

Model 570, 571, 573 Control Valve

Operation, Parts, and Instruction Manual

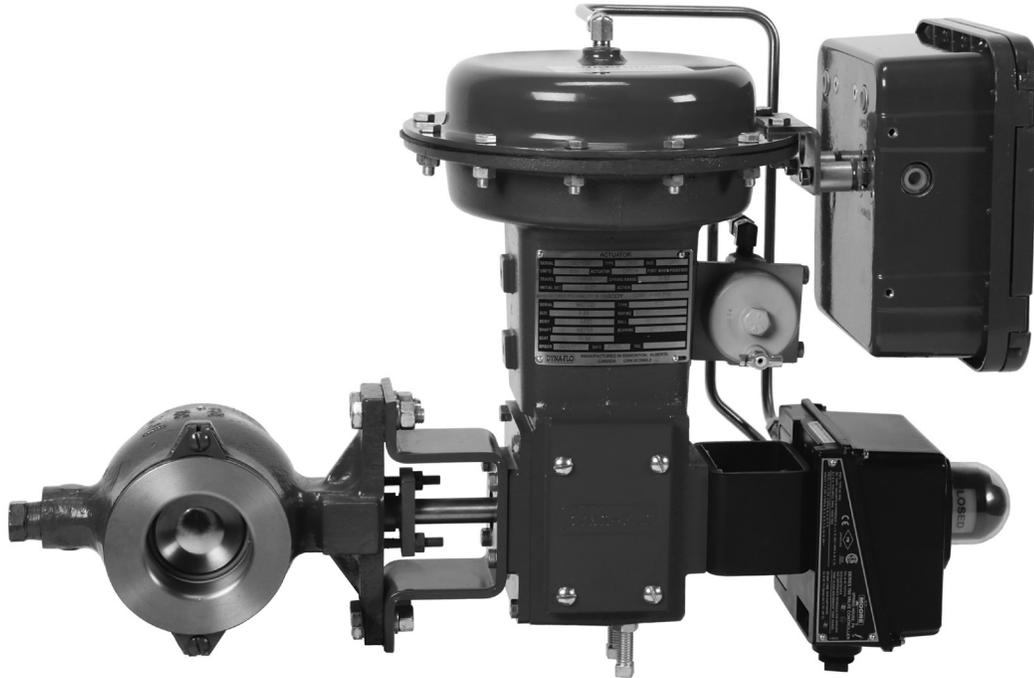


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NOTICE

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.dynaflo.com

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 570 Series Control Valves. Revisions and updates are available at above mentioned website.

GENERAL

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 performed by experienced personnel. Throughout the manual, safety and caution notes appear and must be strictly followed, to prevent serious injury or equipment malfunction.

SCOPE

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. Do not apply any other conditions to the valve without first contacting your Dyna-Flo sales office.

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

SAFETY CAUTION

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. Use only parts and materials rated for the process being used, operating conditions, and environmental conditions products will be used in.

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 and 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.

These valves have dangerous pinch points. Never put your hands inside the valve unless you are certain that the ball cannot rotate.

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SPECIFICATIONS

Maximum Pressure / Temperature Ratings

Consistent with applicable pressure / temperature ratings per ASME B16.34. Refer to Tables 17 to 19 of Sales Bulletin.

Maximum Allowable Shutoff Pressure Drop

Refer to Tables 18 & 19 of Sales Bulletin.

750 Psig (51.7 bar) @ 100°F (38°C) (Standard Construction)

Material Temperature Capabilities

Valve Body:

Standard: -50°F to 450°F (-46°C to 232°C) LCC

Optional: High Temp -20°F to 800°F (-29°C to 427°C) WCC

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)
(for 100 ppm service requirements)

20°F to 700°F (-7°C to 371°C)
(for non-environmental service requirements)

Refer to Tables 16 & 17 of Sales Bulletin.

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)

Refer to Tables 18 & 19 of Sales Bulletin.

Construction Materials

Refer to Parts section for construction materials.

Contact your Dyna-Flo sales office for more information and other options.

Flow Direction

Forward (through seal into ball).

Actuator Mounting

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

Maximum Ball Rotation

90 degrees.

Shutoff Classification

- **Composition Ball Seal:** Class VI
- **Metal Ball Seal:** Class IV
- **Flow Ring Construction:** 5% of valve capacity at full travel
- Classes and testing per ANSI/FCI 70-2 and IEC 60534-4.
- Tested at the service pressure drop, or 50 Psig (3.4 bar), whichever is lower

Valve Dimensions

Refer to Figures 2 & 3 for valve diagram.

