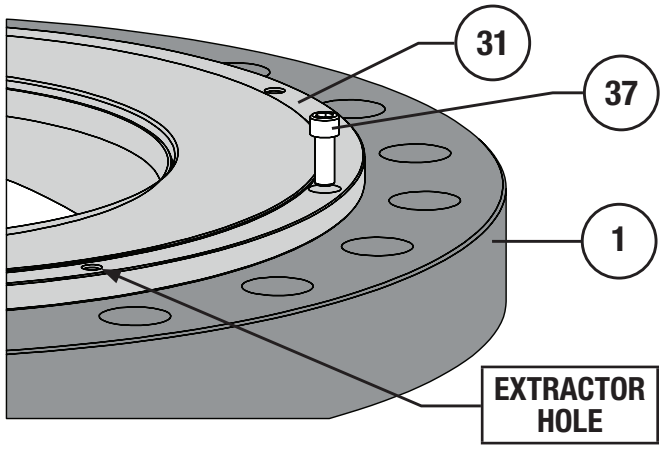
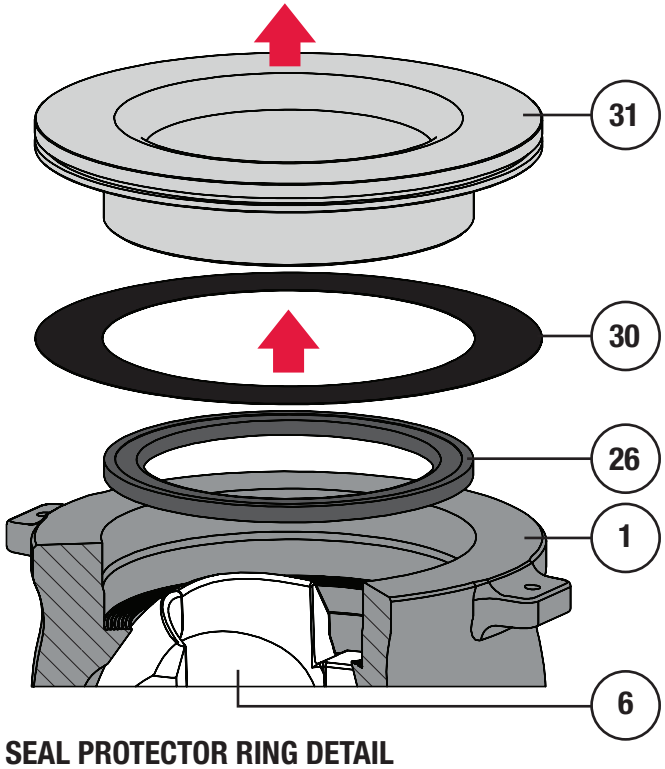
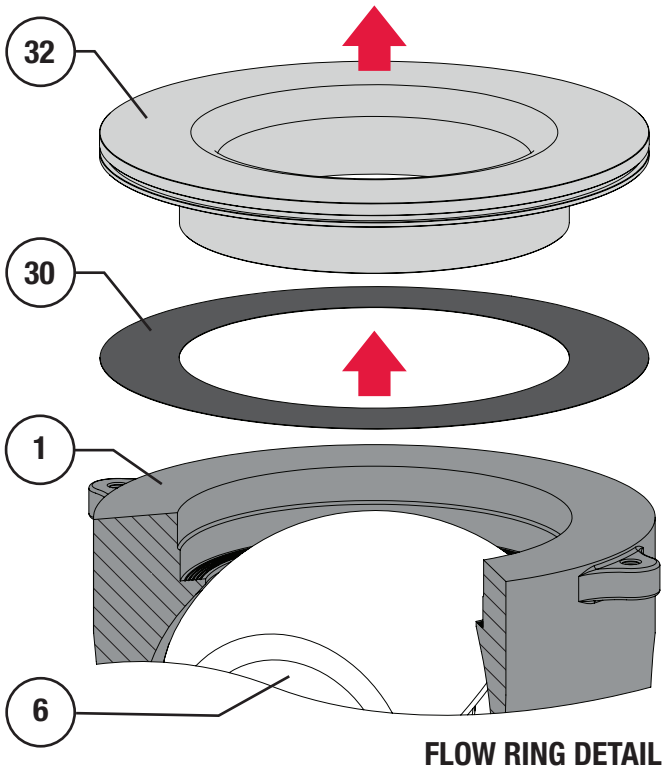


Figure 11 Seal Protector Ring Retaining Parts Removal



SEAL PROTECTOR RING DETAIL



FLOW RING DETAIL

Figure 12 Seal Protector Ring & Flow Ring Removal

Disassembly (Continued)

Ball Seal Removal (Continued):

For Metal Ball Seals:

Refer to Figures 11 & 13.

1. Carefully separate the metal ball seal (Key 27) from the seal protector ring (Key 31). The metal ball seal will need to be removed from the back side of the protector ring, refer to Figure 14.

2. Remove the wave spring (Key 29) and radial seal (Key 28). **NOTE:** The radial seal can not be reused.

3. Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

4. Inspect all parts for damage or corrosion, pay close attention to gasket sealing surfaces. Clean, repair or replace parts as necessary.

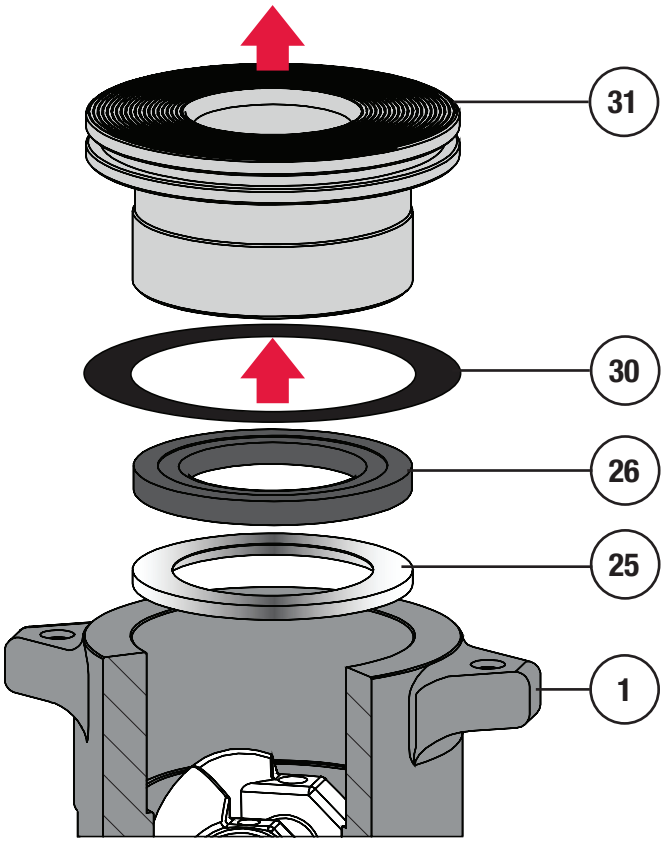


Figure 13 Back-Up Ring Removal

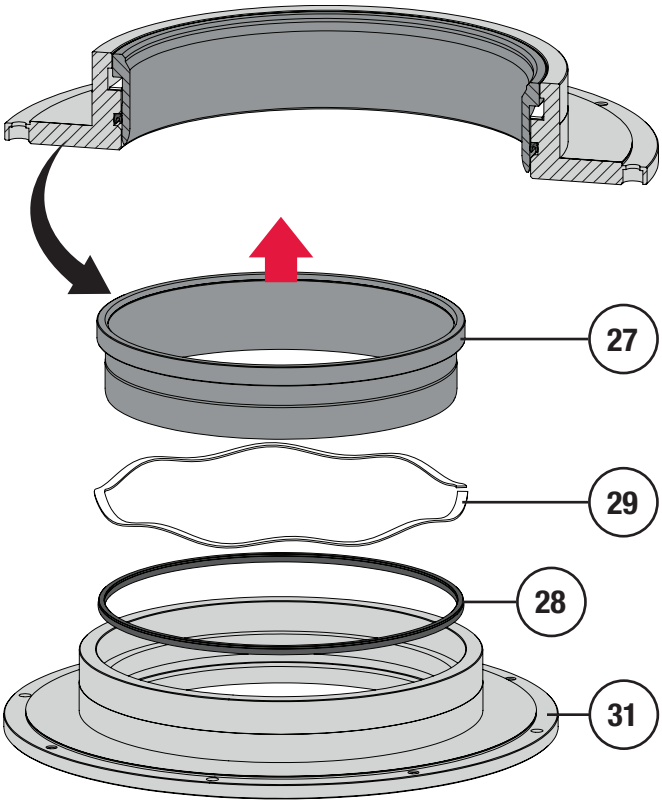


Figure 14 Metal Ball Seal Disassembly

Ball & Shaft Removal:

Before You Begin:

Place 1 to 4" NPS (25 to 100 DN) valves face up (inlet side up) on your work surface, valve balls (Key 6) for these small sizes can only be removed from the inlet side. All other sizes will need to be placed face down (inlet side down) on the work surface. It is recommended that these larger sized valves be placed on blocks to allow for unobstructed ball rotation (refer to Figure 15). **NOTE:** Blocks must be able to support the weight of the valve assembly.

⚠ WARNING

Use caution and control the movement of the ball while moving the valve assembly, ball and shaft may rotate freely and cause damage or injury.

Special Tools Required:

- 3/16" Punch
- For Old Style 1 & 1-1/2" NPS (25 & 40 DN) Valves Only - 5/16"-18 Threaded Rod (Old Style 1 & 1-1/2" Valve bodies are obsolete)

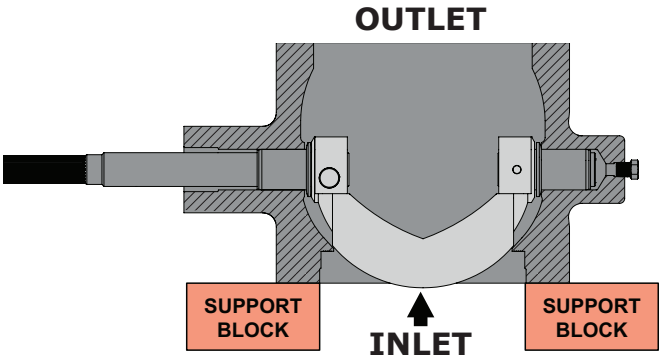


Figure 15 Valve Support Placement (6-24" NPS Valves)

Disassembly (Continued)

Ball & Shaft Removal (Continued):

For 1 to 2" NPS (25 to 50 DN) Valves:

Refer to Figures 16 to 18.

NOTE: 1 to 2" NPS valves use pins (Keys 8A and 10) to connect the shafts (Keys 11 & 9) to the ball (Key 6). These shaft connector pins can only be driven out from one end of the shaft connection (through the smaller hole out the larger hole). It will help to locate stake marks on the ear of the ball, pins will be driven out from the opposite hole from the stake marks. Refer to Figure 16. Older designs may use straight pins in a non-stepped hole, these pins will have been deformed or staked to fit tight. Punch these pins out accordingly.

1 With the valve assembly inlet side up. **NOTE:** The valve ball (Key 6) can only be removed from the inlet side of the body (Key 1).

2 With the ball (Key 6) in the OPEN position and the staked pin holes facing down, support the ball so that it will not rotate.

3 Mark the shaft (Key 11) to show the orientation of the ball/shaft connection for re-assembly. It is possible to install the valve shaft 180 degrees out of alignment during re-assembly.

4 Using a punch, carefully drive the drive shaft pin (Key 8A) out of the ball (Key 6) / shaft (Key 11) connection.

5 Using a punch, carefully drive the follower shaft pin (Key 10) out of the ball (Key 6) / follower shaft (Key 9) connection. **NOTE:** For 2" (50 DN) valves, rotate the ball (Key 6) 180 degrees, pins are installed from opposite sides of each other as shown in Figure 16.

6 Remove the drive shaft (Key 11) from the actuator side of the valve. Refer to Figure 17.

7 Remove the pipe plug (Key 38). **NOTE:** Old style valve bodies (Key 1) may not have a pipe plug.

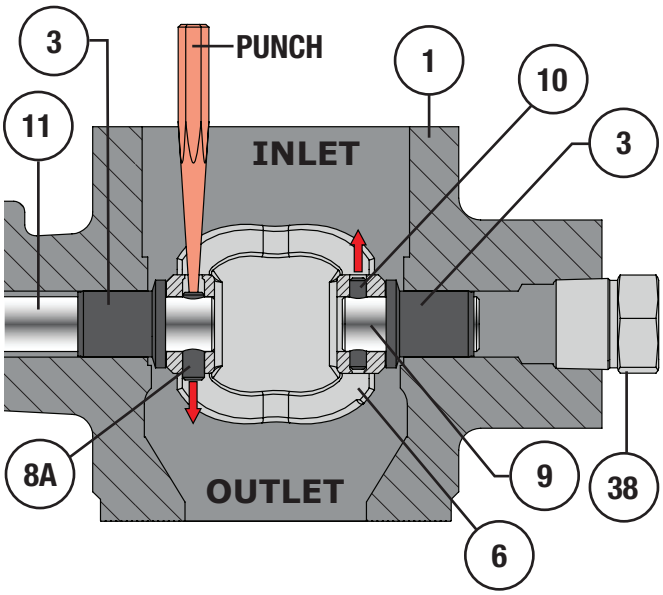


Figure 16 2" NPS (50 DN) Valve Pin Removal Detail

8 Support the ball (Key 6) and push the follower shaft (Key 9) towards the center of the ball. Refer to Figure 17. **For Old Style (obsolete) 1 & 1-1/2" NPS (25 & 40 DN) valves:** Some old style valve bodies do not have a pipe plug (Key 38). Use a piece of 5/16"-18 UNC threaded rod inserted into the follower shaft (Key 9) to pull it in towards the center of the ball (Key 6). Refer to Figure 18.

9 Carefully remove the ball (Key 6) and follower shaft (Key 9) from inside the valve body. Be very cautious not to damage the sealing surface of the ball.

10 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

For 3 to 12" NPS (80 to 300 DN) Valves:

Refer to Figures 19 to 22.

NOTE: 3 to 12" NPS (80 to 300 DN) valves use a combination of shaft key (Key 12) and pin (Key 10) to connect the shafts (Key 9 & 11) to the ball (Key 6). These shaft connectors can only be driven out from one end of the shaft connection (from the tapered end of the shaft key and through the non-staked hole out the staked hole for the follower shaft connection). Refer to Figure 19.

Older designs may use a straight pin in a non-stepped hole to connect the follower shaft (Key 9) to the ball. These pins will have been deformed or staked to fit tight. Punch these pins out accordingly.

1 Place the valve assembly in the appropriate position for the size of valve being disassembled, inlet or outlet side down. Refer to **BEFORE YOU BEGIN** on Page 15 and Figure 15.

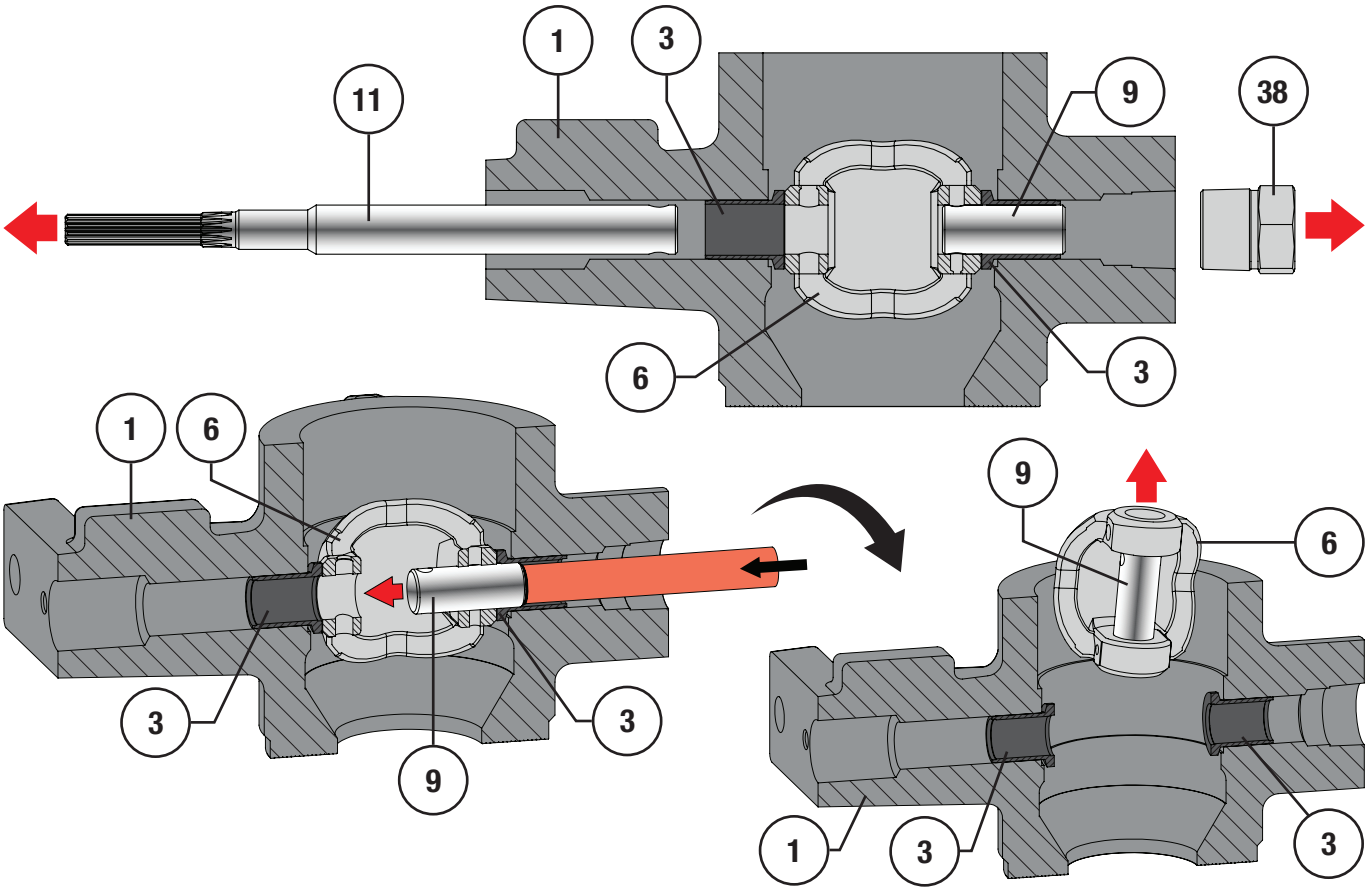


Figure 17 Follower Shaft and Ball Removal (Steps 6 to 10 for 1 to 2" NPS Valves)

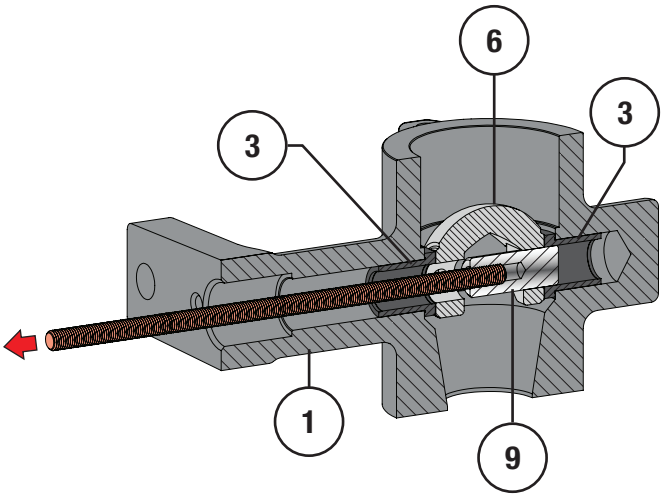


Figure 18 1 & 1-1/2" NPS Follower Shaft Removal (Obsolete Valve Body Design)

Disassembly (Continued)

Ball & Shaft Removal (Continued):

For 3 to 12" NPS (80 to 300 DN) Valves (Continued):

2 With the ball (Key 6) in the OPEN position with the tapered end of the shaft connection facing up as shown in Figure 19, support the ball so that it will not rotate.

3 Mark the shaft (Key 11) to show the orientation of the ball/shaft connection for re-assembly. It is possible to install the valve shaft 180 degrees out of alignment during re-assembly.

4 Using a punch, carefully drive the shaft key (Key 12) and follower shaft pin (Key 10) partially out of the ball (Key 6).
NOTE: For some valves sizes it will not be possible to completely drive the shaft key and shaft pin out towards the INLET side of the valve (refer to Figure 19).

5 Using the valve shaft (Key 11), rotate the valve ball (Key 6) 180 degrees, as shown in Figure 19, in order to finish removing the shaft key (Key 12) and follower shaft pin (Key 10).

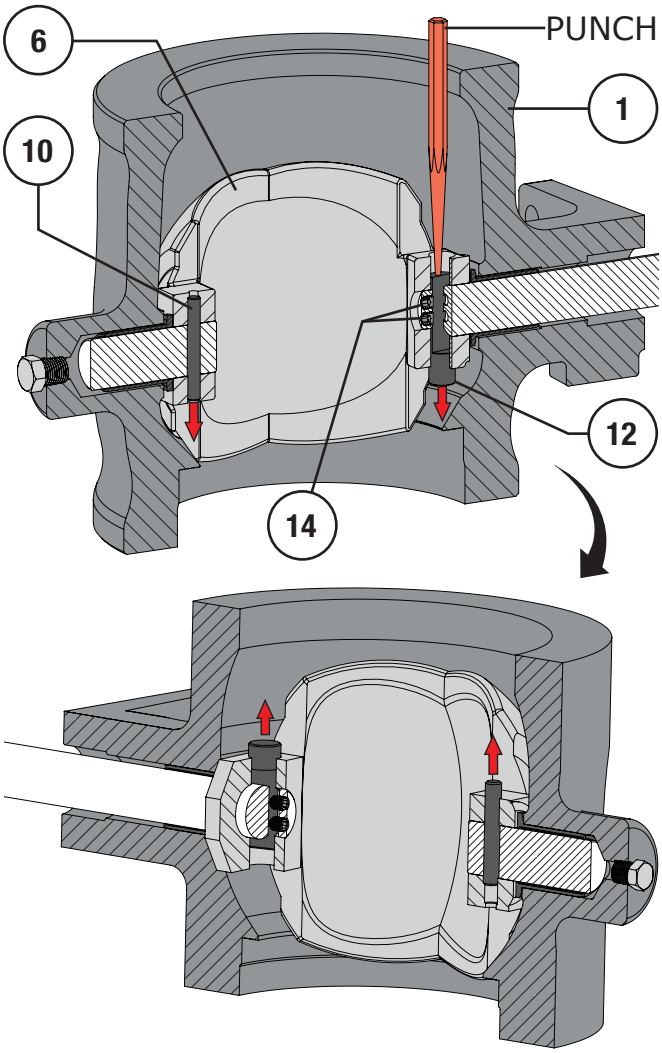


Figure 19 3 to 12" NPS Shaft Connection Disassembly

Disassembly (Continued)

Ball & Shaft Removal (Continued):

For 3 to 12" NPS (80 to 300 DN) Valves (Continued)**:**

6 Remove the drive shaft (Key 11) from the actuator side of the valve. Refer to Figure 20.

7 Remove the pipe plug (Key 38).

8 Support the ball (Key 6) and push the follower shaft (Key 9) towards the center of the ball. Refer to Figure 21.

9 Carefully remove the ball (Key 6) and follower shaft (Key 9) inside the valve body. Be very cautious not to damage the sealing surface of the ball. **NOTE:** Some obsolete 570 Series configurations used a thrust washer (Key 7 for 6" to 12" valves) glued in place on the drive-side (in-board) bearing (Key 3). Only remove if necessary, however it is recommended that bearings be replaced with new bearings. Consult your Dyna-Flo sales office for information on replacing obsolete bearings.

10 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

For 16 to 24" NPS (400 to 600 DN) Valves:

NOTE: 16 to 24" NPS valves use a combination of special shaft pins (Keys 10 & 13) held in place by shaft retainers (Key 15) to connect the shafts (Keys 9 & 11) to the ball (Key 6). Refer to Figures 25, 26, & 27.

1 Place the valve assembly inlet side down. **NOTE:** The valve ball (Key 6) can only be removed from the outlet side of the body (Key 1). Refer to **BEFORE YOU BEGIN** on Page 15 and Figure 15.