Refer to Tables 4 - 15 for valve dimensions.

Refer to Tables 7, 8, 12, & 13 for bolting dimensions.

Valve and Actuator Assembly Weight

Refer to Tables 2 & 3 of Sales Bulletin.

Options

Line Flange Bolting - Tables 7, 8, 12, & 13.

Stainless Steel Construction.

Internal Coatings.

Shaft Connections:

- Splined (Standard)
- Square (Optional - 1" to 6" Valves)
- Keyed (Optional - 8" to 16" Valves)

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



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Table 1

Available Valve Configurations				
Valve Model	End Connection	Body Material	Valve Size inch	Valve Rating
570	Flangeless Mates with ASME Class 150/300/600 Raised Face Flanges	LCC CG8M	1 / 1-1/2 / 2	ASME Class 150/300/600
			3 & 4	ASME Class 150 ASME Class 300/600
			6 & 8	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	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	ASME Class 300

Table 2

Model 570 Valve Dimensions Inch (mm)	
Valve / Actuator Size	Dimensional Reference
	A
1"	4.00 (102)
1-1/2"	4.50 (114)
2"	4.88 (124)
3"	6.50 (165)
4"	7.62 (194)
6"	9.00 (229)
8"	9.56 (243)

ASME Class: 150 / 300 / 600

- Envelope Dimensions are + / - 0.25 in. (6.4 mm)
- Face to Face Tolerance Per ANSI/ISA 75.08.02

Table 3

Model 571 and 573 Valve Dimensions Inch (mm)	
Valve / Actuator Size	Dimensional Reference
	A
1"	4.00 (102)
1-1/2"	4.50 (114)
2"	4.88 (124)
3"	6.50 (165)
4"	7.62 (194)
6"	9.00 (229)
8"	9.56 (243)
10"	11.69 (297)
12"	13.31 (338)
16"	16.00 (406)

ASME Class: 571 = 150, 573 = 300

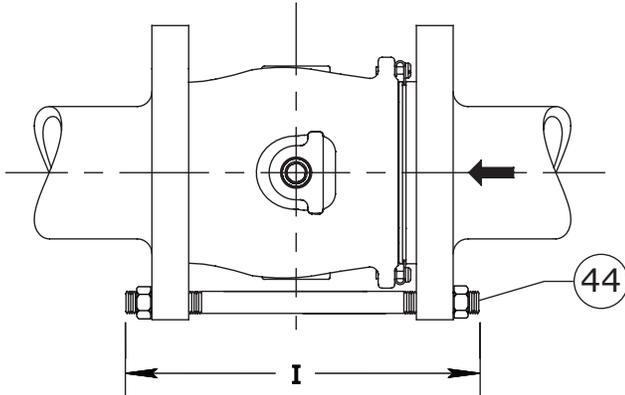
- Envelope Dimensions are + / - 0.25 in. (6.4 mm)
- Face to Face: All sizes except for 16" are per ANSI/ISA 75.08.02. 16" sizes are per ASME B16.10 Short only.

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MODEL 570



MODEL 571 & 573

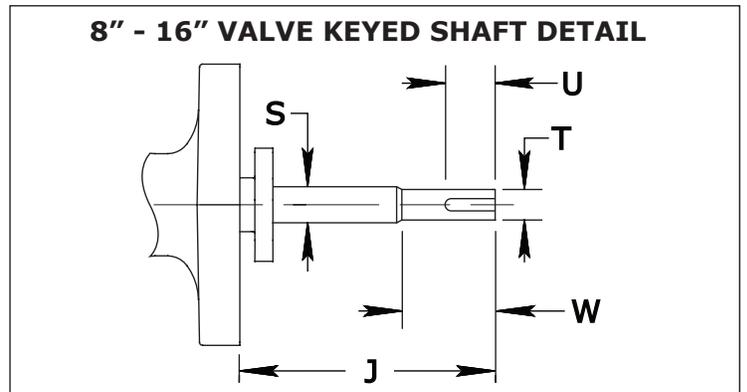
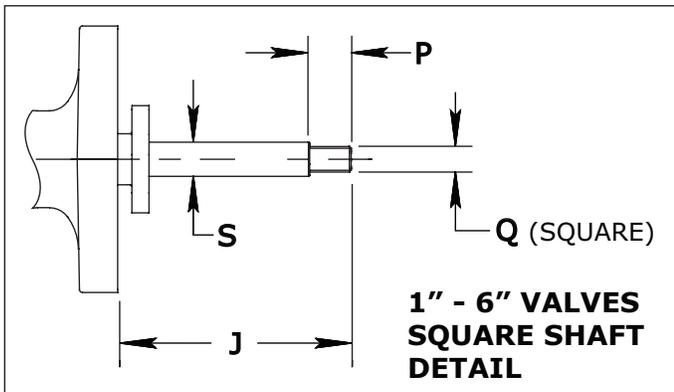
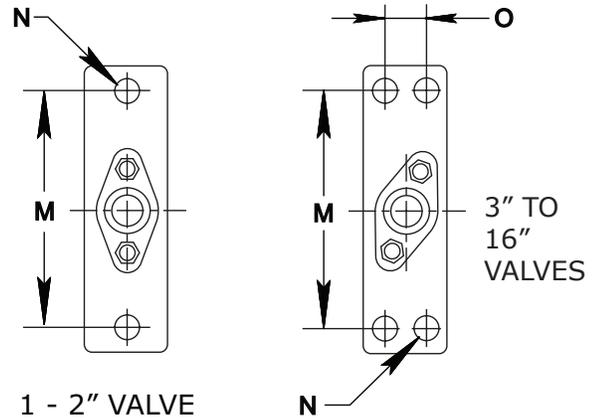
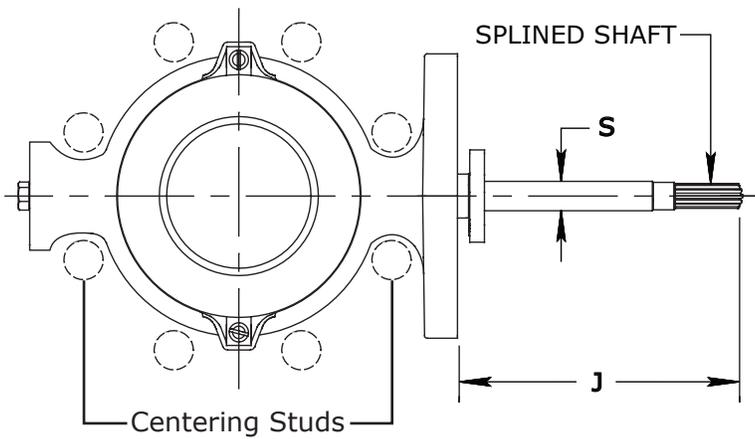
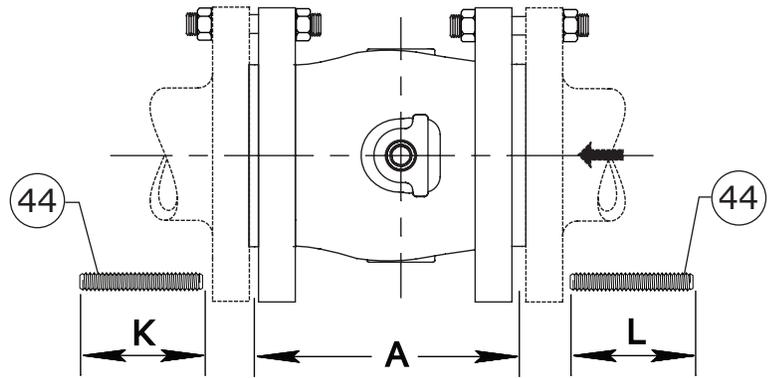


Figure 2 Typical Valve Assembly Diagram and Dimensions



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Figure 3
Flange Stud Measuring Method

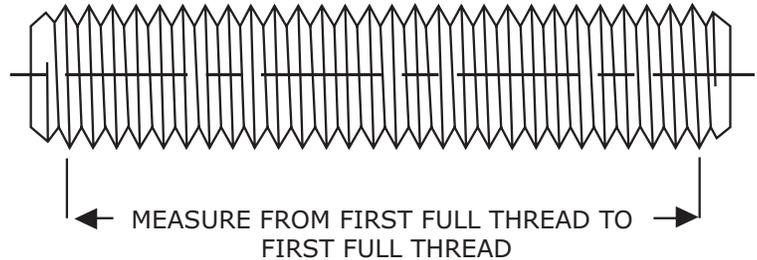


Table 4

Model 570 Line Flange Stud Lengths Inch (mm) - Refer to Figure 2.