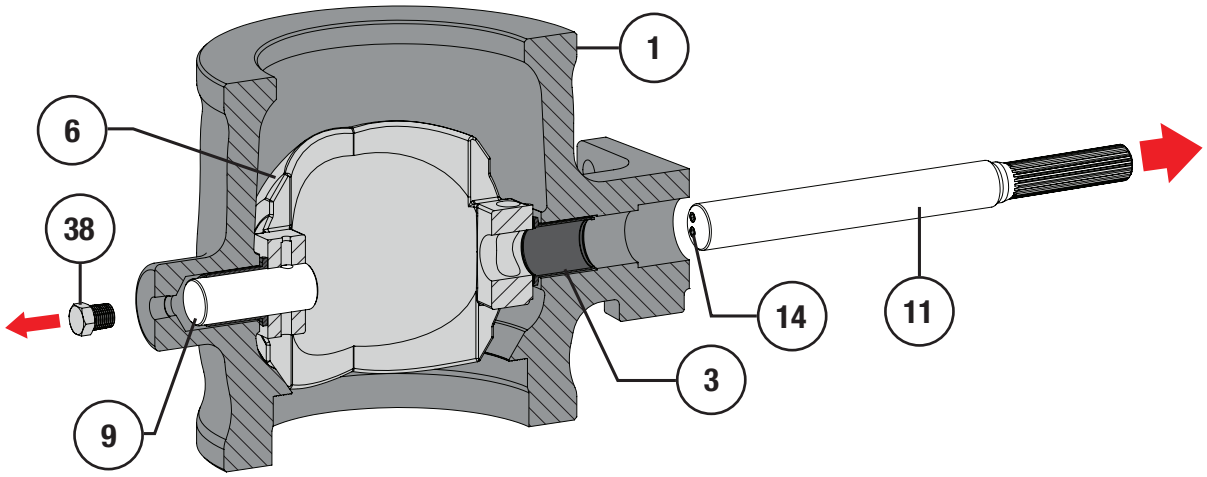


Figure 20 3 to 12" NPS (80 to 300 DN) Drive Shaft / Pipe Plug Removal

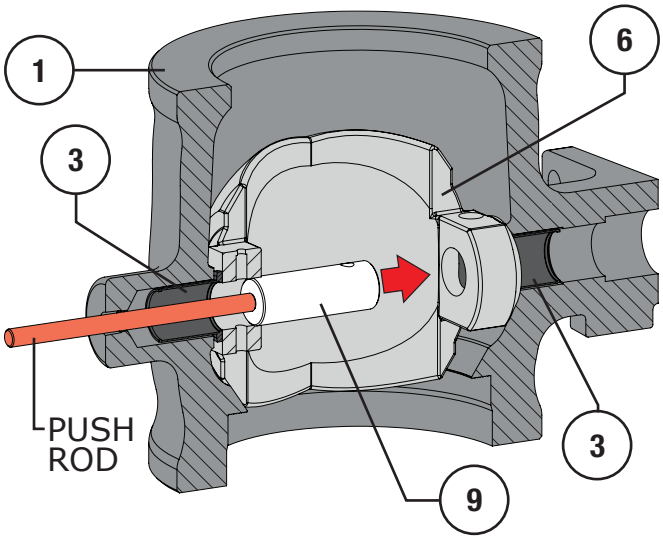


Figure 21 3 to 12" NPS Follower Shaft Removal

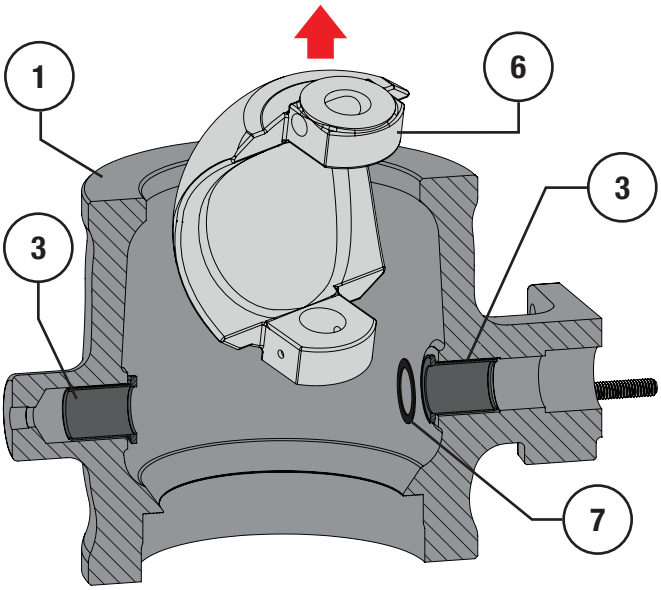


Figure 22 3 to 12" NPS Ball Removal

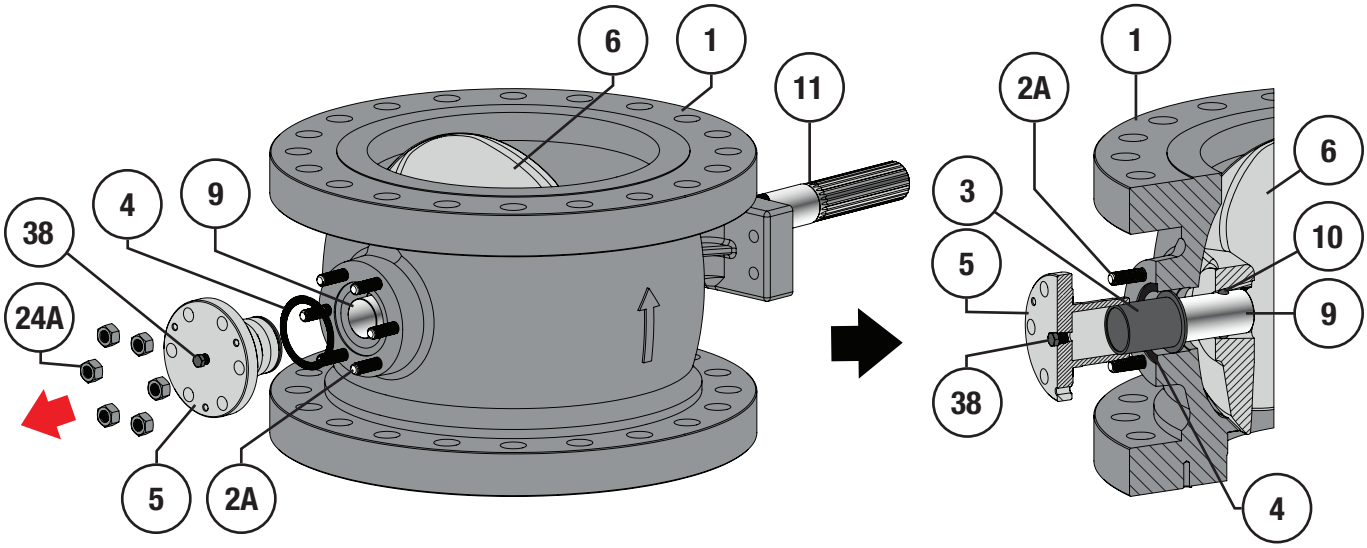


Figure 23 16 to 24" NPS (400 to 600 DN) Flange / Spiral Wound Gasket / Bearing Removal

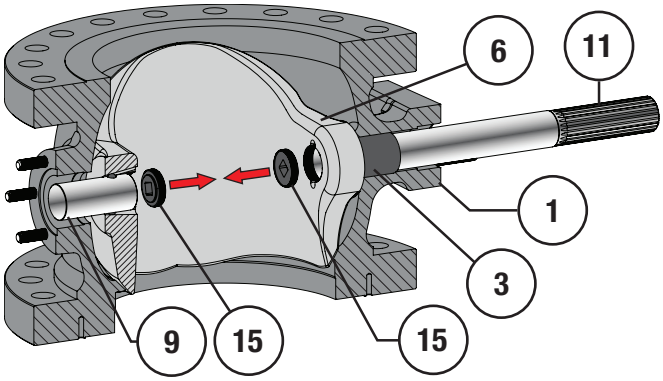


Figure 24 16 to 24" NPS Shaft Retainer Removal

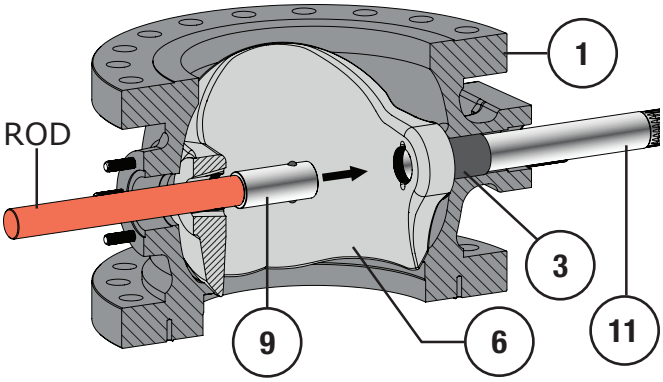


Figure 25 16 to 24" NPS Follower Shaft Removal

Disassembly (Continued)

Ball & Shaft Removal (Continued):

For 16 to 24” NPS (400 to 600 DN) Valves (Continued):

2 With the ball (Key 6) in the OPEN position support the ball so that it will not rotate.

NOTE: 16 to 24” NPS valve balls are equipped with a threaded hole for a lifting hook, refer to Figure 26. The valve ball may be supported using a properly rated lifting hook as long as the sling or lifting device does not interfere with disassembly.

- 16” NPS (400 DN) lifting holes are 1/2”-13 UNC
- 20” NPS (500 DN) lifting holes are 1/2”-13 UNC
- 24” NPS (600 DN) lifting holes are 5/8”-11 UNC

3 Remove the shaft retainers (Key 15). Refer to Figure 24.

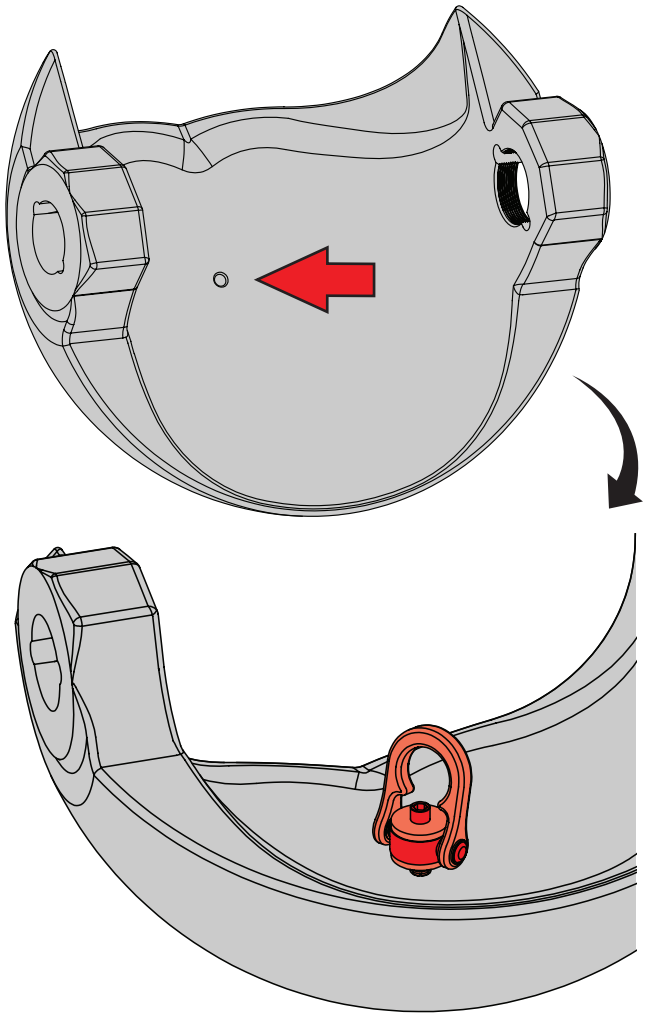


Figure 26 16 to 24” NPS Ball Lifting Hook Placement

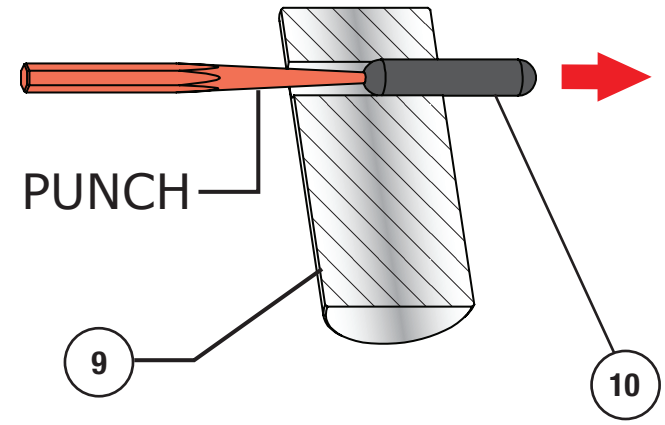


Figure 27 16 to 24” NPS Follower Shaft Pin Removal

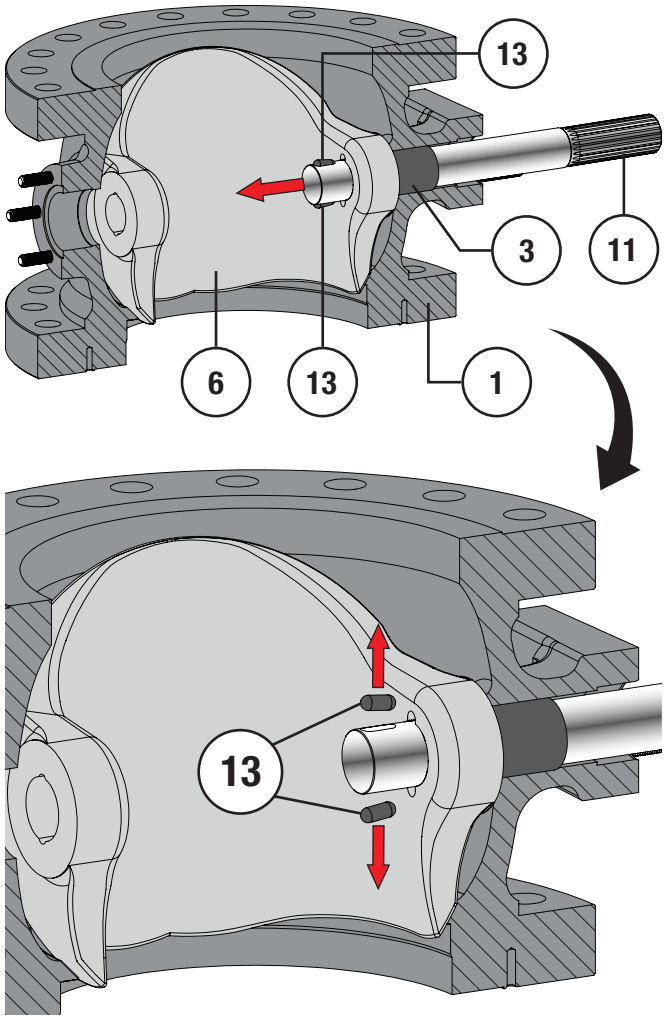


Figure 28 16 to 24” NPS Drive Shaft Pin Removal

Disassembly (Continued)

Ball & Shaft Removal (Continued):

For 16 to 24" NPS (400 to 600 DN) Valves (Continued):

4 Remove the nuts (Key 24A), flange (Key 5), and spiral wound gasket (Key 4). **NOTE:** The follower shaft bearing (Key 3) may come out along with the flange, or it may remain inside the bore of the valve body. It may be necessary to wiggle the drive shaft (Key 11) in order to remove the bearing or wait until the ball (Key 6) has been removed. Refer to Figure 23. Spiral wound gaskets cannot be reused.

6 Remove the follower shaft pin (Key 10) from the follower shaft (Key 9). Refer to Figure 27.

7 Continue to support the ball (Key 6). It is important to have a lifting device in place to prevent the ball from falling or being damaged while the drive shaft (Key 11) is being removed. Push the drive shaft back in to the valve body (Key 1) until the shaft pins (Key 13) can be removed. Refer to Figure 28.

NOTE: 16 to 24" NPS valve balls are equipped with a threaded hole for a lifting hook, refer to Figure 26. It is recommended that a properly rated lifting hook be threaded into the hole and used to lift the ball.

8 Remove the drive shaft (Key 11) from the actuator side of the valve (inboard side). Once the drive shaft has been removed, remove the ball from inside the valve body. Refer to Figure 29.

9 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary. Spiral wound gaskets (Key 4) can not be reused.

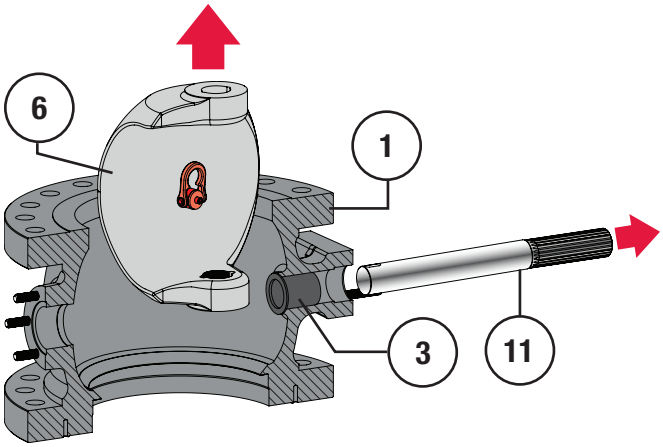


Figure 29 16 to 24" NPS Ball/Follower Shaft Removal

Bearing Removal:

NOTE: Inspect the bearings, remove the bearings only if they are damaged and require removal. If the bearings (Key 3) need to be replaced, be aware that Dyna-Flo bearing configurations have changed:

All bearing pairs are now the same size, there are no longer any configurations that utilize different sized inboard and outboard bearings. Thrust washers (Key 7) are also obsolete. If you have legacy inboard and outboard bearings of differing sizes, consult your Dyna-Flo Sales Office for replacement options.

Two-Piece Bearings:

Dyna-Flo has also implemented the use of an innovative two-piece bearing design, shown below (Figure 30). Two-piece bearings offer better fit and support during service, ensuring that bearings do not rotate with valve shafts. Two-piece bearings should be treated just like 1-piece bearings during valve disassembly.

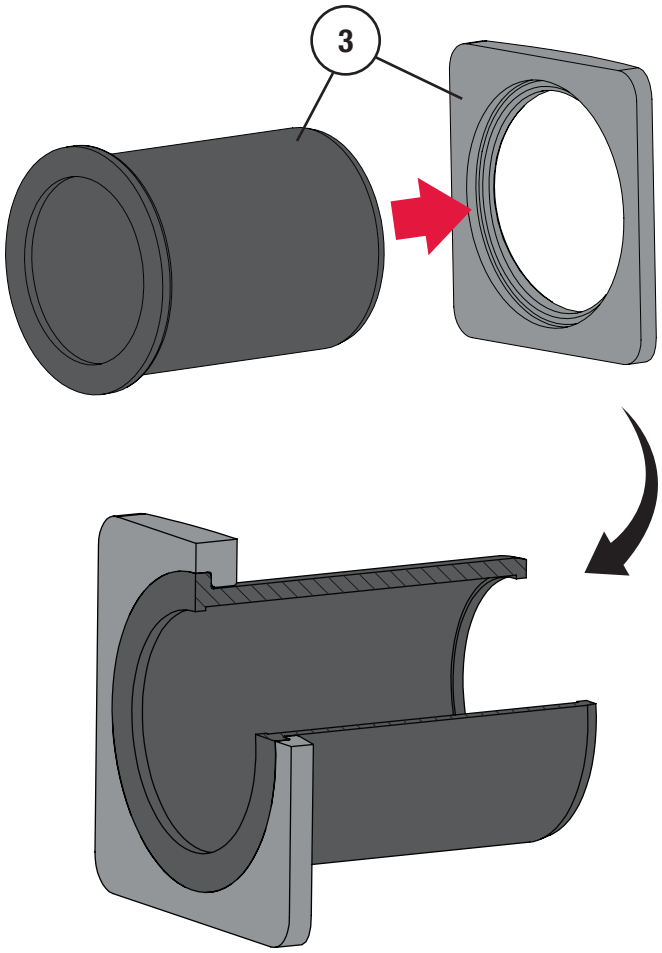


Figure 30 2-Piece Bearing Detail

Disassembly (Continued)

Bearing Removal (Continued):

For Old Style (Obsolete) Body 1 & 1-1/2" NPS (25 & 40 DN) Bearing Removal:

NOTE: Old style 1 & 1-1/2" NPS valves do not have a pipe plug (Key 38) at the follower shaft end (outboard side) of the valve body, bearings on this side of the valve will have to be pulled out.

1 Pull the outboard bearing (Key 3) from the follower shaft bore. Use a bearing puller if necessary. Refer to Figure 31.

2 Pull or drive the inboard bearing (Key 3) towards the center of the valve body (Key 1) and remove it. Refer to Figure 32.

3 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

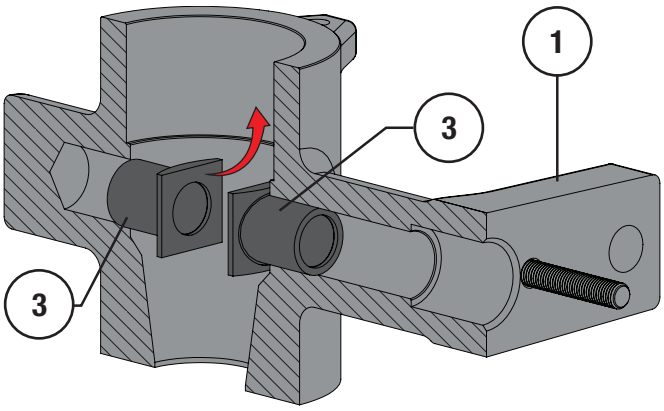


Figure 31 Old Style1 & 1-1/2" NPS Bearing Removal (Obsolete Valve Body Design)

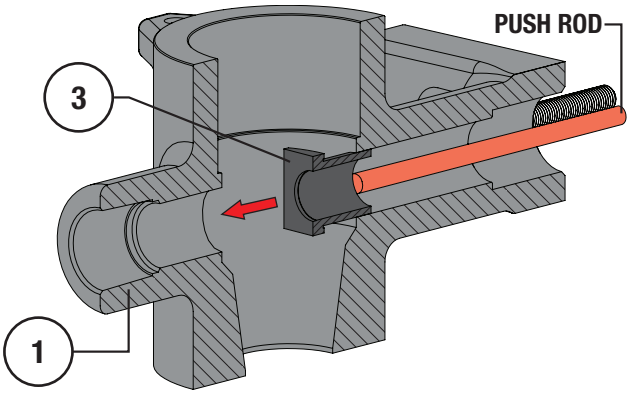


Figure 32 1 to 2" NPS Inboard Bearing Removal

For 1 to 12" NPS (25 to 300 DN) Valve Bearing Removal:

NOTE: 1 to 12" NPS valves have a pipe plug (Key 38) at the follower shaft end (outboard side) of the valve body, bearings on this side of the valve can be carefully pushed out using a rod.

1 Remove the pipe plug (Key 38) if it hasn't already been removed. If necessary, use a push rod that will fit through the opening left by the pipe plug and carefully push the outboard bearing (Key 3) towards the center of the valve body (Key 1). Remove the bearing. Refer to Figure 33.

2 Pull or drive the inboard bearing (Key 3) towards the center of the valve body (Key 1) and remove it. Refer to Figure 32.

3 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

For 16 to 24" NPS (400 to 600 DN) Valve Bearing Removal:

NOTE: Outboard bearings for a 16 to 24" NPS valves should have been removed along with the flange (Key 5). If the outboard bearing wasn't removed along with the flange, it can be removed by pulling or using a rod to drive it out.

1 Remove the outboard bearing (Key 3) if it hasn't already been removed. Use a rod to drive the bearing out of the flange (Key 5) if necessary. Refer to Figures 23 & 33.

2 Pull or drive the inboard bearing (Key 3) towards the center of the valve body (Key 1) and remove it. Refer to Figure 34.

3 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

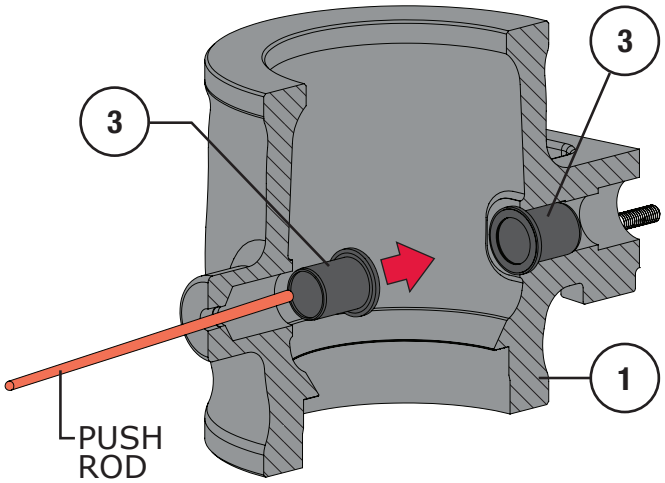


Figure 33 3 to 12" NPS Outboard Bearing Removal

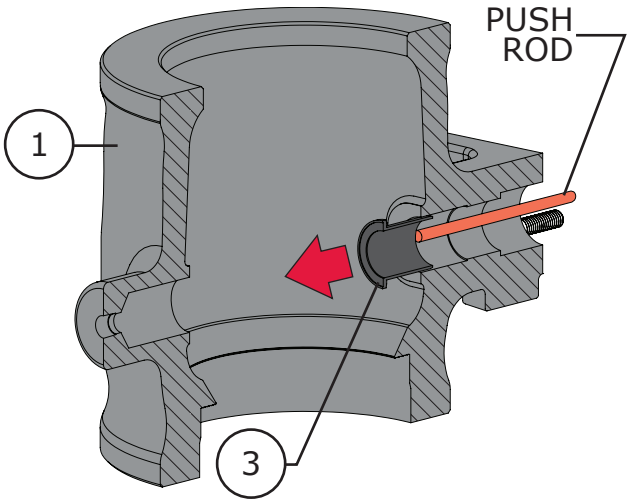


Figure 34 Inboard Bearing Removal

Assembly

⚠ WARNING

Before You Begin:

- Read the Warnings on Page 2.
- Clean and inspect all parts.
- Replace or repair damaged parts. Replace all soft parts (Seals, o-rings, gaskets).
- Always use properly rated studs (Key 2) and nuts (Key 28 approved by Dyna-Flo Control Valve Services with visible material grade identification marks. Service pressures can lead to excessive stress on material unapproved for use in this particular service, property damage or personal injury may result.
- Do not lubricated parts intended for use in oxygen service with Dow Corning Molykote® 5 or equivalent, as fire, explosion, property damage or personal injury may result.
- Place 1 to 4" NPS (25 to 100 DN) valves face up (inlet side up) on your work surface, valve balls (Key 6) for these small sizes can only be installed from the inlet side. All other sizes will need to be placed face down (inlet side down) on the work surface. It is recommended that these larger sized valves be placed on blocks that can support the weight of the valve assembly (as shown in Figure 15) to allow for unobstructed ball rotation. Always use caution and control the movement of the ball while moving the valve assembly, ball and shaft may rotate freely and cause damage or injury.

Special Tools Required:

- 3/16" Punch
- Pointed Center Punch
- For Old Style 1 & 1-1/2" NPS (25 & 40 DN) Valves Only - 5/16"-18 Threaded Rod
- Lifting Device (example: crane)
- Work surface that will support the assembled weight of the valve and actuator if applicable.

Lubricants Required:

- Permatex® Nickel Anti-Seize or equivalent (Key A)
- Dow Corning Molykote® 5 or equivalent (Key B)
- Lubriplate® No. 105 Grease or equivalent (Key C)
- Loctite® 565® or equivalent (Key D)
- PTFE Thread Tape (Key E)

Bearing Installation:

NOTE: If the bearings (Key 3) need to be replaced, be aware that Dyna-Flo bearing configurations have changed:

All bearing pairs are now the same size, there are no longer any configurations that utilize different sized inboard and outboard bearings. Thrust washers (Key 7) are also obsolete. If you have legacy inboard and outboard bearings of differing sizes, consult your Dyna-Flo Sales Office for replacement options.

Two-Piece Bearings for 6 to 12" NPS (150 to 300 DN Only): Dyna-Flo has also implemented the use of an innovative two-piece bearing design, shown below (Figure 35). Two-piece bearings offer better fit and support during service, ensuring that bearings do not rotate with valve shafts. Once together, two-piece bearings should be treated just like 1-piece bearings during valve assembly.

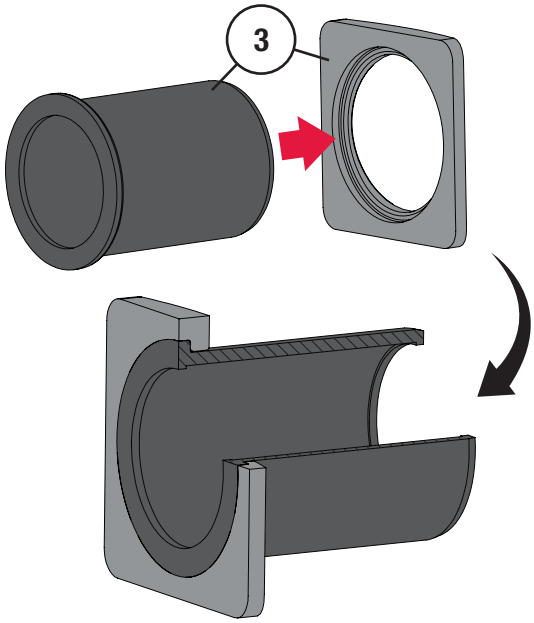


Figure 35 2-Piece Bearing Assembly Detail

Assembly (Continued)

Bearing Installation (Continued):

For 1 to 12” NPS (25 to 300 DN) Valves:

1 If the assembly uses two-piece bearings (Key 3), assemble them as shown in Figure 35.

2 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the outside surface of the bearings (Key 3). Refer to Figure 36.

3 Install the bearings (Key 3) as shown in Figure 37. The flange of the bearing should make contact with the valve body (Key 1).

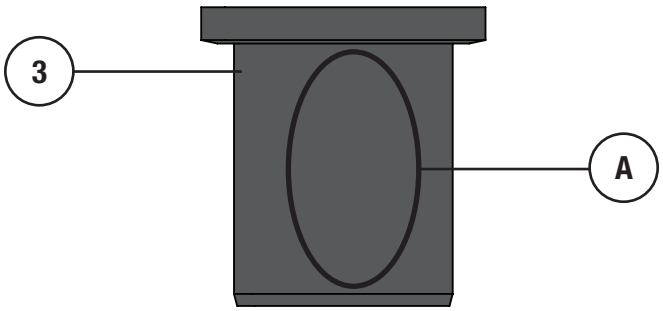


Figure 36 Anti-Seize Application to Bearing

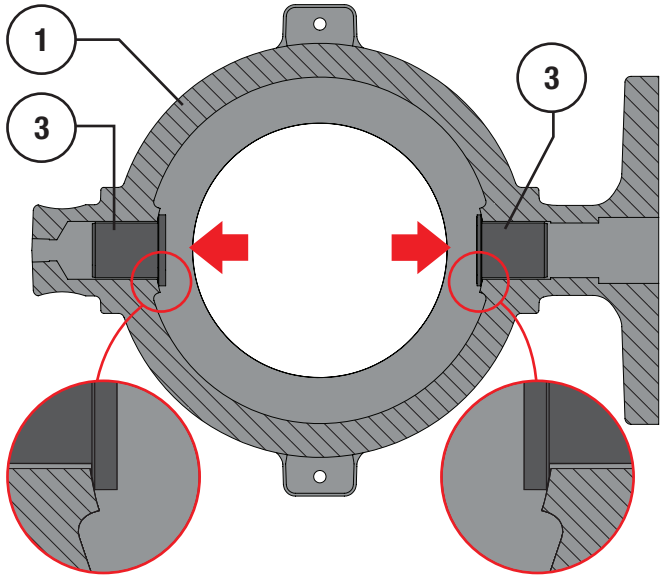


Figure 37 Bearing Placement in Valve Body

For 16 to 24” NPS (400 to 600 DN) Valves:

1 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the outside surface of the bearings (Key 3). Refer to Figure 36.

2 Install a bearing into the flange (Key 5) as shown in Figure 38.

3 Install a bearing (Key 3) in the inboard bore of the valve body (Key 1) as shown in Figure 37. The flange of the bearing should make contact with the valve body.

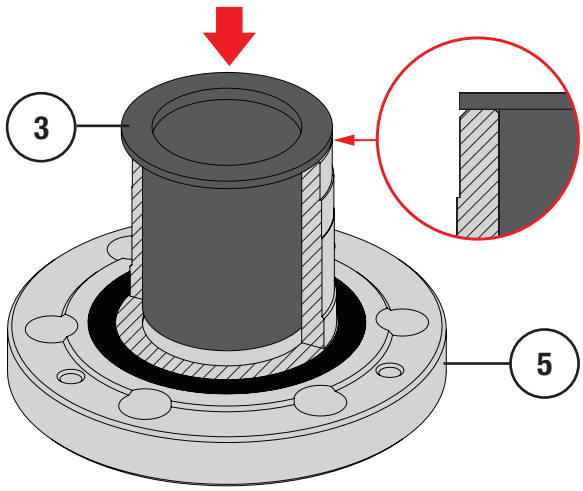


Figure 38 16 to 24” NPS (400 to 600 DN) Outboard Bearing Installation

Ball & Shaft Installation:

⚠ WARNING

Before You Begin:

- Refer to the valve nameplate (Key 42 in Figure 2), Figures 5 & 6 on Page 8, and Table 4 to determine the proper orientation of the valve ball (Key 6) in the body (Key 1).
- Dropping the ball (Key 6) could result in damage or injury. It is recommended that precautions be taken to properly support, lift or cradle the ball during installation. Size 16 to 24” NPS (400 to 600 DN) balls are equipped with a threaded hole for a lifting hook, refer to Figure 26. The valve ball may be supported using a properly rated lifting hook.

  16” NPS (400 DN) lifting holes are 1/2”-13 UNC

  20” NPS (500 DN) lifting holes are 1/2”-13 UNC

  24” NPS (600 DN) lifting holes are 5/8”-11 UNC

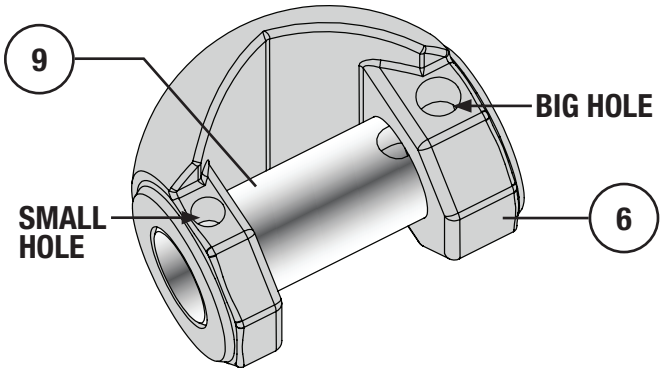


Figure 39 1 & 1-1/2" NPS Follower Shaft Installation

Assembly (Continued)

Ball & Shaft Installation (Continued):

For 1 & 1-1/2" NPS (25 & 40 DN) Valves:

1 Insert the follower shaft in the ball (Key 6) as shown in Figure 39.

2 Insert the ball/follower shaft assembly (Keys 6 & 9) in to the valve body (Key 1) and position the ball so that the follower shaft can be pushed in to the outboard bore of the valve body. Try to align the pin holes of the follower shaft and ball, DO NOT push the follower shaft too far into the bore. Refer to Figure 40.

3 Rotate the ball (Key 6) to find the larger side of the follower shaft pin hole, install the follower shaft connection pin (Key 10) through the ball and follower shaft.

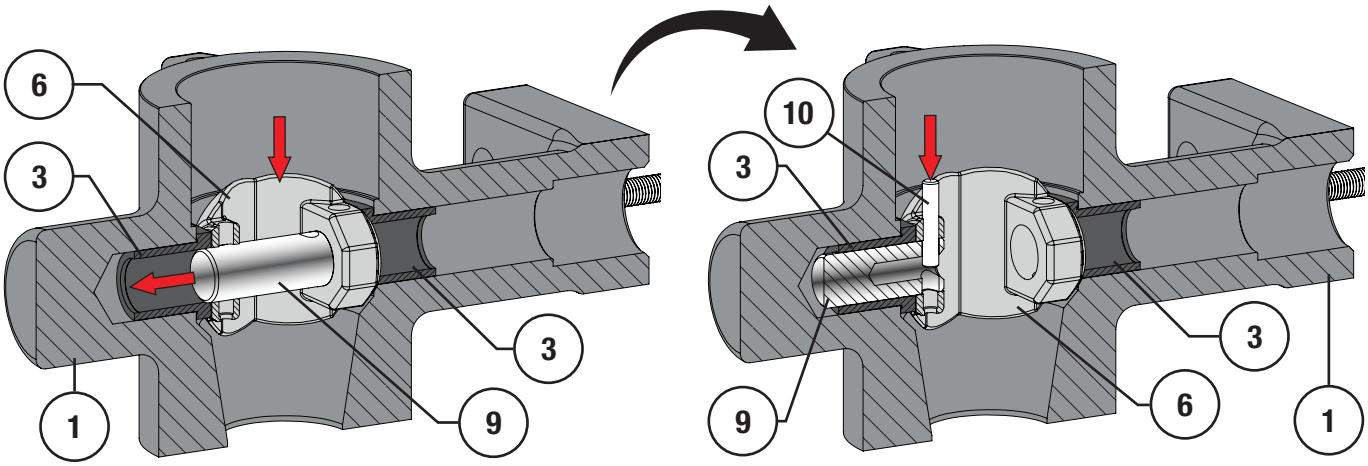


Figure 40 1 to 2" NPS Ball / Follower Shaft Installation (Obsolete Valve Body Style Shown)

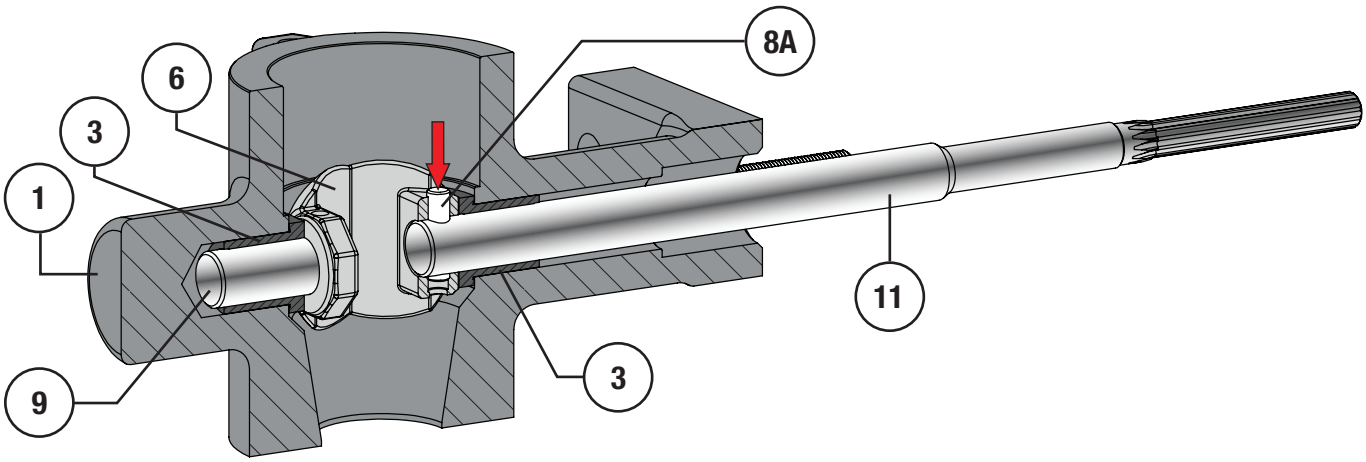


Figure 41 1 to 2" NPS Drive Shaft Installation (Obsolete Valve Body Design Shown)

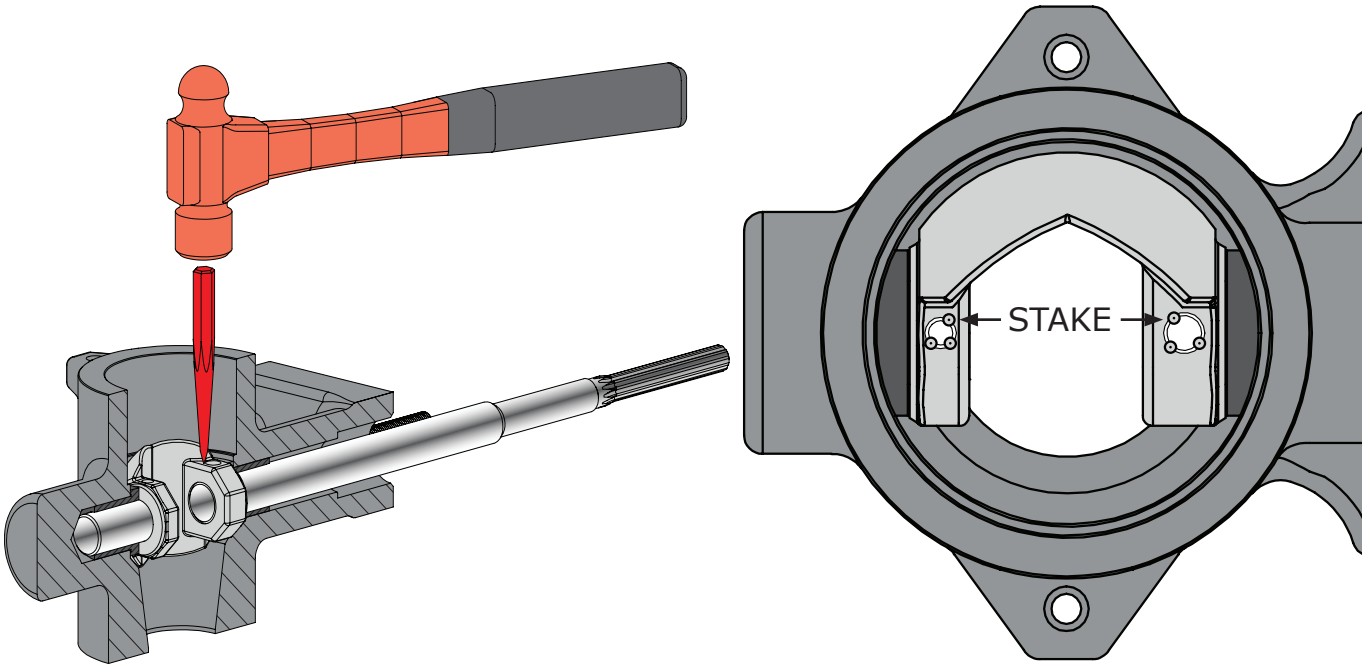


Figure 42 1 to 2" NPS Shaft Connection Pin Stake Locations (2" NPS valves are staked on opposite sides of the ball from each other)

Figure 43 1 to 2" NPS Shaft Connection Stake Example

Assembly (Continued)

Ball & Shaft Installation (Continued):

For 1 & 1-1/2" NPS (25 & 40 DN) Valves (Continued):

4 Insert the drive shaft in to the body (Key 1) through the inboard bore as shown in Figure 41. Align any locator marks made to the drive shaft and ball during disassembly or refer to Pages 41 and 42 for proper ball-to-shaft orientation.

5 Align the pin holes of the ball (Key 6) and drive shaft (Key 11). Install the shaft connection pin (Key 8A), refer to Figure 41.

6 Using a pointed center punch, stake the ears of the ball (Key 6) over the shaft connection pins (Keys 8A & 10) to secure them in place. Refer to Figures 42 and 43.

7 Proceed to the **Packing Installation** instructions on Page 31.

For 1 to 12" NPS (25 to 300 DN) Valves:

NOTE: For 6 & 8" NPS (150 & 200 DN) valves, the pipe plug hole is too small for the follower shaft (Key 9). Unlike the method described in Step 1, the follower shaft will need to be inserted through the outboard ear of the ball (Key 6) after the ball has been installed. Refer to Figure 46.

1 Insert the follower shaft in to the body (Key 1) through the pipe plug hole as shown in Figure 44. The follower shaft should sit inside the outboard bearing (Key 3) ready to be pushed into the outboard ear of the ball (Key 6).

2 Use caution and insert the ball (Key 6) in to the valve body (Key 1). Align the follower shaft ear with the outboard bore of the valve body. Refer to Figures 45, 46 & 47.

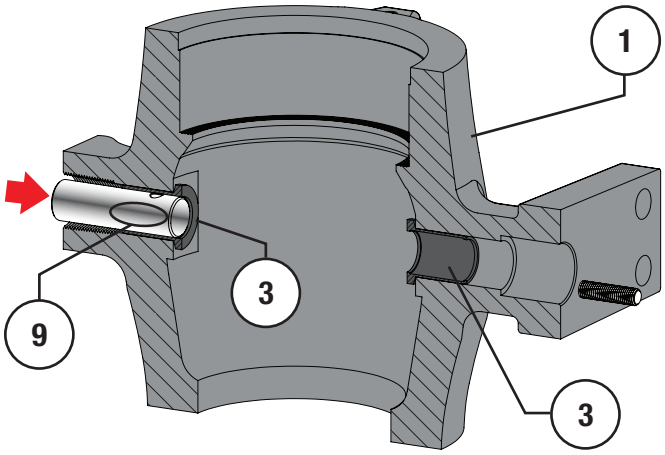


Figure 44 1 to 4, 10 & 12" NPS Follower Shaft Installation

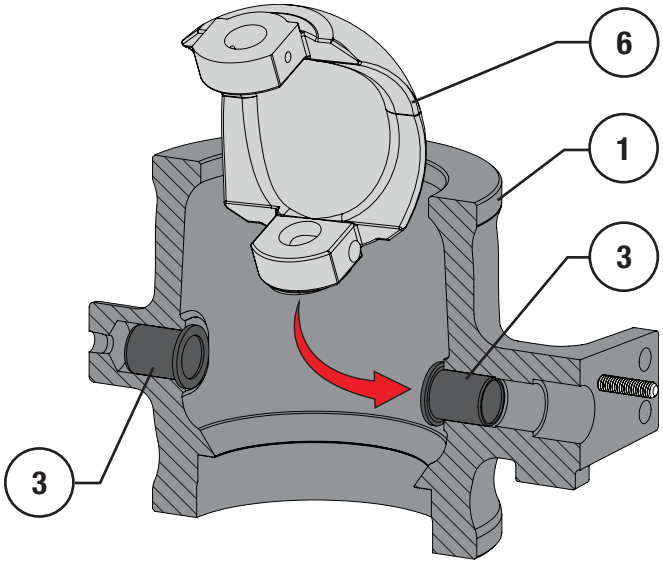


Figure 45 2 to 12" NPS Valve Ball Installation

Assembly (Continued)

Ball & Shaft Installation (Continued):

For 1 to 12" NPS (25 to 300 DN) Valves (Continued):

3 Push the follower shaft (Key 9) in to the ear of the ball (Key 6) and align the pin holes. Install the follower shaft connection pin (Key 10). Refer to Figures 44 & 47 for valve sizes 2, 3, 4, 10, & 12" NPS (50, 80, 100, 250 & 300 DN). Refer to Figure 46 for valve sizes 6 & 8" NPS (150 & 200 DN).

4 Insert the drive shaft in to the body (Key 1) through the inboard bore as shown in Figures 41 or 48. Align any locator marks made to the drive shaft and ball during disassembly or refer to Pages 41 & 42 for proper ball/shaft orientation.

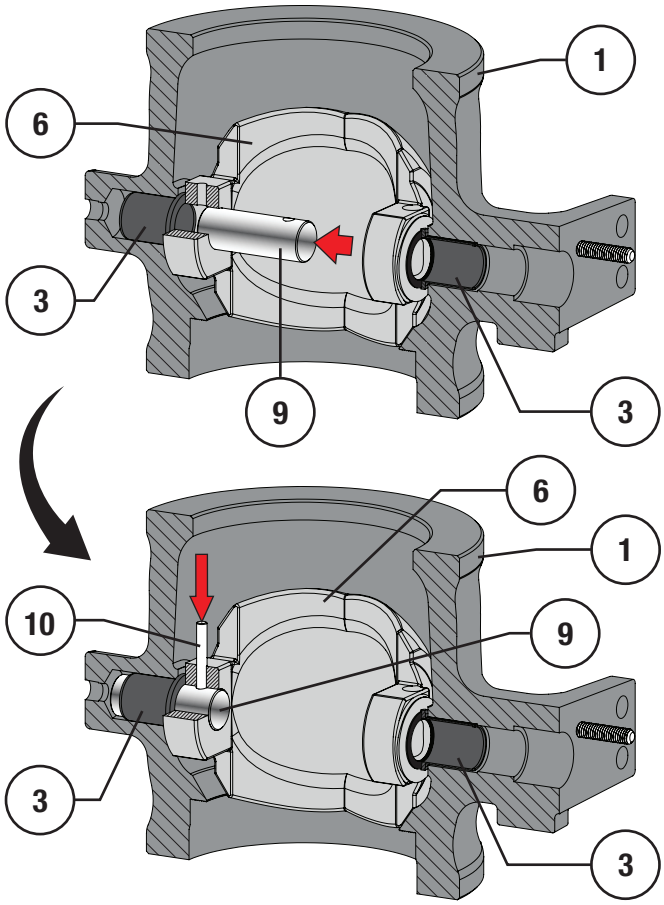


Figure 46 6 & 8" NPS Follower Shaft & Pin Installation

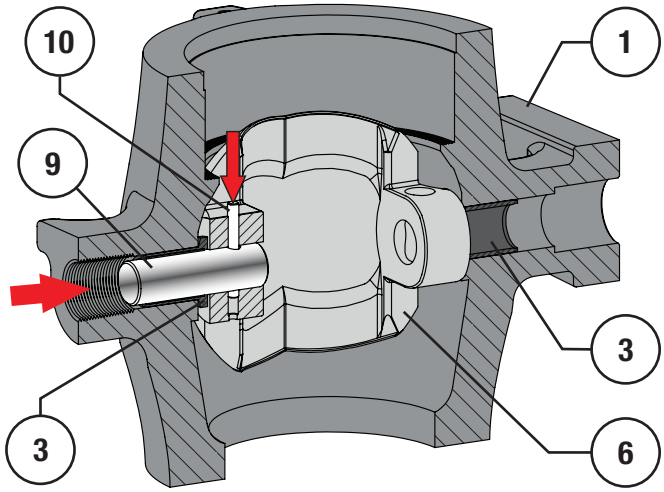


Figure 47 2, 3, 4, 10 & 12" NPS Follower Pin Installation

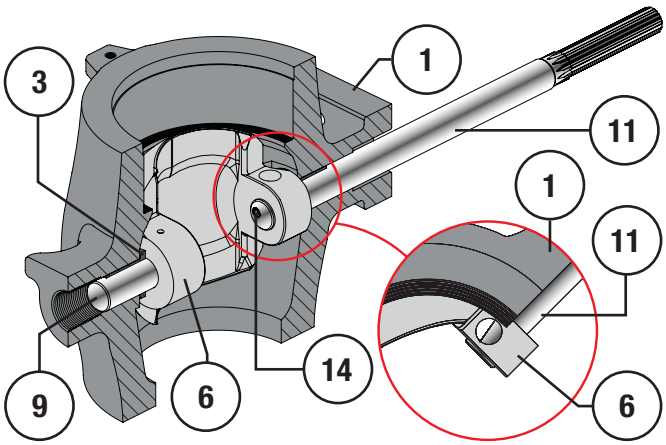


Figure 48 3 to 12" NPS Drive Shaft Installation

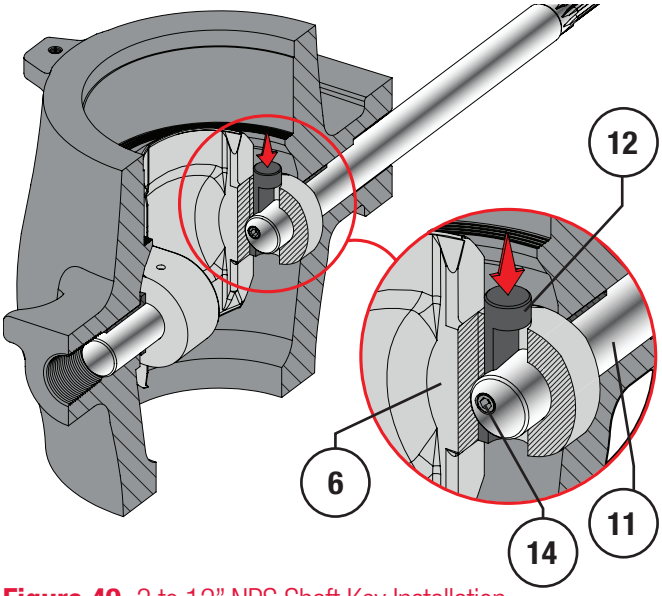


Figure 49 3 to 12" NPS Shaft Key Installation

Assembly (Continued)

Ball & Shaft Installation (Continued):

For 1 to 12" NPS (25 to 300 DN) Valves (Continued):

5 Install the shaft key (Key 12, for 3 to 12" NPS valves) or shaft connection pin (Key 8A, for 1 to 2" NPS valves) as shown. Refer to Figures 41 or 48 & 49. **NOTE:** The ball-to-drive shaft connection is factory set and should not need to be reset after disassembly, but if the ball/drive shaft connection is loose after staking the shaft key, or this is a new assembly, refer to the **Drive Shaft Connection** instructions on Pages 41 & 42.