Valve Size (inches)	I		
	Class 150	Class 300	Class 600
1	6.94 (176)	7.94 (202)	7.94 (202)
1-1/2	7.44 (189)	8.81 (224)	8.81 (224)
2	8.31 (211)	9.31 (237)	9.31 (237)
3	10.00 (254)	11.00 (279)	11.25 (286)
4	11.25 (286)	12.00 (305)	13.50 (343)
6	13.50 (343)	14.25 (362)	16.25 (413)
8	13.50 (343)	15.25 (387)	16.75 (426)

Table 5

Model 571 and 573 Flange Stud Lengths Inch (mm) - Refer to Figure 2.

Valve Size Inch	571		573	
	K	L	K	L
1	2.88 (73)	3.12 (79)	3.69 (94)	3.94 (100)
1-1/2	3.12 (80)	3.62 (92)	4.25 (108)	4.50 (114)
2	3.44 (87)	3.94 (100)	3.94 (100)	4.19 (106)
3	3.94 (100)	4.19 (106)	4.75 (121)	5.25 (133)
4	3.94 (100)	4.69 (119)	5.00 (127)	5.50 (140)
6	4.50 (114)	5.00 (127)	5.50 (140)	6.00 (152)
8	5.00 (127)	5.25 (133)	6.00 (152)	6.50 (165)
10	5.25 (133)	5.75 (146)	6.81 (173)	7.31 (186)
12	5.25 (133)	6.00 (152)	7.31 (186)	7.81 (198)
16	5.25 (133)	6.00 (152)	7.50 (191)	8.25 (210)

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Table 6

Flange Stud Diameters and Threads Per Inch (TPI)

Valve Size Inch	TPI		
	Class 150	Class 300	Class 600
1	Consult Dyna-Flo	Consult Dyna-Flo	Consult Dyna-Flo
1-1/2	Consult Dyna-Flo	Consult Dyna-Flo	Consult Dyna-Flo
2	5/8" - 11	5/8" - 11	5/8" - 11
3	5/8" - 11	3/4" - 10	3/4" - 10
4	5/8" - 11	3/4" - 10	7/8" - 9
6	3/4" - 10	3/4" - 10	1" - 8
8	3/4" - 10	7/8" - 9	1-1/8" - 7
10 (571 & 573 ONLY)	7/8" - 9	1" - 8	N/A
12 (571 & 573 ONLY)	7/8" - 9	1-1/8" - 7	N/A
16 (571 & 573 ONLY)	1" - 8	1-1/4" - 7	N/A

Table 7

Flange Stud Quantity

Valve Size Inch	Number of Studs Required (Double for Models 571 & 573)		
	Class 150	Class 300	Class 600
1	4	Consult Dyna-Flo	Consult Dyna-Flo
1-1/2	4	Consult Dyna-Flo	Consult Dyna-Flo
2	4	8	8
3	4	8	8
4	8	8	8
6	8	12	12
8	8	12	12
10 (571 & 573 ONLY)	12	16	N/A
12 (571 & 573 ONLY)	12	12	N/A
16 (571 & 573 ONLY)	20	20	N/A

Table 8

Model 570 Valve Mounting Pad Dimensions Inch (mm) - Refer to Figure 2.

Valve Size Inch	Dimensional Reference		
	N	M	O
1 / 1-1/2 / 2	0.56 (14.2)	4.62 (117)	—
3 / 4 / 6	0.56 (14.2)	6.00 (152)	1.25 (31.8)
8	0.69 (17.5)	9.25 (235)	1.81 (46.0)



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Table 9

Model 571 & 573 Valve Mounting Pad Dimensions Inch (mm) - Refer to Figure 2.

Valve Size Inch	Dimensional Reference		
	N	M	O
1 / 1-1/2 / 2	0.56 (14.2)	4.62 (117)	—
3 / 4 / 6	0.56 (14.2)	6.00 (152)	1.25 (31.8)
8 / 10 / 12	0.69 (17.5)	9.25 (235)	1.81 (46.0)
16	3/4-10 UNC (M20x 2.5)	10.75 (273)	2.00 (50.8)

Table 10

Valve Shaft Diameters Inch (mm) - Refer to Figure 2.