6 Using a pointed center punch, stake the ears of the ball (Key 6) over the shaft connection pins (Keys 8A & 10) and/or shaft key (Key 12) to secure them in place. Refer to Figures 42 & 43.

7 Proceed to the **Packing Installation** instructions on Page 31.

For 16 to 24" NPS (400 to 600 DN) Valves:

1 Insert the drive shaft (Key 11) in to the valve body (Key 1) through the inboard bore a shown in Figure 50. The drive shaft should sit inside the bearing (Key 3) ready to be pushed in to the inboard ear of the ball (Key 6).

2 Be mindful of the orientation of the ball in relation to its leading edge and ball rotation, then carefully lift and lower the ball (Key 6) in to the valve body (Key 1). **NOTE:** Use caution when installing a valve ball. 16 to 24" NPS valve balls are equipped with a threaded hole for a lifting hook, refer to Figure 26. The valve ball may be supported using a properly rated lifting hook using this threaded hole.

- 16" NPS (400 DN) lifting holes are 1/2"-13 UNC
- 20" NPS (500 DN) lifting holes are 1/2"-13 UNC
- 24" NPS (600 DN) lifting holes are 5/8"-11 UNC

3 Continue to support the ball and align the shaft hole of the inboard ear with the inboard shaft bore of the valve body. Push the drive shaft (Key 11) in to the ear of the ball and rotate the drive shaft to align with any reference marks that were made prior to disassembly. Refer to Figures 51 & 54.

4 Install the follower shaft (Key 9) by inserting it through the flange hole of the valve body (Key 1) and push it in to the ear of the ball (Key 6). Refer to Figure 52.

5 Push both shafts (Keys 9 & 11) through the ears of the ball towards the center of the ball so that the pin hole / pin grooves are clearly visible on both shafts. Refer to Figure 52.

6 Install the pins (Keys 10 & 13) and push the shafts back in to the ears of the balls so that the pins catch in place. Refer to Figures 52 & 55.

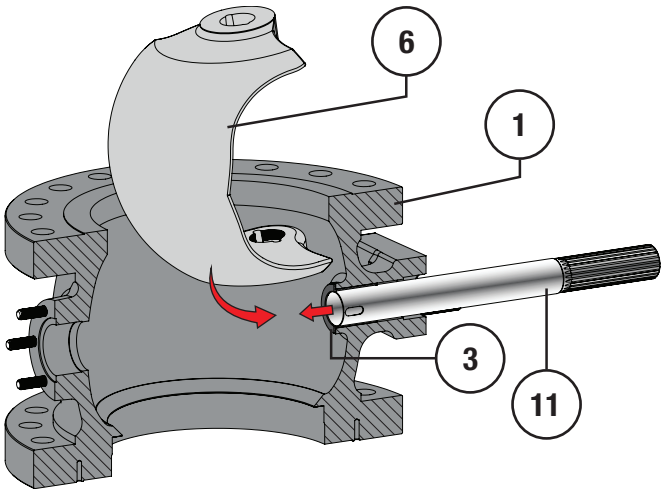


Figure 50 16 to 24" NPS Drive Shaft / Ball Installation

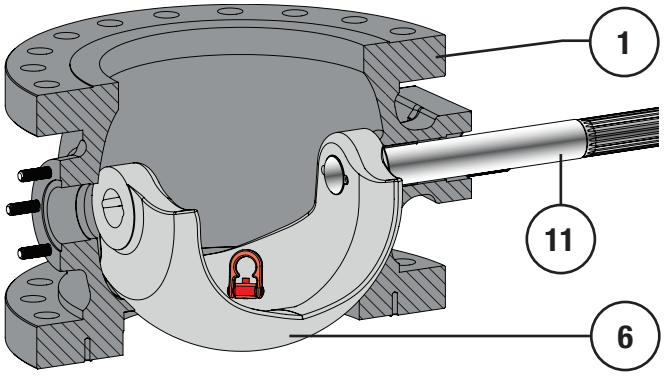


Figure 51 16 to 24" NPS Drive Shaft / Ball Installation (Step 2)

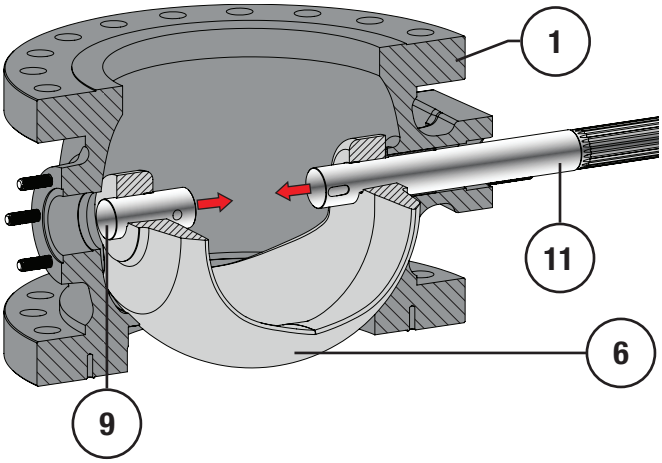


Figure 52 16 to 24" NPS Ball / Shaft Installation (Step 6)

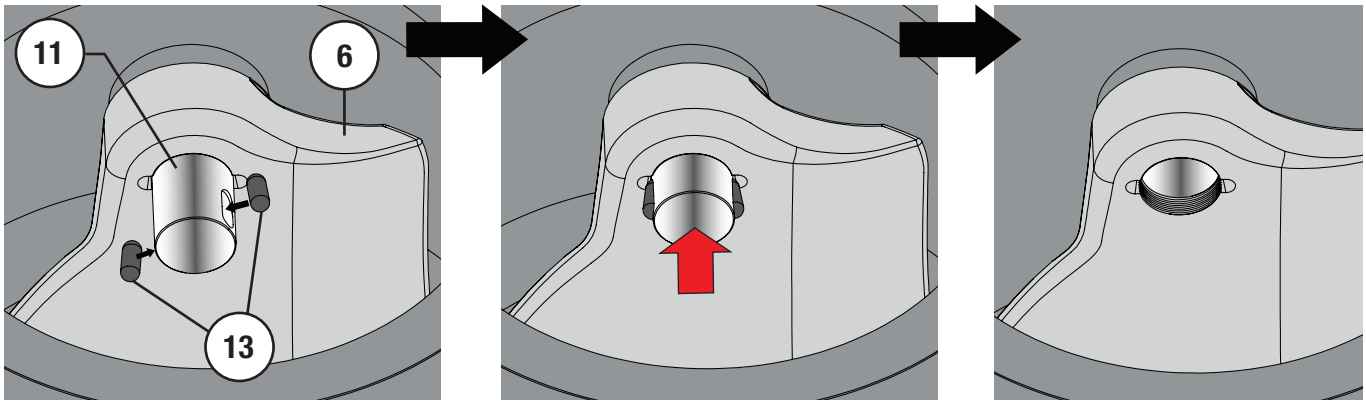


Figure 53 16 to 24" NPS Drive Shaft Pins Installation Sequence

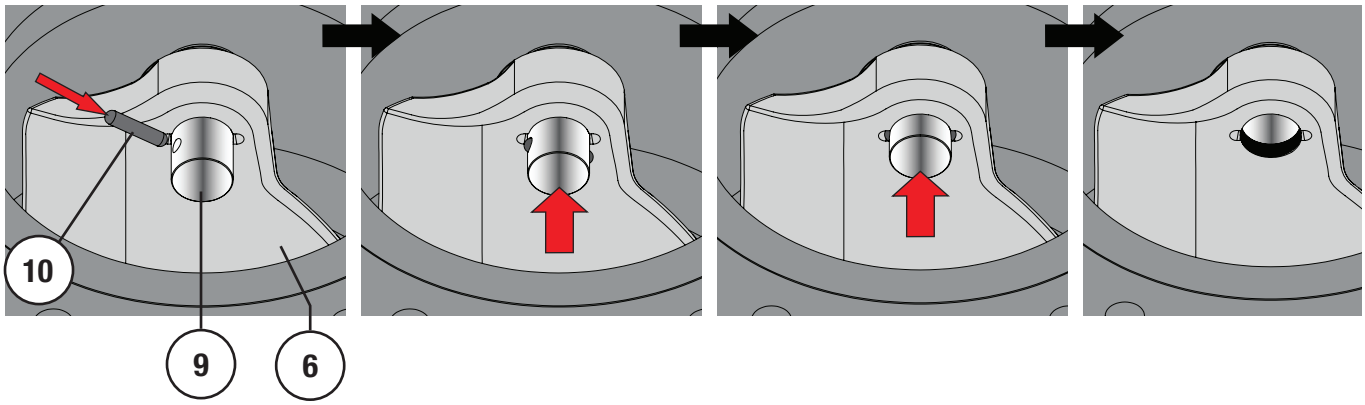


Figure 54 16 to 24" NPS Follower Shaft Pin Installation Sequence

Assembly (Continued)

Ball & Shaft Installation (Continued):

For 16 to 24" NPS (400 to 600 DN) Valves (Continued):

7 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the threads of the shaft retainers (Key 15) and thread them in to the ball (Key 6) hand tight. Refer to Figure 55.

8 If the flange studs (Key 2) need to be installed, apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the threads at the end of the flange studs without a material mark and thread them into the valve body. The material mark on the end of the flange stud should be visible.

9 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the spiral wound gasket (Key 4) and set it in to the groove in the valve body (Key 1) over the outboard bore. **NOTE:** Spiral wound gaskets make their seal by being crushed and cannot be reused. Refer to Figure 56.

10 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the threads of the flange studs (Key 2) and thread the nuts (Key 24) on to the studs hand tight. Check to verify that the flange (Key 5) is in contact with the spiral wound gasket (Key 4) and that the ball/shafts are able to rotate freely.

11 Using the appropriate alternating pattern, torque the flange nuts (Key 24A) to 104 lbf-ft. (141 N•m). Refer to Figure 56.

12 Torque the shaft retainers (Key 15) to 90 lbf-ft. (122 N•m). It will be necessary to stake the lip of the recessed portion of the shaft retainers to keep them in place, the deformed portion of the shaft retainer lip should catch on the pin hole of the ball (Key 6) ear (refer to Figure 57). Use caution and stake using a pointed center punch.

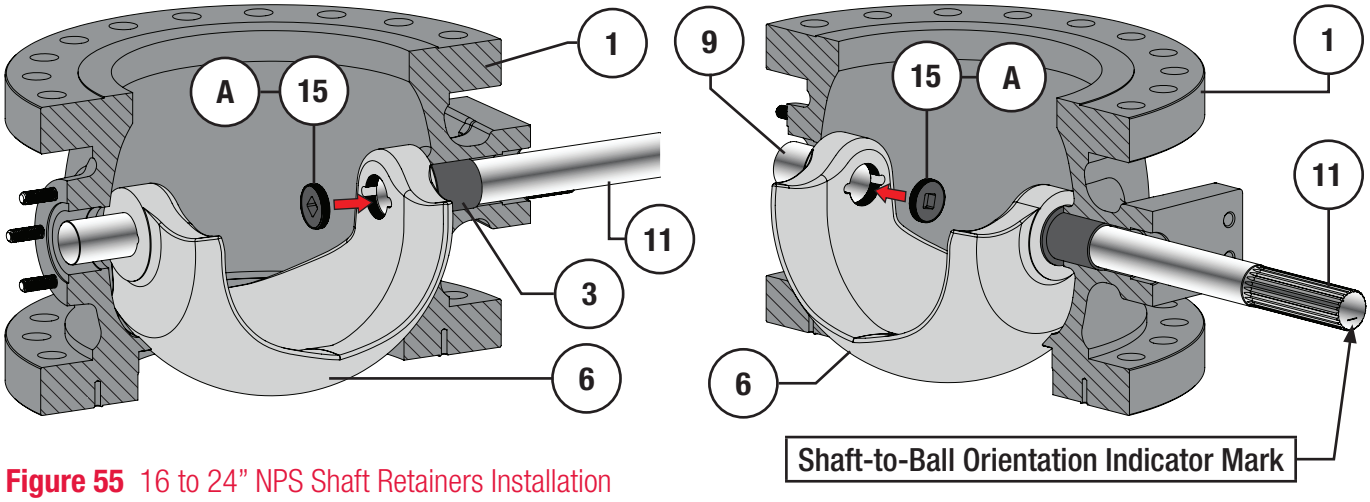


Figure 55 16 to 24" NPS Shaft Retainers Installation

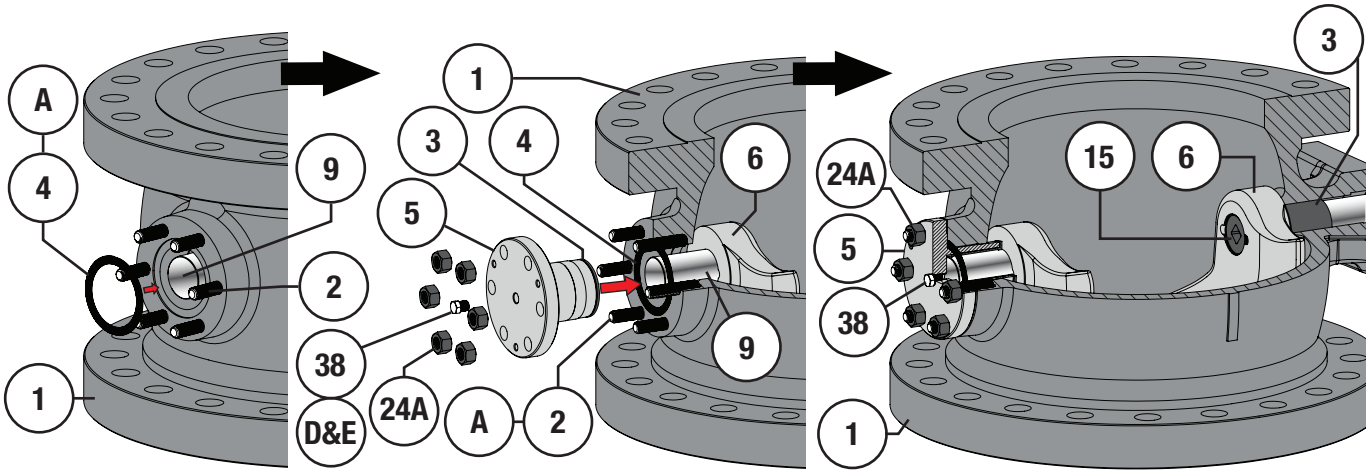


Figure 56 16 to 24" NPS Spiral Wound Gasket and Flange Assembly Installation Sequence

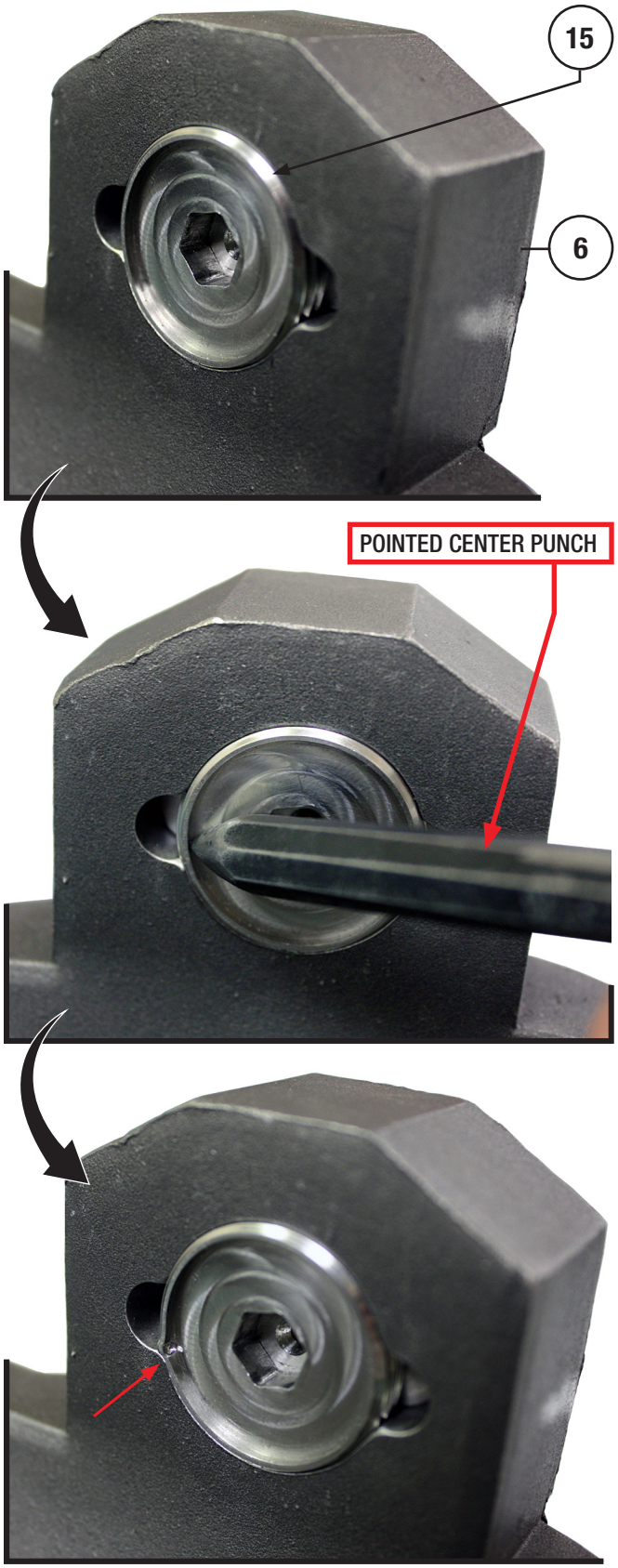


Figure 57 16 to 24" NPS Shaft Retainer Stake Detail

Assembly (Continued)

Packing Installation:

⚠ WARNING

- Do not lubricated packing intended for use in oxygen service. Fire, explosion, property damage or personal injury may result from applying Molykote® 5 or any other lubrication to packing that will be installed into oxygen service.
- Always use properly rated studs (Key 2) and nuts (Key 24) approved by Dyna-Flo Control Valves with visible material grade identification marks. Service pressures can lead to excessive stress on material unapproved for use in the desired service, property damage or personal injury may result.
- Prevent trapping air between packing during installation by installing packing one ring at a time using the packing follower (Key 20) to push the packing rings in place. Do not force packing rings below the chamfer of the packing bore before adding another ring, packing rings should only be pushed down the thickness of the added ring. Refer to Figure 58.
- Position of the ball/shaft assembly (Keys 6 & 11) while tightening the packing is extremely important. Pull the valve ball (Key 6) as tight as possible to the inboard bearing (Key 3) while tightening the packing. The inboard ear of the ball should be touching the inboard bearing after the packing has been tightened. Refer to Figure 59. Failure to properly center the valve ball could result in ball seal leakage once the valve is in service.

1 If the packing studs (Key 2) were replaced, removed, or never installed, apply Permatex® Nickel Anti-Seize (Key A) to the threads of the end of the stud without a material stamp.

2 Thread the studs (Key 2) into the valve body (Key 1) anti-seize coated end first until they are completely threaded into the body.

For Standard PTFE Packing:

1 Slide the packing box ring (Key 16) over the valve shaft (Key 11) and down into the packing bore. Use the packing follower (Key 20) to push the packing box ring down past the chamfer of the packing box bore as described above.

2 Apply Molykote® 5 (Key B) to the PTFE packing rings (Key 17) unless the valve is intended for oxygen service. Install the packing rings one ring at a time (as described in the **WARNING** above) in the proper order and orientation as shown in Figure 60.

3 Install the packing follower (Key 20). **NOTE:** 16 to 24" NPS (400 to 600 DN) valves utilize a two-piece packing follower (Key 20) and packing flange (Key 20A), refer to Figure 79.

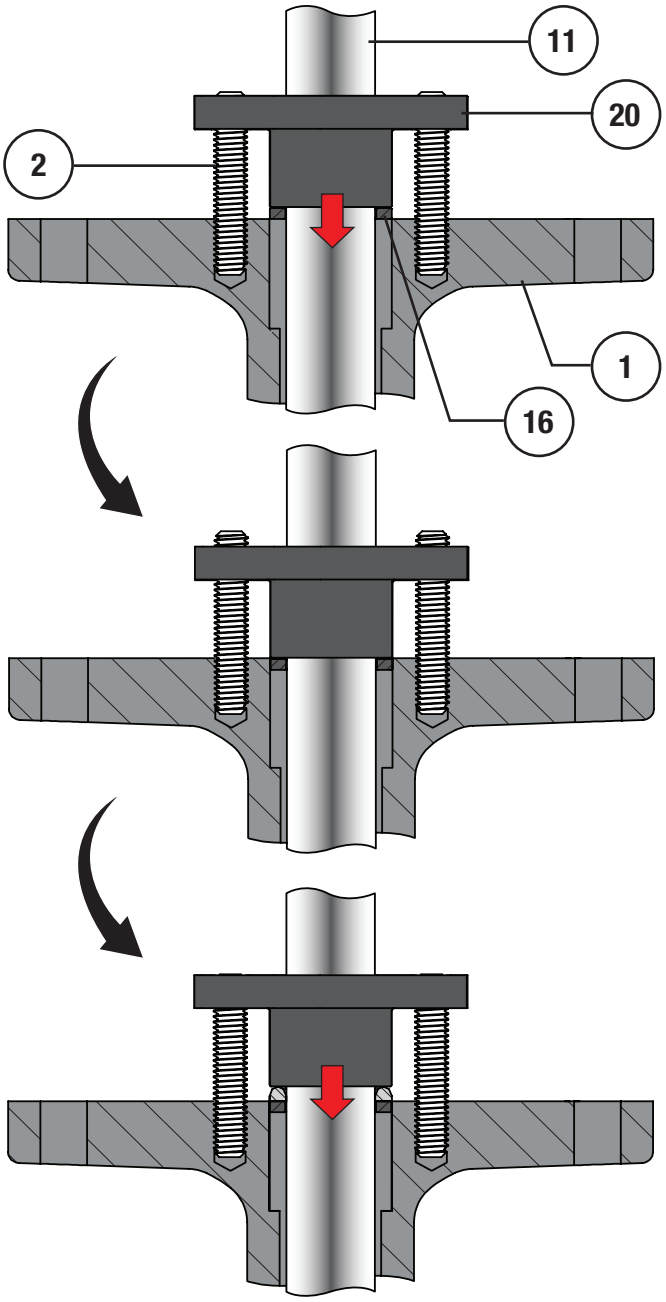


Figure 58 Packing Ring Installation Detail

Assembly (Continued)

Packing Installation (Continued):

For Standard PTFE Packing (Continued):

4 Pull, pry or tap the ball/shaft assembly (Keys 6 & 11) towards the inboard bearing (Key 3 on the packing side of the valve) until the ear of the ball touches the bearing, refer to Figure 59. Hold the ball in this position, or, move the ball back into this position as the packing is tightened. Tightening the packing will push the ball/shaft assembly back towards the outboard side of the valve.

5 Apply Permatex® Nickel Anti-Seize (Key A) to the threads of the packing studs (Key 2). Thread the packing nuts (Key 20) onto the packing studs and tighten them evenly in an alternating pattern until the packing follower is secured. The packing nuts should be tightened enough to stop leakage under operating conditions.

For Standard Graphite Packing:

1 Slide the packing box ring (Key 16) over the valve shaft (Key 11) and down into the packing bore. Use the packing follower (Key 20) to push the packing box ring down past the chamfer of the packing box bore as described in the **WARNING** on Page 31.

2 Install the packing rings one ring at a time in the proper order and orientation as shown in Figure 60.

3 Install the packing follower (Key 20). **NOTE:** 16 to 24" NPS (400 to 600 DN) valves utilize a two-piece packing follower (Key 20) and packing flange (Key 20A), refer to Figure 79.

4 Pull, pry or tap the ball/shaft assembly (Keys 6 & 11) towards the inboard bearing (Key 3 on the packing side of the valve) until the ear of the ball touches the bearing, refer to Figure 59. Hold the ball in this position, or, move the ball back into this position as the packing is tightened. Tightening the packing will push the ball/shaft assembly back towards the outboard side of the valve.

5 Apply Permatex® Nickel Anti-Seize (Key A) to the threads of the packing studs (Key 2). Thread the packing nuts (Key 24) onto the packing studs and tighten them evenly in an alternating pattern until the packing follower is secured. The packing nuts should be tightened enough to stop leakage under operating conditions.

For PTFE Live-Loaded Packing:

1 Slide the packing box ring (Key 16) over the valve shaft (Key 11) and down into the packing bore. Use the packing follower (Key 20) to push the packing box ring down past the chamfer of the packing box bore as described in the **WARNING** on Page 31.

2 Install the anti-extrusion ring (Key 19). **NOTE:** Live-Loaded Packing is not lubricated, do not apply Molykote® 5 to packing parts.

3 Install the PTFE packing rings (Key 17) one ring at a time in the proper order and orientation as shown in Figure 61.

4 Install the other anti-extrusion ring (Key 19).

5 Install the spring washers (Key 21) onto the packing follower (Key 20) in the order and orientation shown in Figure 63. Secure the spring washers in place using the packing flange o-ring (Key 22).

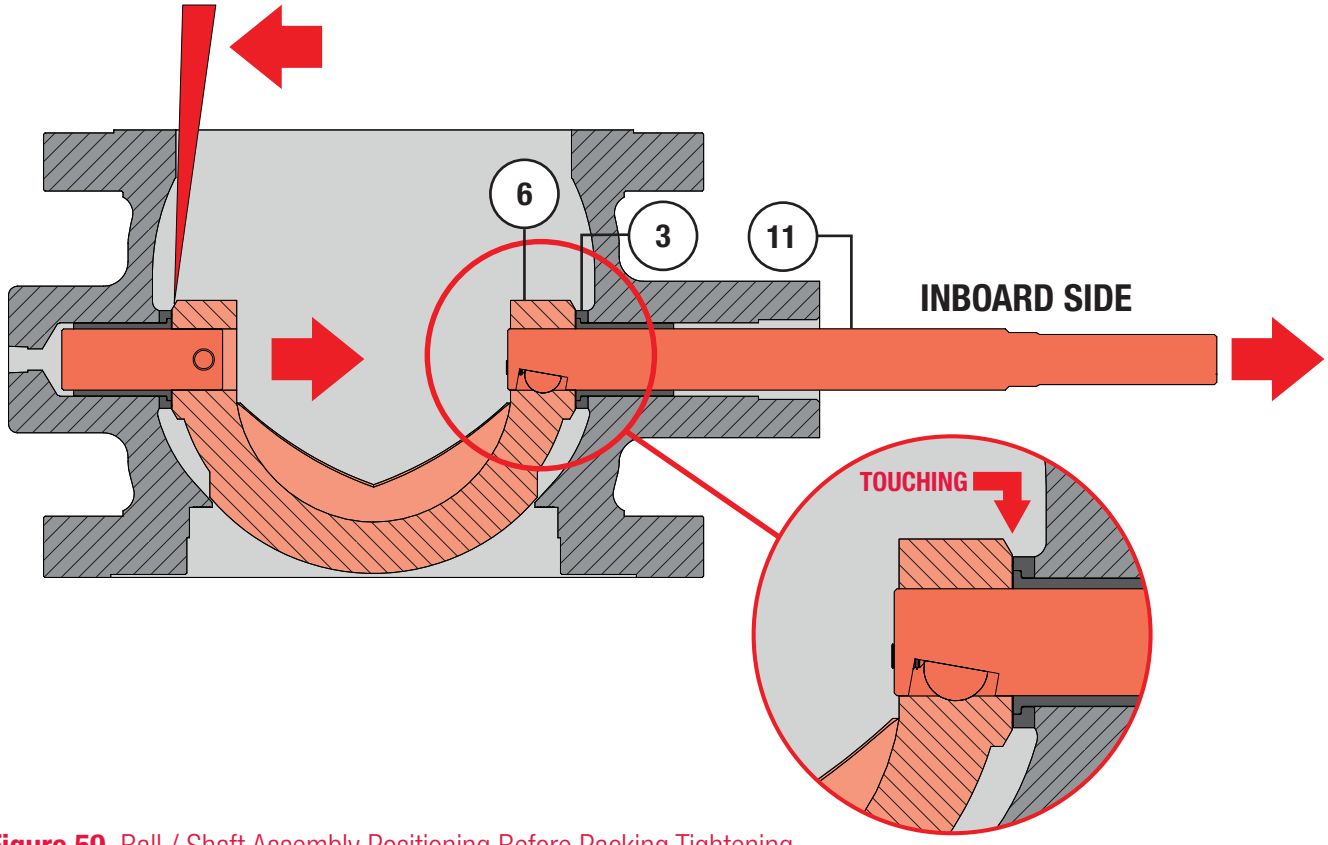


Figure 59 Ball / Shaft Assembly Positioning Before Packing Tightening

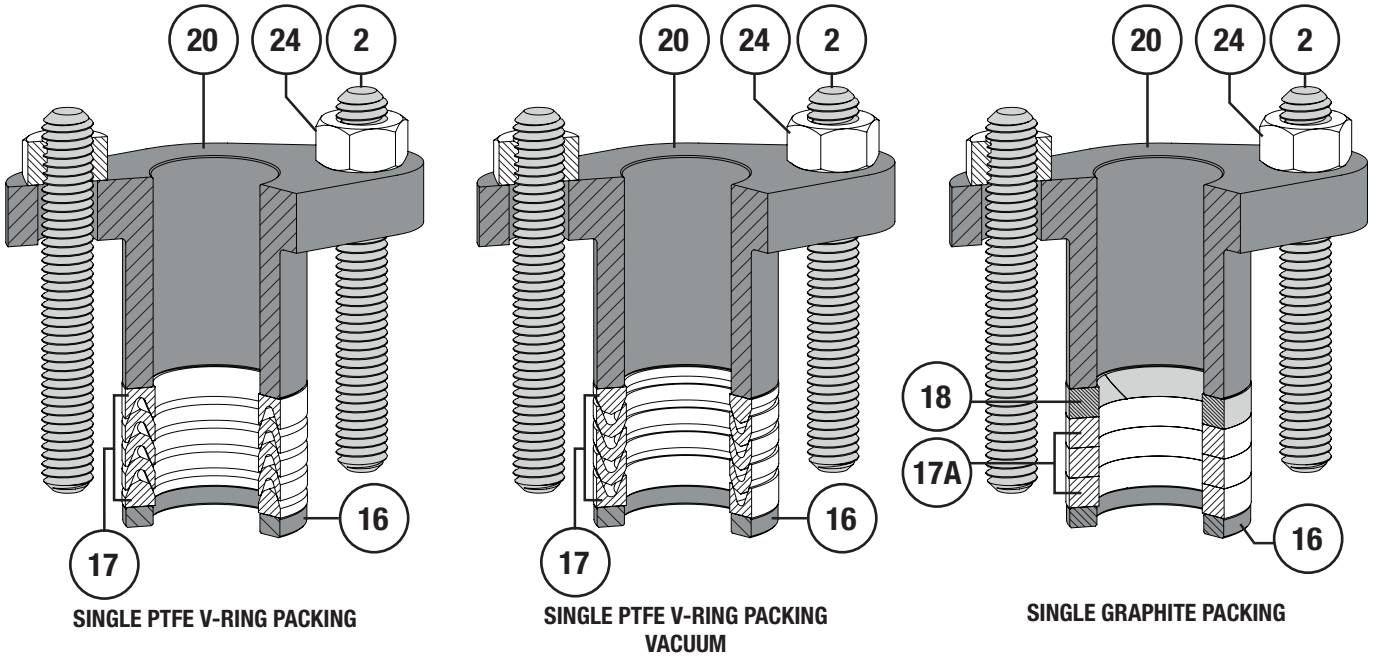


Figure 60 Standard Packing Configuration Diagrams

Assembly (Continued)

Packing Installation (Continued):

For PTFE Live-Loaded Packing (Continued):

6 Install the packing follower assembly (Keys 20, 21, & 22).

7 Install the live-loaded packing flange (Key 23).

8 Pull, pry or tap the ball/shaft assembly (Keys 6 & 11) towards the inboard bearing (Key 3 on the packing side of the valve) until the ear of the ball touches the bearing, refer to Figure 59. Hold the ball in this position, or, move the ball back into this position as the packing is tightened. Tightening the packing will push the ball/shaft assembly back towards the outboard side of the valve.

9 Apply Permatex® Nickel Anti-Seize (Key A) to the threads of the packing studs (Key 2). Thread the packing nuts (Key 24) onto the packing studs and tighten them evenly in an alternating pattern (keeping the packing flange (Key 23) level while tightening) until the spring washers (Key 21) are completely compressed. Once washers are completely compressed, loosen each packing nut a half turn (180 degrees).

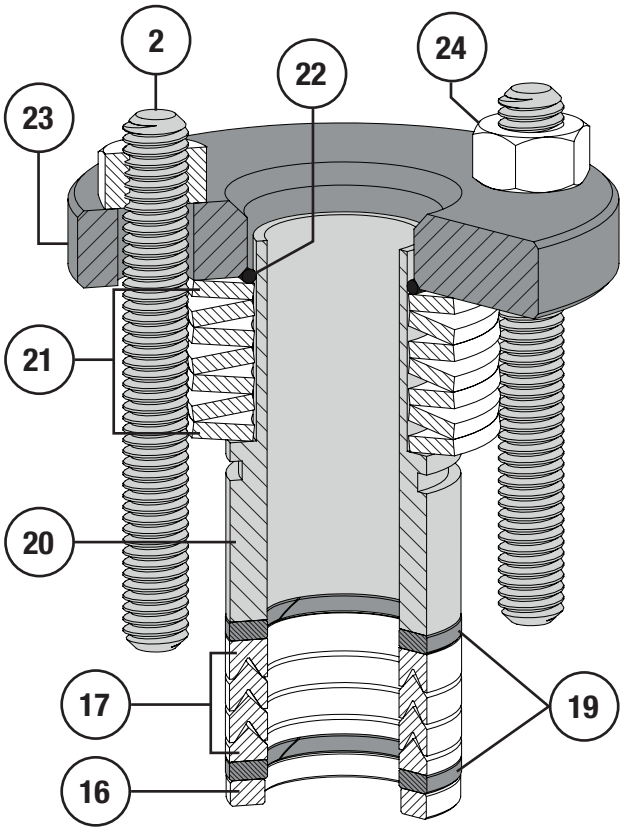


Figure 61 Live-Loaded PTFE Packing Ring Installation Detail (Refer to Figure 63 for Spring Washer (Key 21) Arrangements

For Graphite Live-Loaded Packing:

1 Slide the packing box ring (Key 16) over the valve shaft (Key 11) and down into the packing bore. Use the packing follower (Key 20) to push the packing box ring down past the chamfer of the packing box bore as described in the **WARNING** on Page 31.

2 Install the graphite packing rings (Keys 17A & 18) one ring at a time in the proper order and orientation as shown in Figure 62.

3 Install the spring washers (Key 21) onto the packing follower (Key 20) in the order and orientation shown in Figure 64. Secure the spring washers in place using the packing flange o-ring (Key 22).

4 Install the packing follower assembly (Keys 20, 21, & 22).

5 Install the live-loaded packing flange (Key 23).

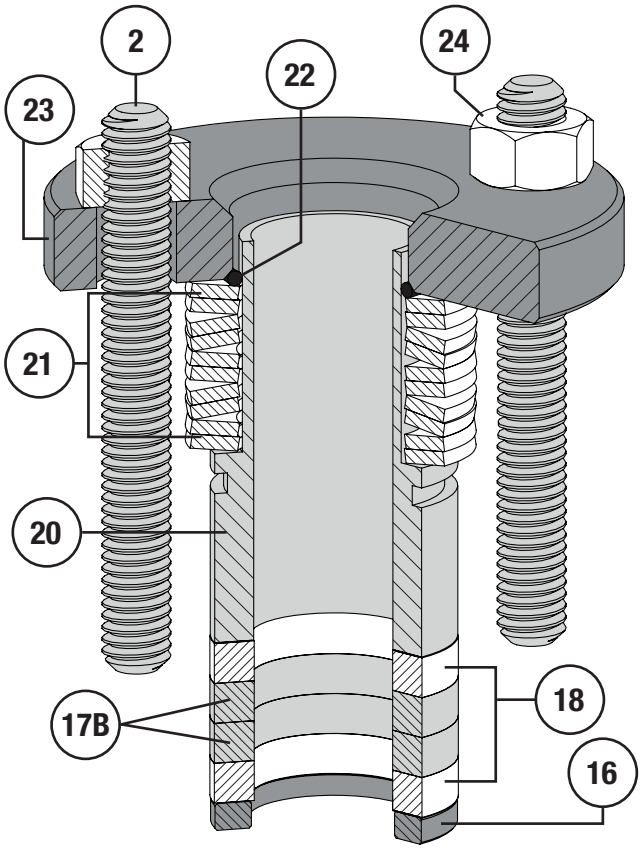


Figure 62 Live-Loaded Graphite Packing Ring Installation Detail (Refer to Figures 62 for Spring Washer (Key 21) Arrangements

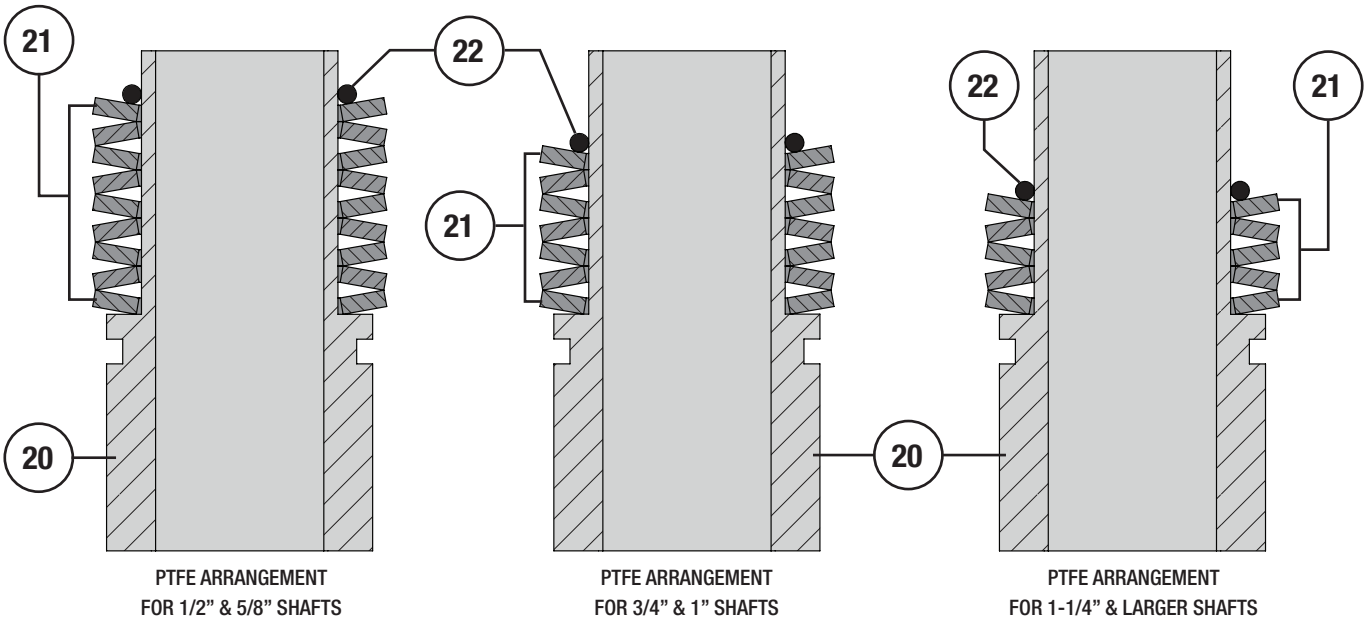


Figure 63 Live-Loaded PTFE Spring Washer Arrangements

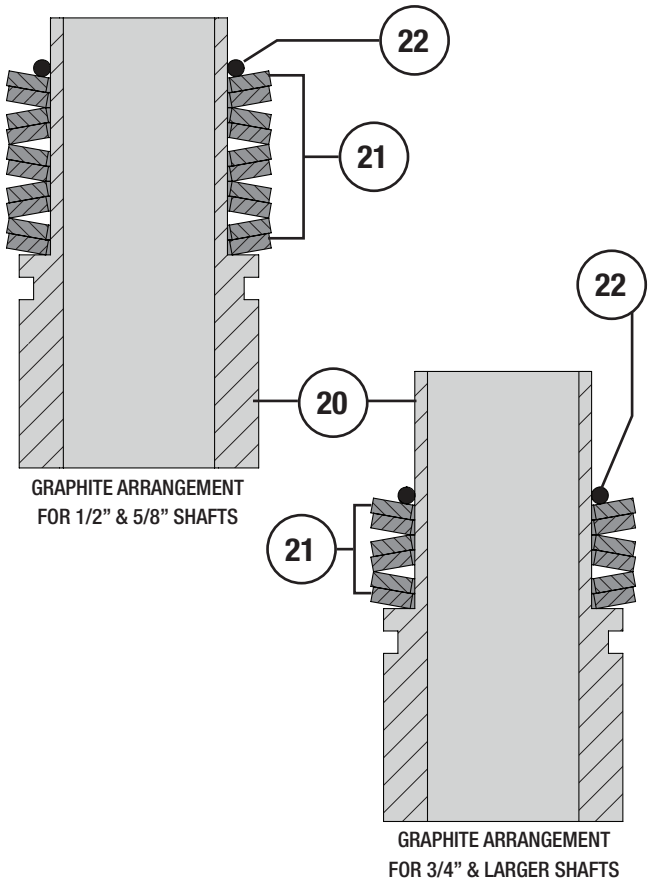


Figure 64 Live-Loaded Graphite Spring Washer Arrangements

Assembly (Continued)

Packing Installation (Continued):

For Graphite Live-Loaded Packing (Continued):

6 Pull, pry or tap the ball/shaft assembly (Keys 6 & 11) towards the inboard bearing (Key 3 on the packing side of the valve) until the ear of the ball touches the bearing, refer to Figure 59. Hold the ball in this position, or, move the ball back into this position as the packing is tightened. Tightening the packing will push the ball/shaft assembly back towards the outboard side of the valve.

7 Apply Permatex® Nickel Anti-Seize (Key A) to the threads of the packing studs (Key 2). Thread the packing nuts (Key 24) onto the packing studs and tighten them evenly in an alternating pattern (keeping the packing flange (Key 23) level while tightening) until the spring washers (Key 21) are completely compressed. Once washers are completely compressed, loosen each packing nut a quarter turn (90 degrees).

Assembly (Continued)

Ball Seal Installation:

⚠ WARNING

- Read the Warnings on Page 2.
- Replace or repair damaged parts. Replace all soft parts (Seals, o-rings, gaskets).
- The following instructions assume that the actuator was removed from the valve assembly. It is not however a requirement to have the actuator removed from the valve in order to service the ball seal (Key 26) if changing the ball seal is part of the **Ball Seal Maintenance** instructions.
- Place valves face up (inlet side up) on your work surface. Valve balls (Key 6) should be placed in to the **CLOSED** position. Use caution and control the movement of the ball while moving the valve assembly, ball and shaft may rotate freely and cause damage or injury. Ensure that the ball will not rotate again randomly once placed in the closed position.
- It is important that the back edge of the ball (Key 6) not be rotated across the ball seal (Key 26) once it has been installed. It is also not recommended to open the valve more than 100% open once the ball seal has been installed.
- Position of the ball/shaft assembly (Keys 6 & 11) is extremely important when installing the ball seal. The valve ball should have been properly centered during **Packing Installation**. When installing the ball seal, if on visual inspection the ball is off-center or the inboard ear of the ball is not touching the inboard bearing (Key 3, refer to Figure 59), it may be necessary to loosen the packing and re-center the ball. Pull, pry or tap the ball/shaft assembly until the ear of the ball touches the bearing. Failure to properly center the valve ball could result in ball seal leakage once the valve is in service.

For Composition Ball Seals:

1 Rotate the ball (Key 6) to the **CLOSED** position. **CAUTION:** The ball must remain in the closed position while installing the ball seal (Key 26). It is important that the front or back edge of the valve ball not be rotated out of the ball seal once it has been installed (more than 100% **OPEN** or less than **CLOSED**), moving the ball out of the ball seal could damage the seal.

2 Install the backup ring (Key 25), for 1 to 2" NPS (25 to 50 DN) valves only. Refer to Figure 65.

3 Install the ball seal (Key 26) and center it.

4 Install the gasket (Key 30).

5 Carefully install the seal protector ring (Key 31). **NOTE:** 16 to 24" NPS (400 to 600 DN) seal protector rings have threaded holes, it may be necessary to install lifting hooks into the seal protector ring to safely lift and lower it in to position.

6 **For 1 to 8" NPS (25 to 200 DN) 570 Valves:**

A Install the seal protector clips (Key 33) and thread the seal protector screws (Key 35) through the clips and in to the valve body (Key 1). Refer to Figure 67.

B Completely tighten the seal protector screws (Key 35) evenly in an alternating pattern.

For 1 to 12" NPS (25 to 300 DN) 571/573 Valves:

A Install the seal protector washers (Key 34) and thread the seal protector screws (Key 36) through the washers and in to the valve body (Key 1). Refer to Figure 67.

B Completely tighten the seal protector screws (Key 36) evenly in an alternating pattern.

For 16 to 24" NPS (400 to 600 DN) 571/573 Valves:

A Make sure the cap screw holes of the seal protector ring (Key 31) are aligned with the holes in the valve body (Key 1). Refer to Figure 67.

B Install the seal protector cap screws (Key 37) in to the seal protector ring (Key 31) and tighten them in an alternating pattern until completely tight.

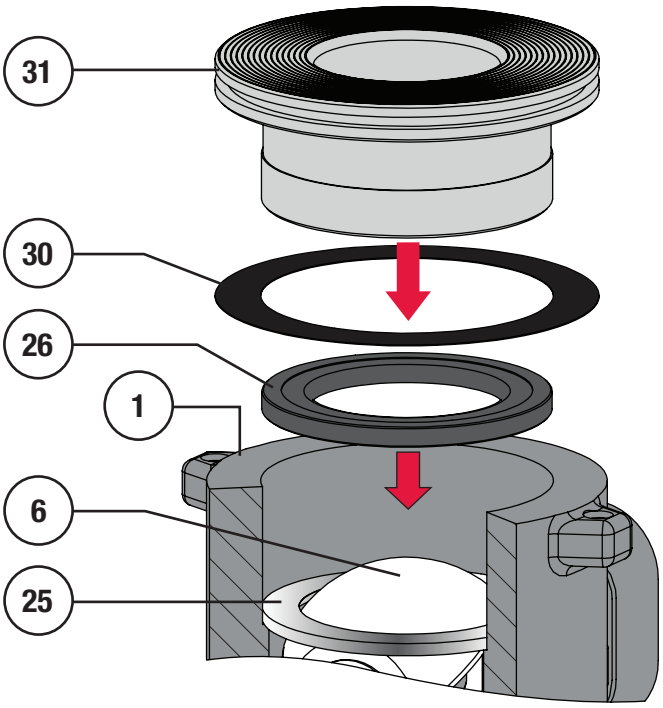


Figure 65 1 to 2" NPS Ball Seal Installation

Assembly (Continued)

Ball Seal Installation (Continued):

7 Manually stroke the valve if possible and observe the clearing of the grease by the ball seal (Key 26). The grease will provide some lubrication but it can also show any flaws in the contact between the ball and seal, a valve with proper sealing will wipe all the grease evenly from the surface of the ball.

For Metal Ball Seals:

1 Rotate the ball (Key 6) to the **CLOSED** position. **CAUTION:** The ball should remain in the closed position while installing the ball seal (Key 27). It is important that the front or back edge of the valve ball not be rotated passed the ball seal once it has been installed (more than 100% **OPEN** or less than **CLOSED**), moving the ball passed the ball seal could damage the edge of the ball.

2 Apply Lubriplate® No. 105 Grease (Key C) to the radial seal (Key 28) and install it in to the radial seal groove in the seal protector ring (Key 31). The 'cup' or open side of the radial seal needs to face away from the valve ball (Key 6). Refer to Figure 68.

3 Install the wave spring (Key 29) in to the seal protector ring (Key 31).

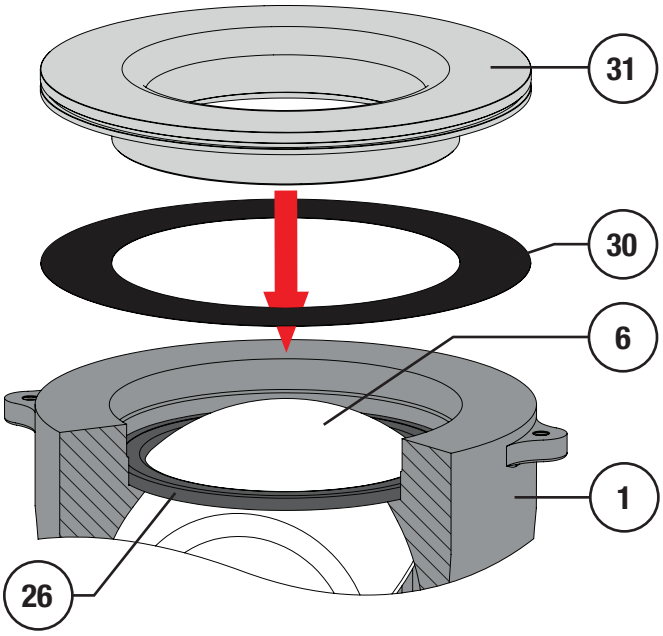
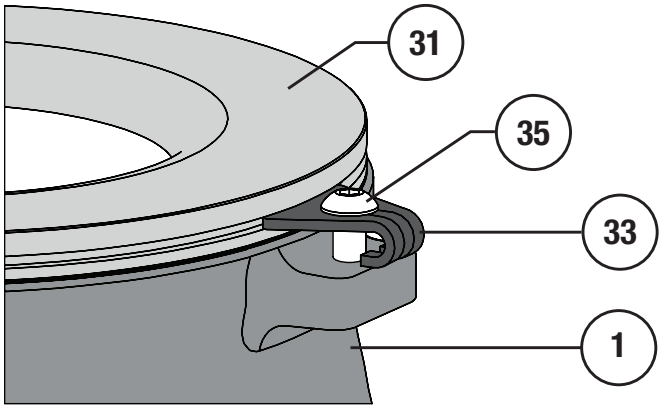
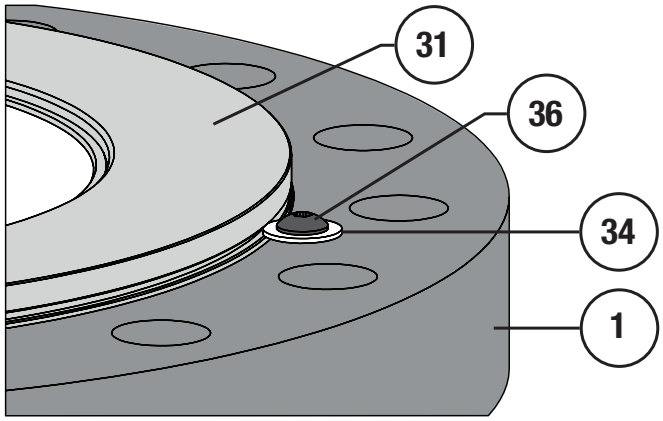


Figure 66 3 to 24" NPS Ball Seal Installation

FOR 1 - 8" NPS (25 - 200 DN) 570 VALVES



FOR 1 - 12" NPS (25 - 300 DN) 571 & 573 VALVES



FOR 16 - 24" NPS (400 - 600 DN) 571 & 573 VALVES

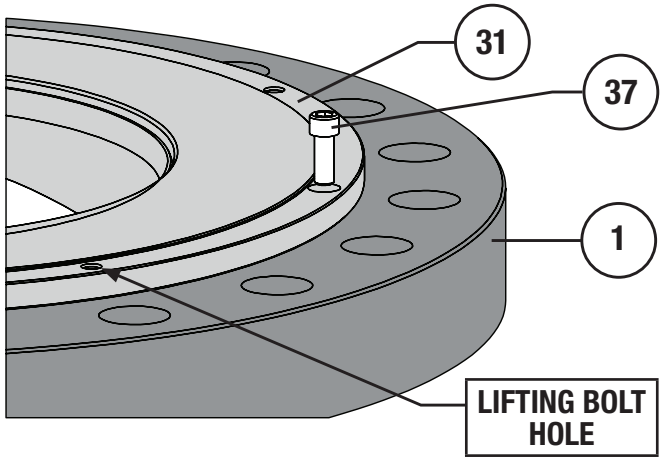


Figure 67 Seal Protector Ring Retaining Parts Installation

Assembly (Continued)

Ball Seal Installation (Continued):

For Metal Ball Seals (Continued):

4 Carefully install the metal ball seal (Key 27) in to the seal protector ring (Key 31). The metal ball seal must be pushed past the radial seal, try to keep the metal ball seal level while performing this step.