Valve Size Inch	Shaft Diameter Inch (mm)
1	1/2 (12.7)
1-1/2 & 2	5/8 x 1/2 spline (15.9 x 12.7 spline)
3 & 4	3/4 (19.1)
6	1 (25.4)
8 & 10	1-1/4 (31.8)
12	1-1/2 (38.1)
16 (571)	2-1/8 x 2 (54.0 x 50.8)
16 (573)	2-1/8 (54.0)

Table 11

Model 570, 571, and 573 Splined Shaft Dimensions Inch (mm) - Refer to Figure 2.

Valve Size Inch	570		571		573	
	J	S	J	S	J	S
1	7.38 (188)	1/2 (12.7)	7.38 (188)	7.38 (188)	7.38 (188)	7.38 (188)
1-1/2	7.38 (188)	5/8 X 1/2 (15.9 X 12.7)	7.38 (188)	5/8 X 1/2 (15.9 X 12.7)	7.38 (188)	5/8 X 1/2 (15.9 X 12.7)
2	7.38 (188)	5/8 X 1/2 (15.9 X 12.7)	7.38 (188)	5/8 X 1/2 (15.9 X 12.7)	7.38 (188)	5/8 X 1/2 (15.9 X 12.7)
3	8.44 (214)	3/4 (19.1)	8.44 (214)	3/4 (19.1)	8.44 (214)	3/4 (19.1)
4	8.44 (214)	3/4 (19.1)	8.44 (214)	3/4 (19.1)	8.44 (214)	3/4 (19.1)
6	8.44 (214)	1 (25.4)	8.44 (214)	1 (25.4)	8.44 (214)	1 (25.4)
8	8.19 (208)	1-1/4 (31.8)	8.19 (208)	1-1/4 (31.8)	8.19 (208)	1-1/4 (31.8)
10	N/A	N/A	8.19 (208)	1-1/4 (31.8)	8.19 (208)	1-1/4 (31.8)
12	N/A	N/A	8.19 (208)	1-1/2 (38.1)	8.19 (208)	1-1/2 (38.1)
16	N/A	N/A	14.00 (356)	2-1/8 x 2 (54.0 x 50.8))	14.00 (356)	2-1/8 (54.0)

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Table 12

Model 570, 571, and 573 Keyed Shaft Dimensions Inch (mm) - Refer to Figure 2.

Valve Size Inch	570					571 & 573				
	J	S	U	T	W	J	S	U	T	W
8	5.05 (128.3)	1-1/4 (31.8)	1.50 (38.1)	1-1/8 (28.6)	1.63 (41.4)	5.05 (128.3)	1-1/4 (31.8)	1.50 (38.1)	1-1/8 (28.6)	1.63 (41.4)
	8" Valve Shafts use a 1/4" x 1.37" Key Stock.									
10	—	—	—	—	—	5.05 (128.3)	1-1/4 (31.8)	1.50 (38.1)	1-1/8 (28.6)	1.63 (41.4)
	10" Valve Shafts use a 1/4" x 1.37" Key Stock.									
12	—	—	—	—	—	5.10 (129.5)	1-1/2 (38.1)	1.50 (38.1)	1-3/8 (34.9)	1.75 (44.5)
	12" Valve Shafts use a 5/16" x 1.34" Key Stock.									

Table 13

Model 570, 571, and 573 Square Shaft Dimensions Inch (mm) - Refer to Figure 2.

Valve Size Inch	Dimensional Reference			
	J	S	P	Q
1	3.24 (82.3)	1/2 (12.7)	0.75 (19.1)	0.431 (11.0)
1-1/2	3.24 (82.3)	5/8 (15.9)	0.75 (19.1)	0.431 (11.0)
2	3.24 (82.3)	5/8 (15.9)	0.75 (19.1)	0.431 (11.0)
3	3.82 (97.0)	3/4 (19.1)	0.75 (19.1)	0.550 (14.0)
4	3.82 (97.0)	3/4 (19.1)	0.75 (19.1)	0.550 (14.0)
6	5.07 (128.8)	1 (25.4)	1.00 (25.4)	0.747 (19.0)

UNPACKING VALVE FROM SHIPPING CONTAINER

Special Tools Required:

- Properly Rated Lifting Straps (2 – 4 Straps) refer to Table 2 of the Sales Bulletin 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.

Place the lifting straps around the neck of the actuator and valve body (Figure 4). Straps should be placed to avoid damage to tubing and other mounted accessories.