5 Install the gasket (Key 30) on the valve body (Key 1). Refer to Figure 69.

6 Carefully install the metal ball seal assembly (Keys 27, 28, 29, 31). **CAUTION:** When turning the ball seal assembly upside-down it is possible for the metal ball seal (Key 27) to shift or slip out of the assembly if not correctly installed. Be very careful installing the assembly. **NOTE:** 16 to 24" NPS (400 to 600 DN) seal protector rings have threaded holes, it may be necessary to install lifting hooks into the seal protector ring to safely lift and lower it in to position.

7 **For 1 to 8" NPS (25 to 200 DN) Valves:**

A Install the seal protector clips (Key 33) and thread the seal protector screws (Key 35) through the clips and in to the valve body (Key 1). Refer to Figure 67.

B Completely tighten the seal protector screws (Key 35) evenly in an alternating pattern.

For 1 to 12" NPS (25 to 300 DN) 571/573 Valves:

A Install the seal protector washers (Key 34) and thread the seal protector screws (Key 36) through the washers and in to the valve body (Key 1). Refer to Figure 67.

B Completely tighten the seal protector screws (Key 36) evenly in an alternating pattern.

For 16 to 24" NPS (400 to 600 DN) 571/573 Valves:

A Make sure the cap screw holes of the seal protector ring (Key 31) are aligned with the holes in the valve body (Key 1). Refer to Figure 67.

B Install the seal protector cap screws (Key 37) in to the seal protector ring (Key 31) and tighten them in an alternating pattern until completely tight.

8 Manually stroke the valve if possible and observe that the valve operates smoothly.

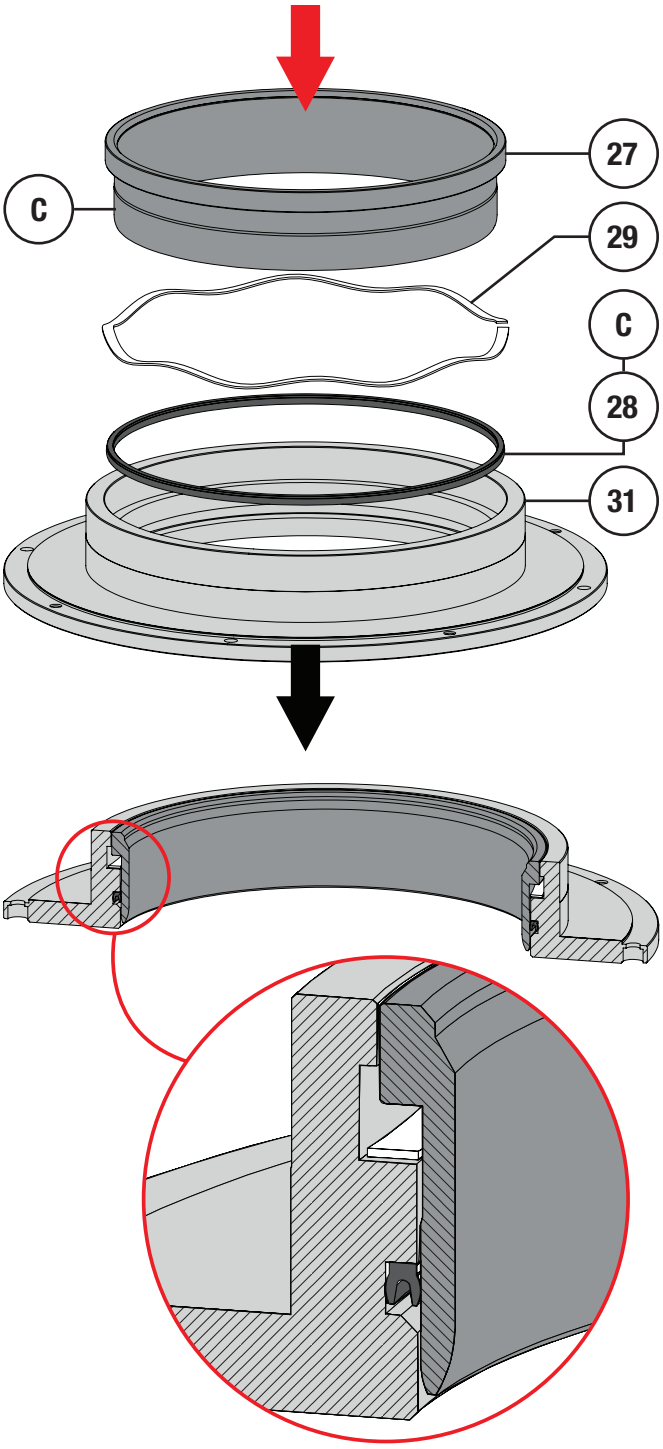


Figure 68 Metal Ball Seal Assembly

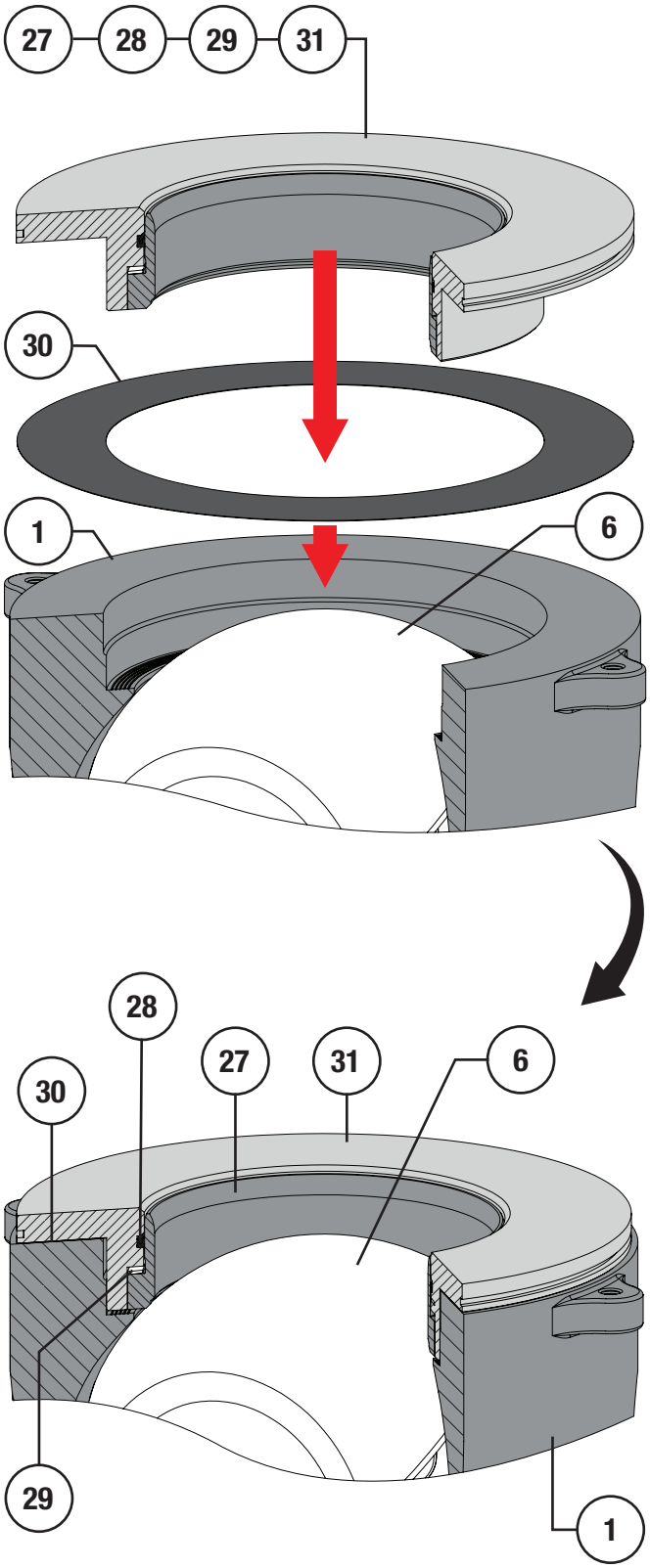


Figure 69 Metal Ball Seal Installation

Assembly (Continued)

Ball Seal Installation (Continued):

For Flow Rings:

1 Rotate the ball (Key 6) to the **CLOSED** position. **CAUTION:** The ball should remain in the closed position while installing the flow ring (Key 32). It is important that the front or back edge of the valve ball not be rotated passed the flow ring once it has been installed (more than 100% **OPEN** or less than **CLOSED**), moving the ball passed the flow ring could damage the edge of the ball.

2 Install the gasket (Key 30) on the valve body (Key 1).

3 Carefully install the flow ring (Key 32). **NOTE:** 16 to 24" NPS (400 to 600 DN) flow rings have threaded holes, it may be necessary to install lifting hooks into the flow ring to safely lift and lower it in to position. Refer to Figure 67.

4 **For 1 to 8" NPS (25 to 200 DN) 570 Valves:**

A Install the seal protector clips (Key 33) and thread the seal protector screws (Key 35) through the clips and in to the valve body (Key 1). Refer to Figure 67.

B Completely tighten the seal protector screws (Key 35) evenly in an alternating pattern.

For 1 to 12" NPS (25 to 300 DN) 571/573 Valves:

A Install the seal protector washers (Key 34) and thread the seal protector screws (Key 36) through the washers and in to the valve body (Key 1). Refer to Figure 67.

B Completely tighten the seal protector screws (Key 36) evenly in an alternating pattern.

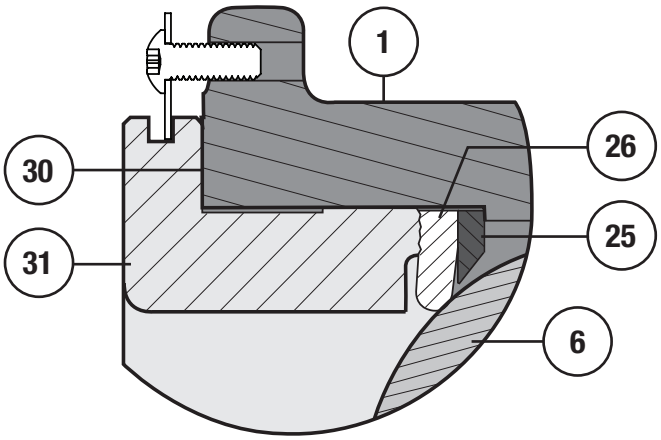
For 16 to 24" NPS (400 to 600 DN) 571/573 Valves:

A Make sure the cap screw holes of the flow ring (Key 31) are aligned with the holes in the valve body (Key 1). Refer to Figure 67.

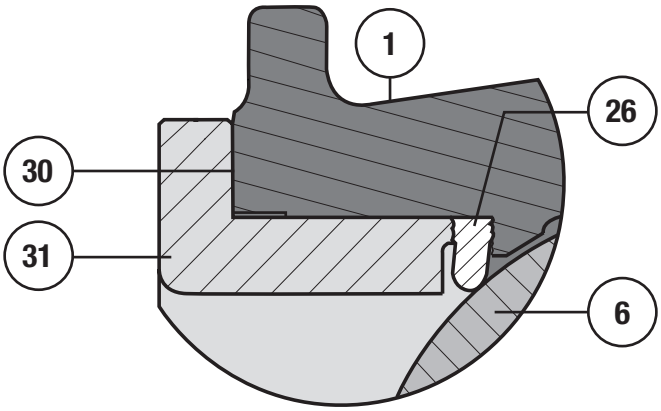
B Install the seal protector cap screws (Key 37) in to the flow ring (Key 32) and tighten them in an alternating pattern until completely tight.

Pipe Plug Installation:

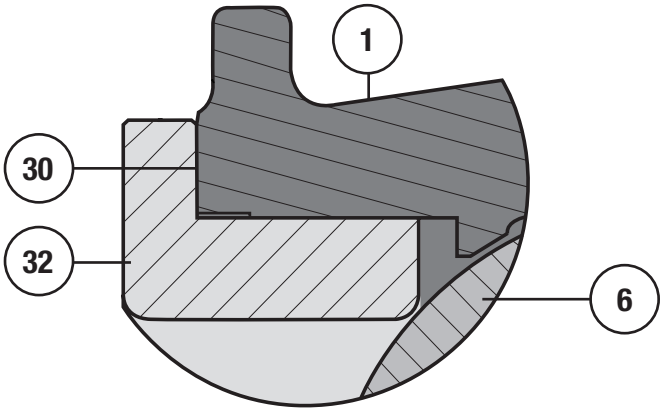
1 Apply Loctite® 565® or equivalent (Key D) to the threads of the pipe plug (Key 38), then wrap the threads in PTFE thread tape (Key E) and install the pipe plug in to the valve body (Key 1) or flange (Key 5) until completely tight.



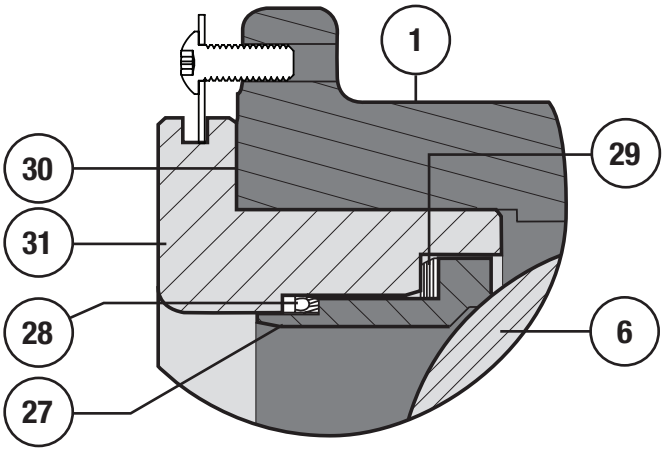
1 - 2 INCH COMPOSITION
BALL SEAL & BACKUP RING



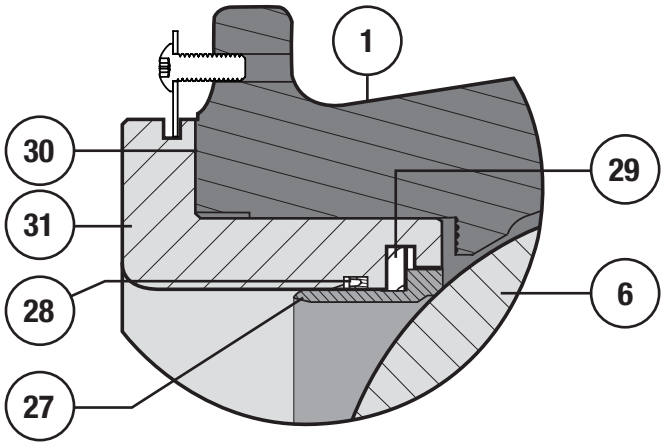
SIZE 3 - 24 INCH
COMPOSITION BALL SEAL



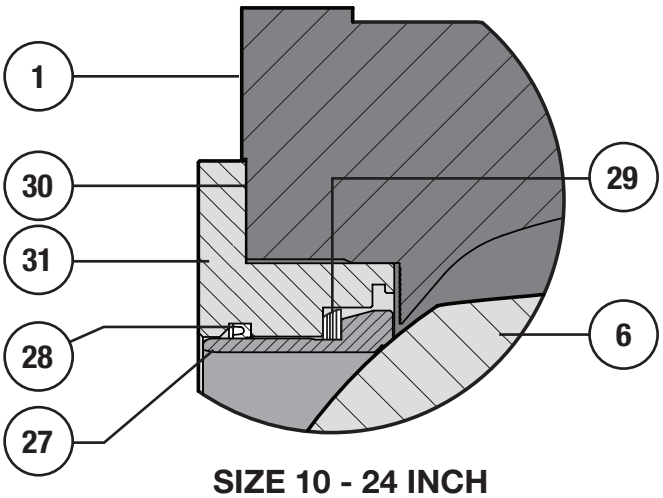
SIZE 1 - 24 INCH
FLOW RING



1 - 2 INCH METAL BALL SEAL



SIZE 3 - 8 INCH
METAL BALL SEAL



SIZE 10 - 24 INCH
METAL BALL SEAL

Figure 70 Ball Seal Assembly Diagrams for 1 to 24" NPS (25 to 600 DN) Valves

3 to 12” NPS (80 to 300 DN) Ball-to-Shaft Assembly Instructions

These instructions outline the recommended procedure for assembly and setting of the ball (Key 6) to shaft (Key 11) connection. Use these instructions when setting or re-setting the ball to shaft connection or when replacing either the ball or shaft. The ball to shaft connection is set prior to assembly. For instructions on removal of the ball, shaft and key (Key 12) refer to Page 17. The connection design allows for adjustment of a shaft key using setscrew(s) (Key 14). As the setscrew(s) are adjusted clockwise the shaft key is forced against the taper of the shaft which allows for easy field rotation play in the ball to shaft connection, and when set properly allows for easy field removal.

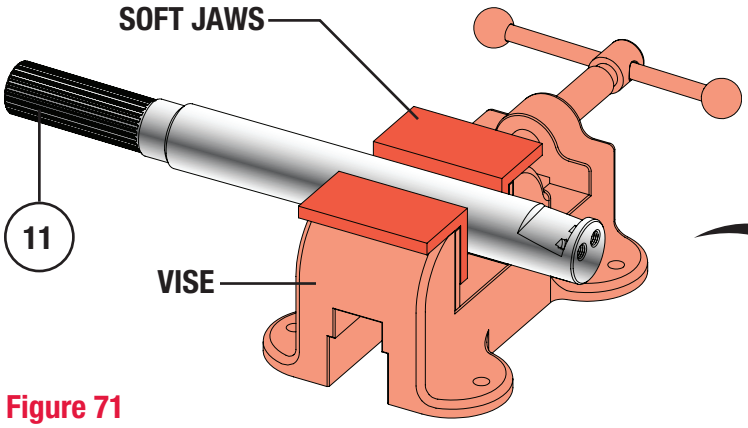


Figure 71

1 Using protective covers (soft jaws) on the vise jaws to protect against damage to the shaft (Key 11). Place the shaft in a vise with flat facing up as shown.

2 Slide the ball (Key 6) onto the shaft (Key 11) and insert the shaft key (Key 12) (flat down) into place. Observe the orientation mark on the shaft, that mark corresponds to the face of the ball for splined and square shafts. For keyed shafts, refer to the orientation shown in Step 4 - Figure 74 on the next page.

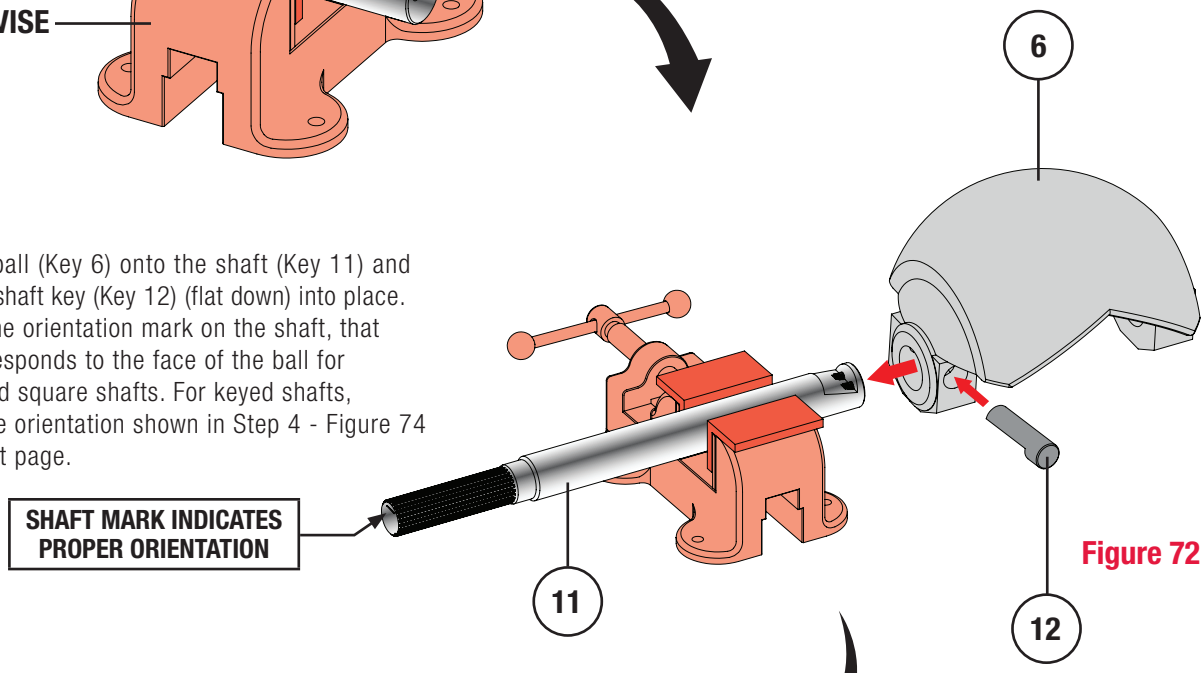


Figure 72

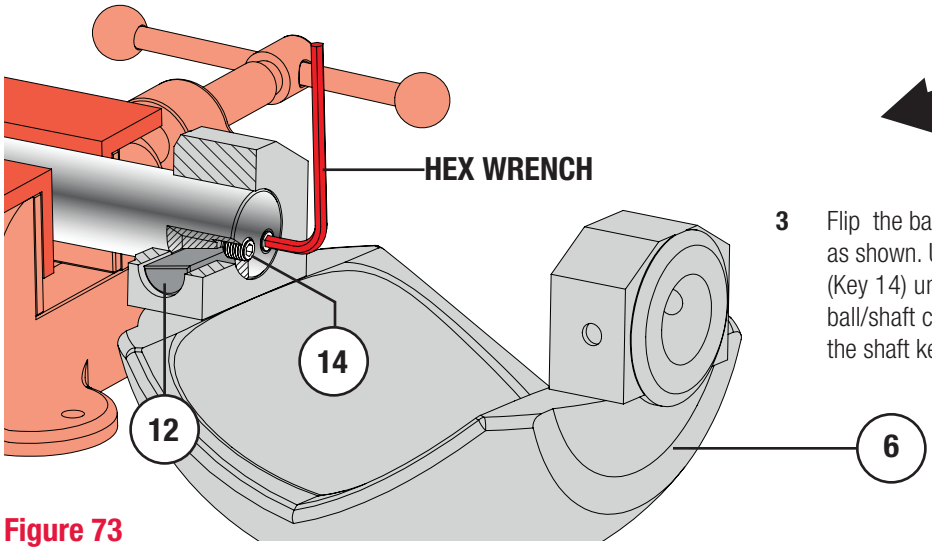


Figure 73

3 Flip the ball (Key 6) and shaft (Key 11) in the vise as shown. Using a hex wrench, tighten the setscrew(s) (Key 14) until all rotational play is removed from the ball/shaft connection. Do not over tighten or removal of the shaft key (Key 12) will be difficult.

3 to 12” NPS (80 to 300 DN) Ball-to-Shaft Assembly Instructions (Continued)

4 After the setscrew(s) (Key 14) are tight, flip the ball/shaft assembly in the vise as shown. Using a punch, remove the shaft key (Key 12) from the ball/shaft (Keys 6 & 11) connection and then separate the ball from the shaft.

Figure 74

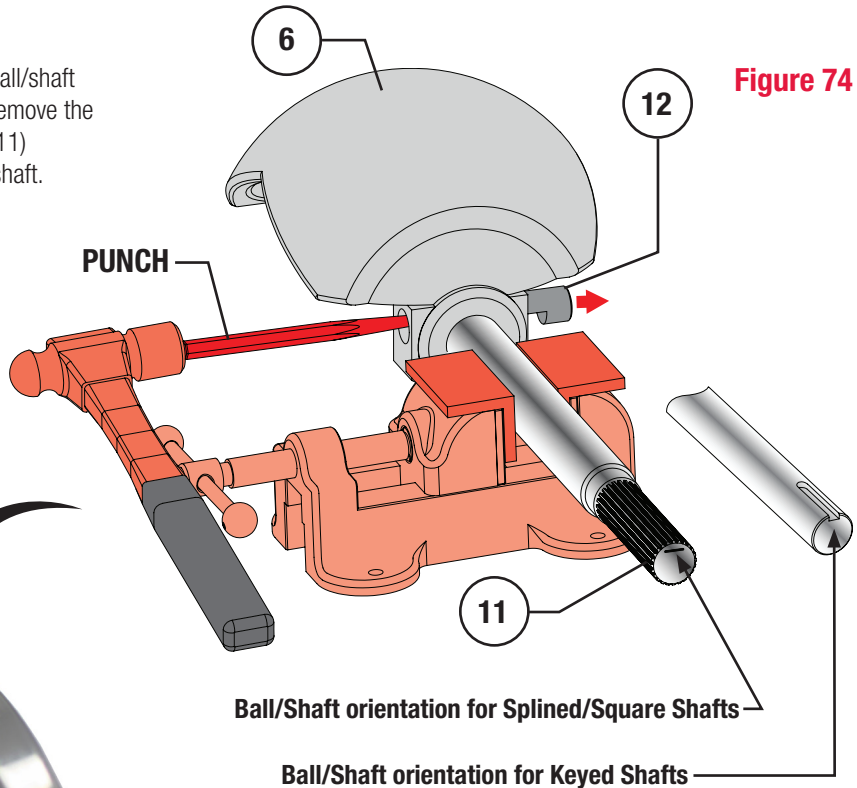
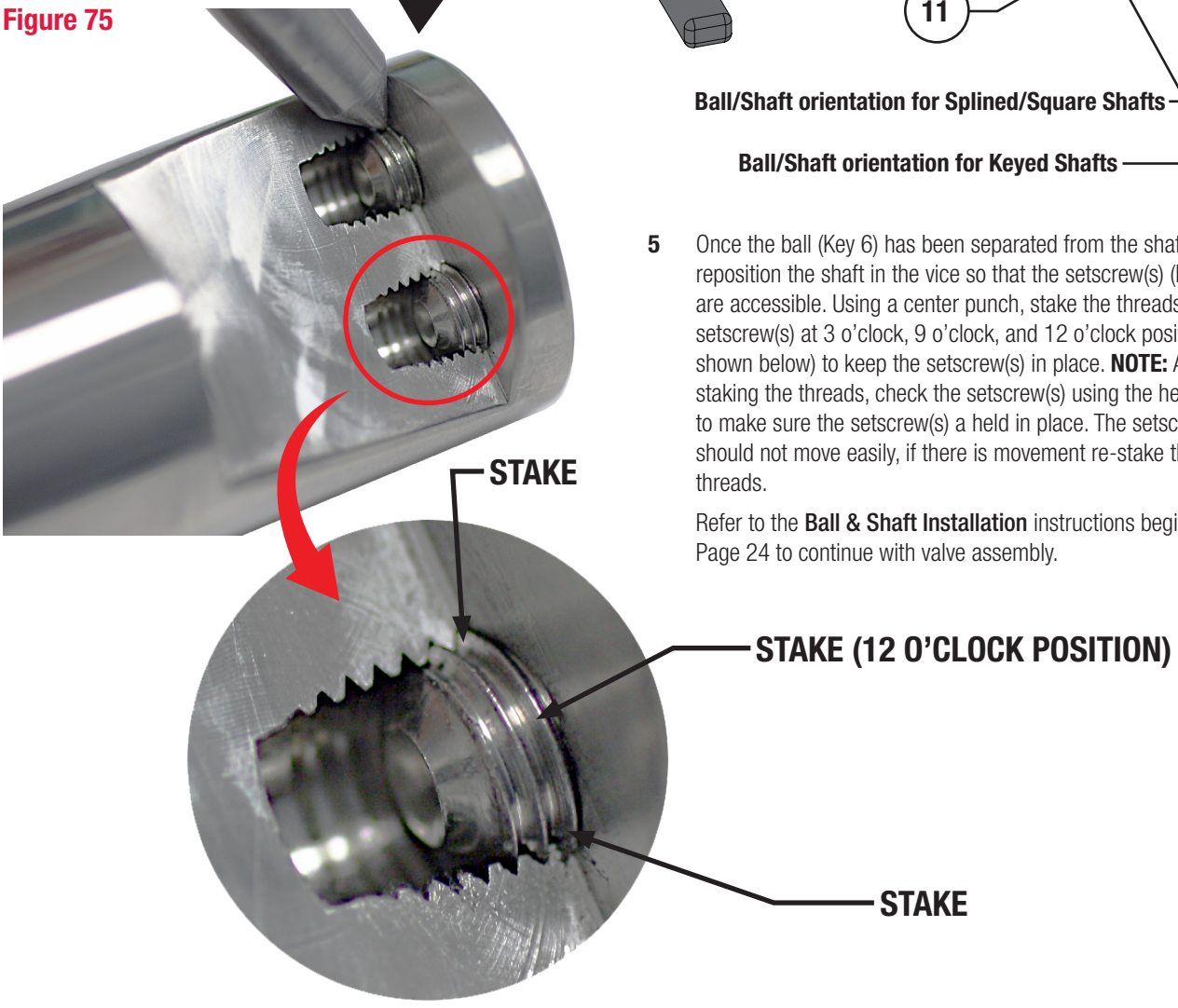


Figure 75



5 Once the ball (Key 6) has been separated from the shaft (Key 11), reposition the shaft in the vice so that the setscrew(s) (Key 14) are accessible. Using a center punch, stake the threads of the setscrew(s) at 3 o’clock, 9 o’clock, and 12 o’clock positions (as shown below) to keep the setscrew(s) in place. **NOTE:** After staking the threads, check the setscrew(s) using the hex wrench to make sure the setscrew(s) a held in place. The setscrew(s) should not move easily, if there is movement re-stake the threads.

Refer to the **Ball & Shaft Installation** instructions beginning on Page 24 to continue with valve assembly.

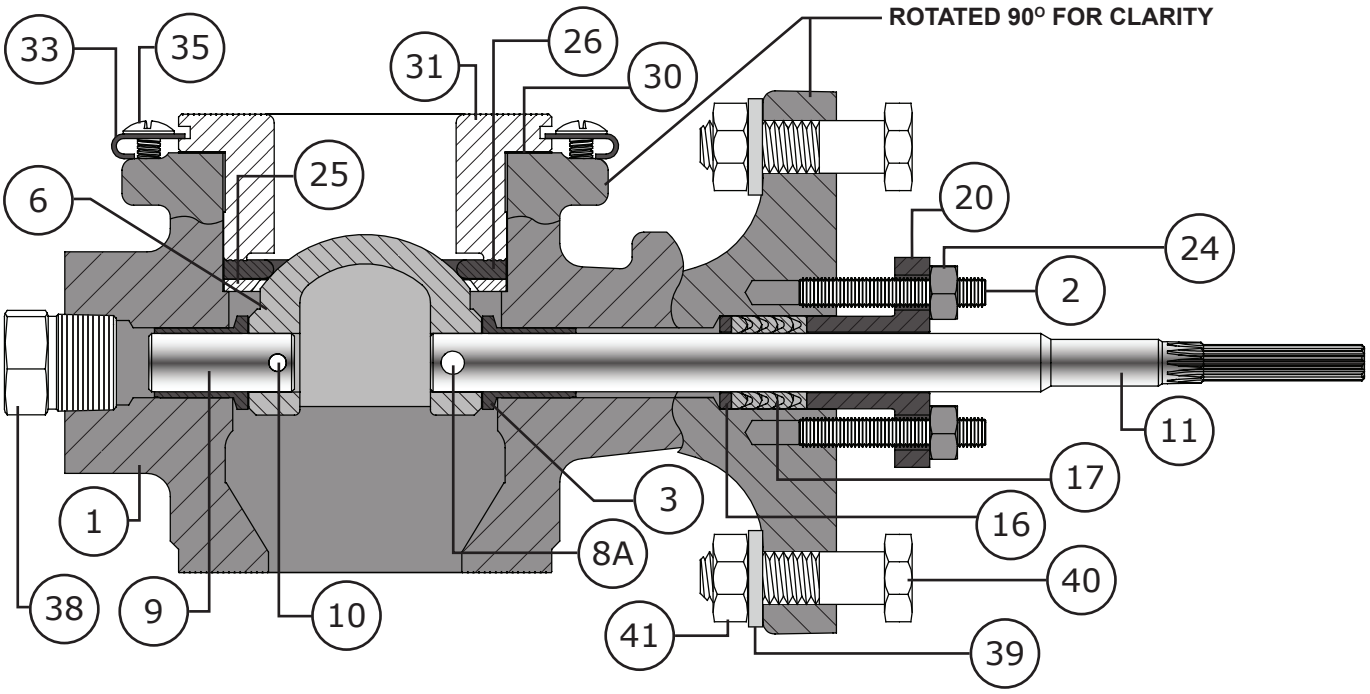


Figure 76 1 to 2" NPS (50 DN) Model 570 Cross Section

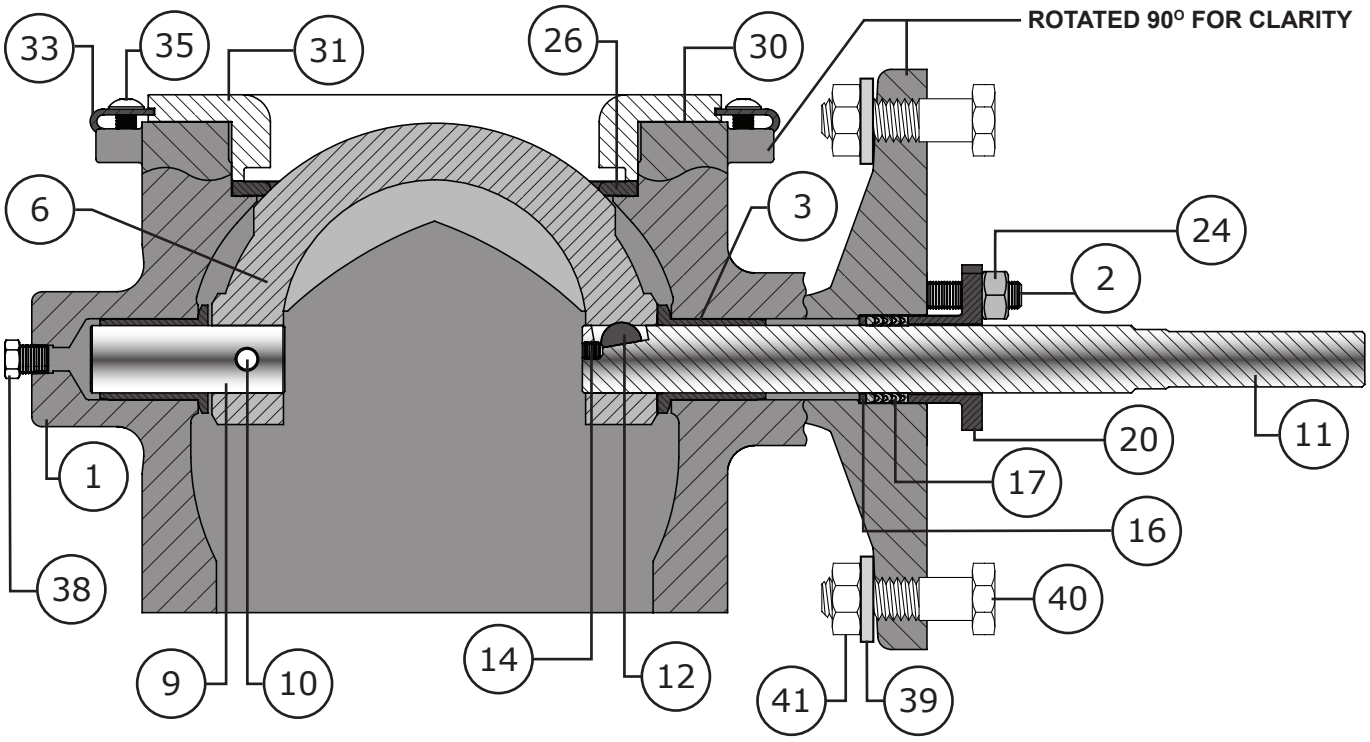


Figure 77 3 to 8" NPS (80 to 200 DN) Model 570 Cross Section

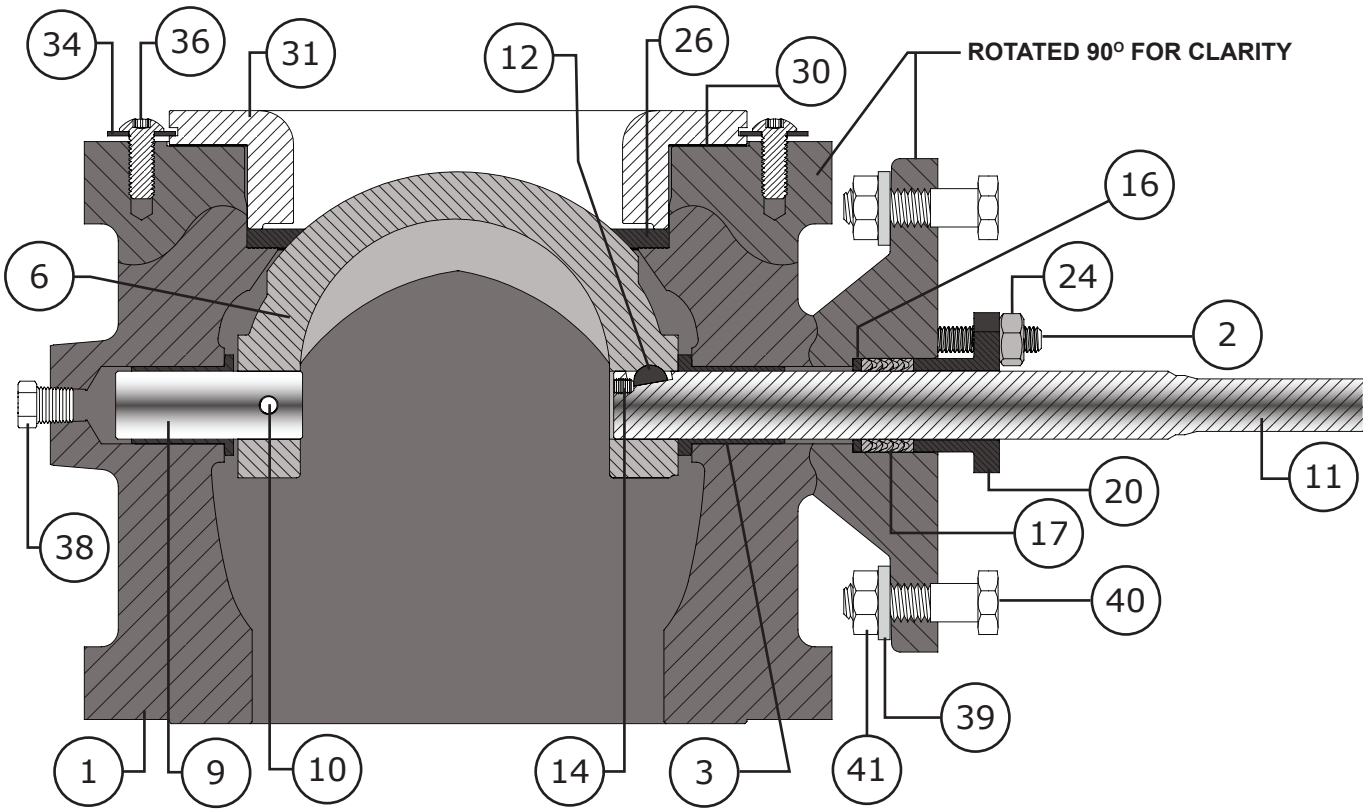


Figure 78 3 to 12" NPS (80 to 300 DN) Model 571 & 573 Cross Section

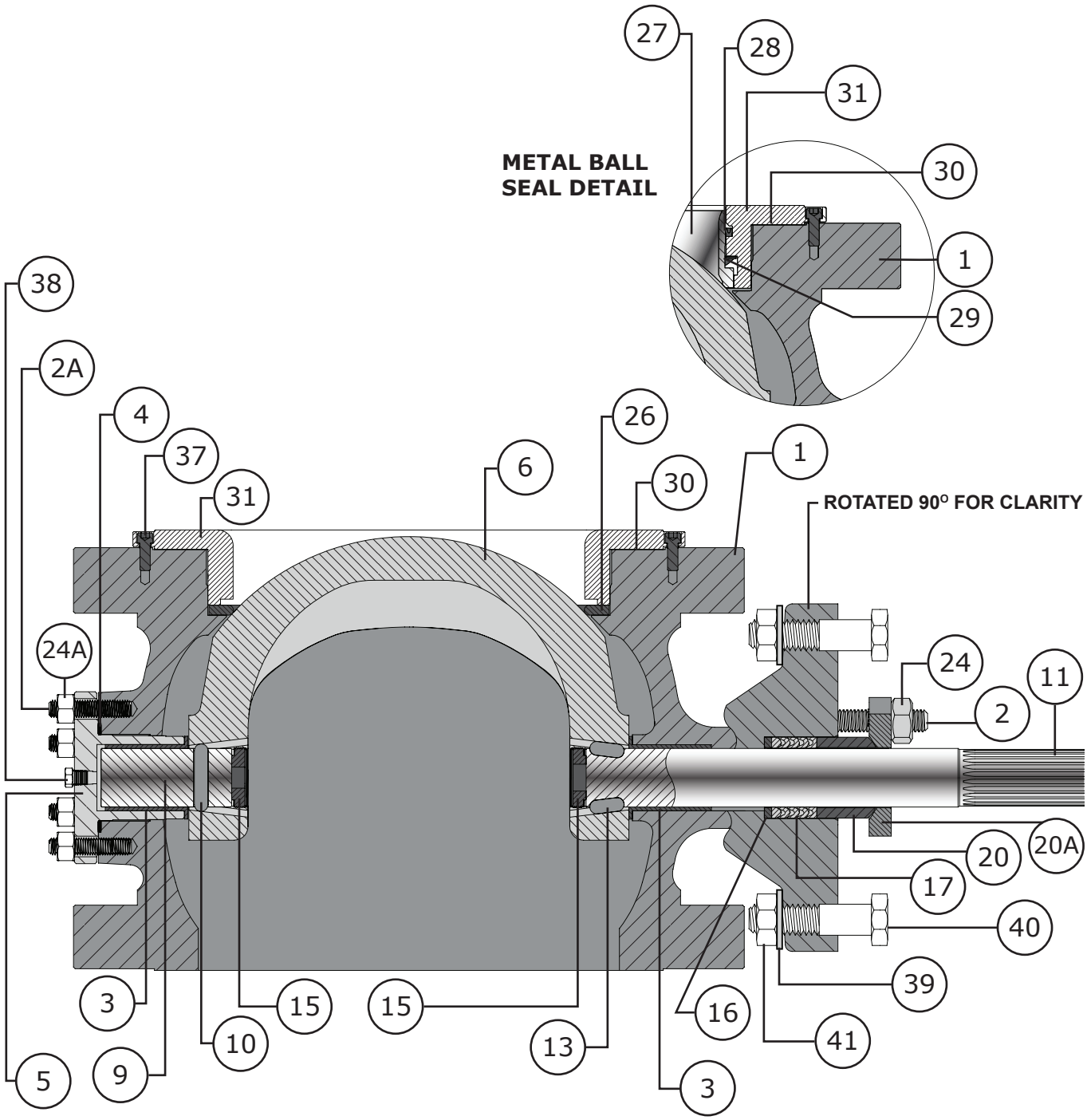


Figure 79 16 to 24" NPS (400 to 600 DN) Model 571 & 573 Cross Section

CURTISS-WRIGHT

Parts

Key	Description	Part Number
1	**Body**	
	If you need a body as a replacement part, order by valve serial number and desired material.	
2	**Stud,** Standard Construction,	
	Refer to Table 5 for Live-Loaded Packing Studs.	
	-B8M	
	1 to 4 Inch (25 to 100 DN) (2 Required)	1E94413522D
	6 Inch (150 DN) (2 Required)	12A8835X02D
	8 & 10 Inch (200 & 250 DN) 2 Required)	12A8950X02D
	12 Inch (300 DN) (2 Required)	12A8926X02D
	16 Inch (400 DN) (2 Required)	1J6981B8MDD
	20 Inch (400 DN) (2 Required)	STB8M-058-414
	24 Inch (600 DN) (2 Required)	STB8M-078-500
2A	**Stud,** Flange	
	-B7M	
	16 Inch (400 DN) (6 Required)	1A3781B7MDD
	20 Inch (500 DN) (6 Required)	1J6981B7MDD
	24 Inch (600 DN) (6 Required)	1A2250X009D
3	**Bearings**	
	-PEEK / Carbon-Filled PTFE	
	1 Inch (25 DN) (2 Required)	570X0104X1D
	1-1/2 Inch (40 DN) (2 Required)	570X0504X1D
	2 Inch (50 DN) (2 Required)	570X2003X1D
	3 Inch (80 DN) (2 Required)	570X3010X1D
	4 Inch (100 DN) (2 Required)	570X4002X1D
	6 Inch (150 DN) (2 Required)	570X6010X1D
	8 Inch (200 DN) (2 Required)	570X8009X1D
	10 Inch (250 DN) (2 Required)	570X1001X1D
	12 Inch (300 DN) (2 Required)	570X1209X1D
	16 Inch (400 DN) (2 Required)	570X166X01D
	20 inch (500 DN) (2 Required)	570XE009X1D
	24 inch (600 DN) (2 Required)	570XF009X1D
	-Alloy 6	
	1 Inch (25 DN) (2 Required)	570X0105X3D
	1-1/2 (40 DN) (2 Required)	570X0505X3D
	2 Inch (50 DN) (2 Required)	570X209X03D
	3 Inch (80 DN) (2 Required)	570X308X03D
	4 Inch (100 DN) (2 Required)	570X308X03D
	6 Inch (150 DN) (2 Required)	570X611X03D
	8 Inch (200 DN) (2 Required)	570X813X03D
	10 Inch (250 DN) (2 Required)	570X105X03D
	12 Inch (300 DN) (2 Required)	570X126X03D
	16 Inch (400 DN) (2 Required)	570X165X03D
	20 inch (500 DN) (2 Required)	570XE025X3D
	24 inch (600 DN) (2 Required)	570XF025X3D
	-S44004	
	1 Inch (25 DN) (2 Required)	570X0105X4D
	1-1/2 (40 DN) (2 Required)	570X0505X4D
	2 Inch (50 DN) (2 Required)	570X209X04D
	3 Inch (80 DN) (2 Required)	570X308X04D
	4 Inch (100 DN) (2 Required)	570X308X04D
	6 Inch (150 DN) (2 Required)	570X611X04D
	8 Inch (200 DN) (2 Required)	570X813X04D
	10 Inch (250 DN) (2 Required)	570X105X04D
	12 Inch (300 DN) (2 Required)	570X126X04D
	16 Inch (400 DN) (2 Required)	570X165X04D
	20 Inch (500 DN) (2 Required)	570XE025X4D
	24 Inch (600 DN) (2 Required)	570XF025X4D
4	**Spiral Wound Gasket,** S31600/Graphite	
	16 Inch (400 DN) (1 Required)	14B5354X01D
	20 Inch (500 DN) (1 Required)	570XE004X1D
	24 Inch (600 DN) (1 Required)	570XF004X1D
5	**Flange,** A105/350 LF2	
	16 Inch (400 DN)	570X1611X1D
	20 Inch (500 DN)	570XE010X1D
	24 Inch (600 DN)	570XF010X1D
6	**Ball,** CG8M chrome plated	
	1, 1-1/2, 2 Inch (25, 40, 50 DN)	Refer to Key 8
	3 Inch (80 DN)	570X302X08D
	4 Inch (100 DN)	570X405X08D
	6 Inch (150 DN)	570X602X08D
	8 Inch (200 DN)	570X810X08D
	10 Inch (250 DN)	570X109X15D
	12 Inch (300 DN)	570X129X15D
	16 Inch (400 DN)	570X170X15D
	20 Inch (500 DN)	570XE001X8D
	24 Inch (600 DN)	570XF001X8D
7	**Thrust Washer,** Carbon-filled PTFE (Obsolete)	
	6 Inch (400 DN)	570X608X01D
	8 Inch (200 DN)	570X808X01D
	10 Inch (250 DN)	570X808X01D
	12 Inch (300 DN)	570X128X01D
	16 Inch (400 DN)	570X168X01D
8	**Ball / Shaft / Pin** (Key 8A) **Assembly**	
	-1 Inch (25 DN) CG8M/CRPL Nitronic 50 Shaft	570X0110X8D
	-1-1/2 Inch (40 DN) CG8M/CRPL Nitronic 50 Shaft	570X0510X8D
	-2 Inch (50 DN) CG8M/CRPL Nitronic 50 Shaft	570X208X08D
9	**Follower Shaft,** S20910	
	1 Inch (25 DN)	13B0336X01D
	1-1/2 Inch (40 DN) & 2 Inch (50 DN)	13B6678X01D
	3 & 4 Inch (80 & 100 DN)	11B0728X01D
	6 Inch (150 DN)	11B0733X01D
	8 & 10 Inch (200 & 250 DN)	11B0717X01D
	12 Inch (300 DN)	570X1201X1D
	16 Inch (400 DN)	570X1601X1D
	20 inch (500 DN)	570XE008X1D
	24 inch (600 DN)	570XF008X1D

Parts (Continued)

Key	Description	Part Number
10	**Follower Shaft Pin,** S31600/S31603 Dual Grade	
	1 Inch (25 DN)	570X0109X1D
	1-1/2 Inch (40 DN) & 2 Inch (50 DN)	570X200001D
	3 Inch (80 DN)	570X300001D
	4 Inch (100 DN)	570X400001D
	6 Inch (150 DN)	18A6138X01D
	8 & 10 Inch (200 & 250 DN)	11B0738X01D
	12 Inch (300 DN)	11B8596X01D
	16 Inch (400 DN)	570X1609X1D
	20 inch (500 DN)	570XE007X1D
	24 inch (600 DN)	570XF007X1D
11	**Drive Shaft (Splined/Standard),** S20910	
	1, 1-1/2, 2 Inch (25, 40, 50 DN)	Refer to Key 8
	3 & 4 Inch (80 & 100 DN)	570X314X01D
	6 Inch (150 DN)	570X601X01D
	8 & 10 Inch (200 & 250 DN)	570XE003X1D
	12 Inch (300 DN)	570X121X01D
	16 Inch 571 (400 DN)	570X171X01A
	16 Inch 573 (400 DN)	570X161X01D
	20 inch (500 DN)	570XE014X1D
	24 inch (600 DN)	570XF014X1D
	NOTE: For other shaft styles contact Dyna-Flo.	
12	**Shaft Key,** S20910	
	3 & 4 Inch (80 & 100 DN)	570X313X01D
	6 Inch (150 DN)	570X610X01D
	8 Inch (200 DN) & 10 Inch (250 DN)	570X802X01D
	12 Inch (300 DN)	570X123X01D
13	**Shaft Pin,** Alloy 6	
	16 Inch (400 DN) (2 Required)	570X162X01D
	20 Inch (500 DN) (2 Required)	570XE003X1D
	24 Inch (600 DN) (2 Required)	570XF003X1D
14	**Socket Set Screw,** S31600/S31603 Dual Grade	
	Included with Drive Shaft (Key 11)	
	3 & 4 Inch (80 & 100 DN) (1 Required)	570X312X01D
	6 Inch (150 DN) (2 Required)	570X312X01D
	8 to 12 Inch (150 to 300 DN) (2 Required)	570X803X01D
15	**Shaft Retainer,** S17400 DH1150	
	16 Inch (400 DN) (2 Required)	570X167X01D
	20 Inch (500 DN) (2 Required)	570XE012X1D
	24 Inch (600 DN) (2 Required)	570XF012X1D
16	**Packing Box Ring,** S31600/S31603 Dual Grade	
	1 Inch (25 DN)	16A6082X01D
	1-1/2 Inch (40 DN) & 2 Inch (50 DN)	16A6083X01D
	3 & 4 Inch (80 & 100 DN)	16A6084X01D
	6 Inch (150 DN)	16A6085X01D
	8 & 10 Inch (200 & 250 DN)	16A6086X01D
	12 Inch (300 DN)	16A6087X01D
	16 Inch (400 DN)	12B3373X01D
	20 Inch (500 DN)	12A9084X01D
	24 Inch (600 DN)	Contact Dyna-Flo
17	**Packing Set** (Standard)	
	Refer to Table 15 for Live Loaded Packing Sets	
	-PTFE/Carbon TFE	
	1 Inch (25 DN)	12A9016X02D
	1-1/2 Inch (40 DN) & 2 Inch (50 DN)	1R5795X001D
	3 & 4 Inch (80 & 100 DN)	12A8995X02D
	6 Inch (150 DN)	12A8832X01D
	8 & 10 Inch (200 & 250 DN)	12A8951X01D
	12 Inch (300 DN)	12A8935X02D
	16 Inch (400 DN)	1R5162X001D
	20 inch (500 DN)	Contact Dyna-Flo
	24 inch (600 DN)	Contact Dyna-Flo
17A	Graphite (Packing Ring) 3 Required Standard	
	1 Inch (25 DN)	12A9134X01D
	1-1/2 Inch (40 DN) & 2 Inch (50 DN)	12A9135X01D
	3 & 4 Inch (80 & 100 DN)	12A9136X01D
	6 Inch (150 DN)	12A9137X01D
	8 Inch (200 DN) & 10 Inch (250 DN)	12A9138X01D
	12 Inch (300 DN)	12A9139X01D
	16 Inch (400 DN)	1V94960165D
	20 inch (500 DN)	Contact Dyna-Flo
	24 inch (600 DN)	Contact Dyna-Flo
17B	Graphite/PTFE (Live Loaded) 2 Required	
	1 Inch (25 DN)	Refer to Tables 5&6
	1-1/2 Inch (40 DN)	Refer to Tables 5&6
	2 Inch (50 DN)	Refer to Tables 5&6
	3 & 4 Inch (80 & 100 DN)	Refer to Tables 5&6
	6 Inch (150 DN)	Refer to Tables 5&6
	8 Inch (200 DN)	Refer to Tables 5&6
	10 Inch (250 DN)	Refer to Tables 5&6
	12 Inch (300 DN)	Refer to Tables 5&6
	16 Inch (400 DN)	Refer to Tables 5&6
	20 inch (500 DN)	Refer to Tables 5&6
	24 inch (600 DN)	Refer to Tables 5&6
18	**Graphite Anti-Extrusion Rope Packing**	
	(1 Required Standard Packing)	
	(2 Required for Live Loaded Packing)	
	1 Inch (25 DN)	Refer to Tables 5&6
	1-1/2 Inch (40 DN)	Refer to Tables 5&6
	2 Inch (50 DN)	Refer to Tables 5&6
	3 & 4 Inch (80 & 100 DN)	Refer to Tables 5&6
	6 Inch (150 DN)	Refer to Tables 5&6
	8 Inch (200 DN)	Refer to Tables 5&6
	10 Inch (250 DN)	Refer to Tables 5&6
	12 Inch (300 DN)	Refer to Tables 5&6

CURTISS-WRIGHT

Parts (Continued)

Key	Description	Part Number
18	**Graphite Anti-Extrusion Rope Packing** (Continued)	
	(1 Required Standard Packing)	
	(2 Required for Live Loaded Packing)	
	16 Inch (400 DN)	Refer to Tables 5&6
	20 inch (500 DN)	Refer to Tables 5&6
	24 inch (600 DN)	Refer to Tables 5&6
19	**Anti-Extrusion Ring - Live Loaded Packing**	
	PEEK (Carbon/Graphite/PTFE)	Refer to Table 5.
20	**Packing Flange / Follower,** S31600/S31603 Dual Grade	
	Refer to Table 5 for Live Loaded Packing Follower	
	1 Inch (25 DN)	16A6078X01D
	1-1/2 Inch (40 DN) & 2 Inch (50 DN)	16A6079X01D
	3 & 4 Inch (80 & 100 DN)	26A6080X01D
	6 Inch (150 DN)	26A6077X01D
	8 & 10 Inch (200 & 250 DN)	26A6081X01D
	12 Inch (300 DN)	26A6088X01D
	16 Inch (400 DN) Packing Follower	1P92973507D
	20 inch (500 DN) Packing Follower	Contact Dyna-Flo
	24 inch (600 DN) Packing Follower	Contact Dyna-Flo
20A	**Packing Flange**	
	16 Inch (400 DN)	1P92983507D
	20 inch (500 DN)	Contact Dyna-Flo
	24 inch (600 DN)	Contact Dyna-Flo
21	**Spring Washers - Live Loaded Packing**	
	17-7	Refer to Table 5.
22	**Packing O-Ring** - Live Loaded Packing	
	Viton	Refer to Table 5.
23	Packing Flange - Live Loaded Packing	
	S31600/S31603 Dual Grade	Refer to Table 5.
24	**Nut,** Packing	
	-8M	
	1 - 4 Inch (2 Required)	1E94403525D
	6 Inch (2 Required)	1A37533525D
	8 - 12 Inch (2 Required)	1A34123525D
	16 Inch (2 Required)	1A34333525D
	20 inch (500 DN) (2 Required)	1A34333525D
	24 inch (600 DN) (2 Required)	NH316C78
24A	**Nut,** Flange, 2HM	
	16 Inch (6 Required) & 20 inch (500 DN) (6 Required)	1A37602HMDD
	24 inch (600 DN) (6 Required)	1C1727X004D
25	**Backup Ring,** S31600/S31603 Dual Grade	
	1 Inch (25 DN)	13B0338X01D
	1-1/2 Inch (40 DN)	13B6814X01D
	2 Inch	13B6677X01D
26	**Ball Seal,** Composition Ultra	
	1 Inch (25 DN)	13B0339X06D
	1-1/2 Inch (40 DN)	13B6815X07D
	2 Inch (50 DN)	13B6686X07D
	3 Inch (80 DN)	13A2565X11D
	4 Inch (100 DN)	13A2585X11D
	6 Inch (150 DN)	13A2619X11D
	8 Inch (200 DN)	13A2645X08D
	10 Inch (250 DN)	13A2662X06D
	12 Inch (300 DN)	13A2677X07D
	16 Inch (400 DN)	1V6298X002D
	20 Inch (500 DN)	570XE013X1D
	24 Inch (600 DN)	570XF013X1D
27	**Metal Ball Seal**	
	-Alloy 6	
	1 Inch (25 DN)	33B0341X01D
	1-1/2 Inch (40 DN)	33B6817X03D
	2 Inch (50 DN)	33B6676X03D
	3 Inch (80 DN)	34B4766X03D
	4 Inch (100 DN)	34B4767X03D
	6 Inch (150 DN)	34B4768X03D
	8 Inch (200 DN)	34B4769X03D
	10 Inch (250 DN)	34B3365X03D
	12 Inch (300 DN)	34B3366X03D
	-S21800	
	1 Inch (25 DN)	33B0341X03D
	1-1/2 Inch (40 DN)	33B6817X01D
	2 Inch (50 DN)	33B6676X01D
	3 Inch (80 DN)	34B4766X01D
	4 Inch (100 DN)	34B4767X01D
	6 Inch (150 DN)	34B4768X01D
	8 Inch (200 DN)	34B4769X01D
	10 Inch (250 DN)	34B3366X01D
	12 Inch (300 DN)	570X125X60D
	16 Inch (400 DN)	33B0693X01D
	20 Inch (500 DN)	Contact Dyna-Flo
	24 Inch (600 DN)	Contact Dyna-Flo
	-S31600/HFS	
	16 Inch (400 DN)	33B0693X03D
	20 Inch (500 DN)	Contact Dyna-Flo
	24 Inch (600 DN)	Contact Dyna-Flo
28	**Radial Seal,** Carbon TFE	
	1 Inch (25 DN)	18B0261X01D
	1-1/2 Inch (40 DN)	18B0262X01D
	2 Inch (50 DN)	18B0263X01D
	3 Inch (80 DN)	18B0264X01D
	4 Inch (100 DN)	28B0265X01D
	6 Inch (150 DN)	28B0266X01D
	8 Inch (200 DN)	28B0267X01D
	10 Inch (250 DN)	28B0268X01D
	12 Inch (300 DN)	28B0269X01D
	16 Inch (400 DN)	28B0271X01D

Parts (Continued)

Key	Description	Part Number
28	**Radial Seal,** Carbon TFE (Continued)	
	20 Inch (500 DN)	Contact Dyna-Flo
	24 Inch (600 DN)	Contact Dyna-Flo
29	**Wave Spring,** N07750	
	1 Inch (25 DN)	23B0347X01D
	1-1/2 Inch (40 DN)	23B6825X01D
	2 Inch (50 DN)	23B6689X01D
	3 Inch (80 DN)	24B4760X01D
	4 Inch (100 DN)	24B4761X01D
	6 Inch (150 DN)	24B4762X01D
	8 Inch (200 DN)	24B4763X01D
	10 Inch (250 DN)	22B4509X01D
	12 Inch (300 DN)	22B4514X01D
	16 Inch (400 DN)	23B0695X01D
	20 Inch (500 DN)	Contact Dyna-Flo
	24 Inch (600 DN)	Contact Dyna-Flo
30	**Gasket,** Graphite Laminate	
	1 Inch (25 DN)	13B0344X03D
	1-1/2 Inch (40 DN)	13B6823X04D
	2 Inch (50 DN)	13B6687X01D
	3 Inch (80 DN)	11B0660X01D
	4 Inch (100 DN)	11B0672X01D
	6 Inch (150 DN)	11B0681X03D
	8 Inch (200 DN)	11B0693X01D
	10 Inch (250 DN)	11B0720X01D
	12 Inch (300 DN)	11B4682X02D
	16 Inch (400 DN)	13B0692X02D
	20 Inch (500 DN)	13B6058X01D
	24 Inch (600 DN)	570XF006X1D
31	**Seal Protector Ring**	
	Composition Ultra (Standard)	Consult Dyna-Flo.
	HD Metal Seal	Consult Dyna-Flo
32	**Flow Ring**	Consult Dyna-Flo
33	**Seal Protector Clip,** 570 Valves, SST	
	1 - 4 Inch (2 Required)	24B3040X01D
	6 - 8 Inch (2 Required)	22B4975X01D
34	**Seal Protector Washer,** 571/573 Valves, S31600	
	1 - 3 Inch (2 Required)	1A8518X001D
	4 Inch (2 Required)	11B4671X01D
	6 - 12 Inch (2 Required)	1A3756X001D
35	**Seal Protector Clip Retaining Screw,** 18-8	
	1 Inch (2 Required)	SBR18.814.012
	1-1/2 - 4 Inch (2 Required)	1A8991X003D
	6 Inch (2 Required)	SBR18.8516.100
	8 Inch (2 Required)	11B0682X02D
36	**Seal Protector Washer Screw,** SST	
	1 to 3 Inch (25 to 80 DN) (2 Required)	SBR18.814.012
	4 Inch (100 DN) (2 Required)	1R1938X001D
	6 to 8 Inch (150 to 200 DN) (2 Required)	11B0682X02D
	10 to 12 Inch (250 to 300 DN) (4 Required)	11B0682X02D
37	**Socket Head Cap Screw,** 18-8	
	16 Inch (400 DN) (4 Required)	10B1058X02D
	20 Inch (500 DN) (5 Required)	1N2579X004D
	24 Inch (600 DN) (5 Required)	1N2579X004D
38	**Pipe Plug**	
	-A350 (For LCC Bodies)	
	1 Inch (25 DN)	570X0106X3D
	1-1/2 to 4 Inch (40 to 100 DN)	570X212X03D
	6 & 8 Inch (150 & 200 DN)	1A7675A350D
	10 Inch (250 DN)	570X101X03D
	12 Inch (300 DN)	570X122X03D
	16 Inch (400 DN)	1A7675A350D
	20 Inch (500 DN) & 24 Inch (600 DN)	1A7675A350D
	-A105 Steel (For WCC Bodies)	
	1 Inch (25 DN)	570X0106X1D
	1-1/2 to 4 Inch (40 to 100 DN)	570X212X01D
	6 & 8 Inch (150 & 200 DN)	570X068X01D
	10 Inch (250 DN)	570X101X01D
	12 Inch (300 DN)	570X122X01D
	16 Inch (400 DN) to 24 Inch (600 DN)	570X068X01D
	-S31600/S31603 Dual Grade (For CG8M Bodies)	
	1 Inch (25 DN)	570X0106X2D
	1-1/2 to 4 Inch (40 to 100 DN)	570X212X02D
	6 & 8 Inch (150 & 200 DN)	1A76753507D
	10 Inch (250 DN)	570X101X02D
	12 Inch (300 DN)	570X122X02D
	16 Inch (400 DN)	1A76753507D
	20 Inch (500 DN)	1A76753507D
	24 Inch (600 DN)	1A76753507D
39	**Lock Washer,** Zinc Plated Steel	
	1 to 2 Inch (25 to 50 DN) (2 Required)	LWZ12
	3 to 6 Inch (80 to 150 DN) (4 Required)	LWZ12
	8 to 12 Inch (200 to 300 DN) (4 Required)	LWZ58
	16 Inch (400 DN) (4 Required)	LWZ34
	20 Inch (500 DN) (4 Required)	LWZ78
	24 Inch (600 DN) (4 Required)	LWZ114
40	**Actuator Mounting Bolt,** Gr. 5 Pl Steel	
	1 to 2 Inch (25 to 50 DN) (2 Required)	H5CZ12.134
	3 Inch (80 DN) (4 Required)	H5CZ12.200
	4 Inch (100 DN) (4 Required)	H5CZ12.214
	6 Inch (150 DN) (4 Required)	H5CZ12.200
	8 to 10 Inch (200 to 250 DN) (4 Required)	H5CZ58.212
	12 Inch (300 DN) (4 Required)	H5CZ58.300
	16 Inch (400 DN) (4 Required)	H5CZ34.300
	20 Inch (500 DN) (4 Required)	H5CZ78.312
	24 Inch (600 DN) (4 Required)	H5CZ114.314

Parts (Continued)

Key	Description	Part Number
41	**Actuator Mounting Nut,** Gr. 5 Pl Steel	
	1 to 2 Inch (25 to 50 DN) (2 Required)	NHCZ12
	3 to 6 Inch (80 to 150 DN) (4 Required)	NHCZ12
	8 to 12 Inch (200 to 300 DN) (4 Required)	NHCZ58
42	**Name Plate,** Steel	NAMEXRBODYD

⚠ WARNING - PARTS ORDERING

Whenever corresponding with Dyna-Flo about a 570 Series Control Valve, refer to the nameplate (Key 42) or name tag (Key 43) for the serial number of the unit. Please order by the complete part number (as given in the part lists) of each part required. **NOTE:** Not all the available replacement part numbers are shown in this manual, if you have inquiries about parts that are not listed please contact your Dyna-Flo Sales Representative. Use only genuine Dyna-Flo replacement parts, the use of non-Dyna-Flo replacement parts could void your warranty, effect the performance of you equipment, or cause property damage and personal injury.

Table 5

Live Loaded Packing Box Parts (Keys)

Refer to Figures 61, 62, 63 & 64

Description	Key No.	Shaft Diameter		
		1/2" (12.7mm)	5/8" (15.9mm)	3/4" (19.1mm)
Packing Stud (2 Required)	2	STB8M-516-258	STB8M-516-258	STB8M-516-258
Packing Box Ring	16	16A6082X01D	16A6083X01D	16A6084X01D
Packing Set (PTFE)	17	12B7053X01D	12B7402X01D	12B7414X01D
Packing Set (Graphite) (17B - Graphite Rings) (18 - Anti-Extrusion Rope)	17B 18	13B8816X01D	13B8816X03D	13B8816X05D
Anti-Extrusion Ring (2 Required for PTFE)	19	12B7054X01D	12B7406X01D	12B7418X01D
Spring Pack Assembly (Includes Keys 20, 21, 22)	PTFE	12B8319XP1D	12B8319XP3D	12B8320XP1D
	Graphite	13B7179XG1D	13B7179XG2D	13B7180XG1D
Packing Follower	20	Refer to Spring Pack	Refer to Spring Pack	Refer to Spring Pack
Spring Washers (Refer to Figure 61 & 62)	21	Refer to Spring Pack	Refer to Spring Pack	Refer to Spring Pack
O-Ring	22	Refer to Spring Pack	Refer to Spring Pack	Refer to Spring Pack
Packing Flange	23	32B7777X01D	32B7777X01D	32B7778X01D
Packing Nut (2 Required)	24	1E94403525D	1E94403525D	1E94403525D
Tag	-	NAME21LVLDD	NAME21LVLDD	NAME21LVLDD
Cable Tie	-	S-12394	S-12394	S-12394

Description	Key No.	Shaft Diameter		
		1" (25.4mm)	1-1/4" (31.8mm)	1-1/2" (38.1mm)
Packing Stud (2 Required)	2	STB8M-038-314	12A8926X02D	STB8M-012-314
Packing Box Ring	16	16A6085X01D	16A6086X01D	16A6087X01D
Packing Set (PTFE)	17	12B7438X01D	12B7450X01D	12B7462X01D
Packing Set (Graphite) (17B - Graphite Rings) (18 - Anti-Extrusion Rope)	17B 18	13B8816X09D	13B8816X11D	13B8816X14D
Anti-Extrusion Ring (2 Required for PTFE)	19	12B7442X01D	12B7454X01D	12B7466X01D
Spring Pack Assembly (Includes Keys 20, 21, 22)	PTFE	12B8320XP3D	12B8321XP1D	12B8321XP3D
	Graphite	13B7180XG3D	13B7180XG4D	13B7180XG5D
Packing Follower	20	Refer to Spring Pack	Refer to Spring Pack	Refer to Spring Pack
Spring Washers (Refer to Figure 61 & 62)	21	Refer to Spring Pack	Refer to Spring Pack	Refer to Spring Pack
O-Ring	22	Refer to Spring Pack	Refer to Spring Pack	Refer to Spring Pack
Packing Flange	23	32B7779X01D	32B7780X01D	32B7781X01D
Packing Nut (2 Required)	24	1A37533525D	1A34123525D	1A34123525D
Tag	-	NAME21LVLDD	NAME21LVLDD	NAME21LVLDD
Cable Tie	-	S-12394	S-12394	S-12394

Table 5 (Continued)

Live Loaded Packing Box Parts (Keys)

Refer to Figures xx, xx, & xx

Description	Key No.	Shaft Diameter		
		2-1/8" (54.0mm)	2-1/2" (63.5mm)	3" (76.2mm)
Packing Stud (2 Required)	2	0V00253522D	STB8M-058-414	STB8M-078-500
Packing Box Ring	16	12B3373X01D	570XE005X1D	570F005X1D
Packing Set (PTFE)	17	14B3203X01D	570XE021X1D	570XF021X1D
Packing Set (Graphite) (17B - Graphite Rings) (18 - Anti-Extrusion Rope)	17B 18	13B8816X18D	Contact Dyna-Flo	Contact Dyna-Flo
Anti-Extrusion Ring (2 Required for PTFE)	19	14B3199X01D	14B3056X01D	570F020X1D
Spring Pack Assembly (Includes Keys 20, 21, 22)	PTFE	LLR21570SPD	Contact Dyna-Flo	Contact Dyna-Flo
	Graphite	LLR21570SGD	Contact Dyna-Flo	Contact Dyna-Flo
Packing Follower	20	Refer to Spring Pack	Refer to Spring Pack	Refer to Spring Pack
Spring Washers (Refer to Figure 63 & 64)	21	Refer to Spring Pack	Refer to Spring Pack	Refer to Spring Pack
O-Ring	22	Refer to Spring Pack	Refer to Spring Pack	Refer to Spring Pack
Packing Flange	23	LLR21570PFD	570XE023X1D	570XF023X1D
Packing Nut (2 Required)	24	1A34333525D	1A34333525D	NH316C78
Tag	-	NAME21LVLDD	NAME21LVLDD	NAME21LVLDD
Cable Tie	-	S-12394	S-12394	S-12394

Packing Repair Kits

Table 6

Live Loaded PTFE Packing

Valve Size	Shaft Diameter inches (mm)	Kit Numbers
1 Inch (25 DN)	1/2 (12.7)	RRTYX00001D
1-1/2 Inch (40 DN)	5/8 (15.9)	RRTYX00002D
2 Inch (50 DN)	5/8 (15.9)	RRTYX00002D
3 & 4 Inch (80 & 100 DN)	3/4 (19.1)	RRTYX00003D
6 Inch (150 DN)	1 (25.4)	RRTYX00005D
8 Inch (200 DN)	1-1/4 (31.8)	RRTYX00006D
10 Inch (250 DN)	1-1/4 (31.8)	RRTYX00006D
12 Inch (300 DN)	1-1/2 (38.1)	RRTYX00007D
16 Inch (400 DN)	2-1/8 (5.0)	RRTYX00025D
20 Inch (500 DN)	2-1/2 (63.5)	RRTYX00026D
24 Inch (600 DN)	3 (76.2)	RRTYX00027D

Live Loaded Graphite Packing

Valve Size	Shaft Diameter inches (mm)	Kit Numbers
1 Inch	1/2 (12.7)	13B8816X01D
1-1/2 Inch	5/8 (15.9)	13B8816X03D
2 Inch	5/8 (15.9)	13B8816X03D
3 & 4 Inch	3/4 (19.1)	13B8816X05D
6 Inch	1 (25.4)	13B8816X09D
8 Inch	1-1/4 (31.8)	13B8816X11D
10 Inch	1-1/4 (31.8)	13B8816X11D
12 Inch	1-1/2 (38.1)	13B8816X14D
16 Inch	2-1/8 (54.0)	13B8816X18D
20 Inch (500 DN)	2-1/2 (63.5)	Contact Dyna-Flo
24 Inch (600 DN)	3 (76.2)	Contact Dyna-Flo

Kit Contents - PTFE

Key	Part Description	Quantity
17	Packing Set	1
19	Anti-Extrusion Ring	2

Kit Contents - Graphite

Key	Part Description	Quantity
17A (X3)	Packing Set	1

NOTE: Anti-Extrusion Ring (Key 18) is included with the Packing Set.

This Page left blank intentionally.

This Page left blank intentionally.

570 SERIES NUMBERING SYSTEM

SAMPLE PART NUMBER: 570-2-CLC-PNT

							MODEL	**570**
570	570	**571**	571	**573**	573			
							VALVE SIZE	**2**
1	1 INCH	**5**	1-1/2 INCH	**2**	2 INCH	**3**	3 INCH	
4	4 INCH	**6**	6 INCH	**8**	8 INCH	**10**	10 INCH	
12	12 INCH	**16**	16 INCH	**20**	20 INCH	**24**	24 INCH	
							BALL MATERIAL	**-**
-	CG8M / CRPL (STANDARD)			**S**	CG8M / Alloy 6 LEADING EDGE / CRPL			
							ASME RATING (SEE PAGE 2)	**C**
A	150	**B**	300 / 600	**C**	150 / 300 / 600	**E**	300	
							BODY MATERIAL	**L**
L	LCC	**W**	WCC	**C**	CG8M			
							BALL SEAL MATERIAL	**C**
A	ALLOY 6	**H**	S21800	**C**	COMPOSITION ULTRA	**S**	FLOW RING	
							PAINT	**-**
-	DFPS-01 (STANDARD)			**2**	DFPS-02 (SEVERE SERVICE)			
3	DFPS-03 (HIGH TEMPERATURE)							
							PACKING STYLE	**P**
P	SINGLE PTFE V-RING			**L**	LIVE LOADED PTFE			
V	SINGLE PTFE V-RING (VACUUM)			**T**	LIVE LOADED GRAPHITE			
G	SINGLE GRAPHITE							
							SHAFT STYLE	**N**
N	SPLINED			**K**	KEYED (VALVE SIZES 8” - 24” ONLY)			
P	SQUARE END (VALVE SIZES 1” - 6” ONLY)							
							BEARINGS	**T**
T	PEEK / CARBON-FILLED PTFE			**A**	ALLOY 6			
F	S44004							

57 - - _ _ _ _ _ _ _ _ _ _

Curtiss-Wright Flow Control Company Canada, doing business as Dyna-Flo Control Valve Services

Headquarters: 1911 66 Avenue, Edmonton, AB, T6P 1M5 Canada • Telephone: 1-866-396-2356 • www.cw-dynaflo.com

Offices Worldwide: For a listing of our global sales network, visit our website at www.cw-dynaflo.com/en-gb/distribution

Catalog # Model 570/571/573 Control Valve Operation, Parts and Instruction Manual