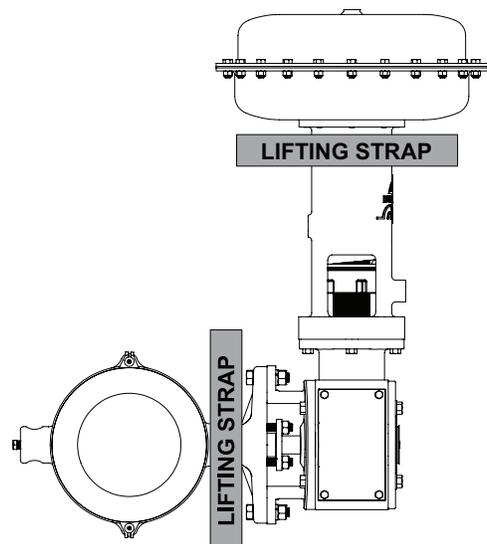


Figure 4 Suggested Lifting Strap Placement



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INSTALLATION

Before You Begin:

- Read the General and Scope section of this manual (Page 2).
- Read Safety Caution (Page 2).
- The following instructions assume that an actuator is already mounted to the valve. It is recommended that an actuator be mounted to the valve and bench set prior to installation, but not necessary. For Actuator Mounting Instructions refer to Page 12.
- 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.
- 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 in-line.

Parts Required:

- Flange Studs (Key 44) **Note:** Flange Studs will vary depending on valve size and model. Refer to Figures 2 and 3, and Tables 4 to 7 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 the line flanges, these studs do not center the valve in the pipeline.
- Appropriate Line Flange Gaskets.

Lubricants Required:

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

WARNING: Keep hands, hair and clothing away from all moving parts when operating the valve. Serious injury can result from failure to do so.

- 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.

WARNING: 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).

Model 570 Installation

(Refer to Figures 2 and 3, and Tables 4 to 7 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 (Page 12).

Models 571 & 573 Installation

(Refer to Figures 2 and 3, and Tables 4 to 7 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.

- 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 (Page 12).

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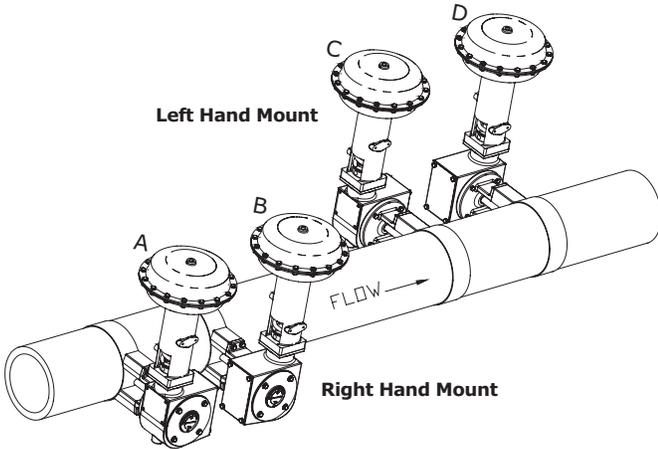


Figure 5 Mounting Orientation Diagram

Figure 6 Actuator/Valve Position Chart

	ACTUATOR (diagrams shown using DFR model actuators)	VALVE OPEN
RIGHT-HAND MOUNTED ACTUATOR	STYLE A PUSH DOWN TO CLOSE (PDTC) ACTUATOR POSITIONS	
	STYLE B PUSH DOWN TO OPEN (PDTO) ACTUATOR POSITIONS	
LEFT-HAND MOUNTED ACTUATOR	STYLE C PUSH DOWN TO CLOSE (PDTC) ACTUATOR POSITIONS	
	STYLE D PUSH DOWN TO OPEN (PDTO) ACTUATOR POSITIONS	



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Table 14

Mounting Styles and Positions

Mounting	Action	Position (Refer to Figures 5 & 6)
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

INSTALLATION (Continued)

AIR PIPING

WARNING: 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. Do not exceed the supply pressure indicated on the serial plate located on the actuator.

Standard actuators are designed to accept a 1/4" (6 mm) NPT connection. Use 3/8" OD tubing (or equivalent) for all air lines. Always follow good piping practices when installing piping or tubing. Install all required line vents, valves, drains, seals, and filters. For more information refer to the appropriate actuator instruction manual for your product.

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.

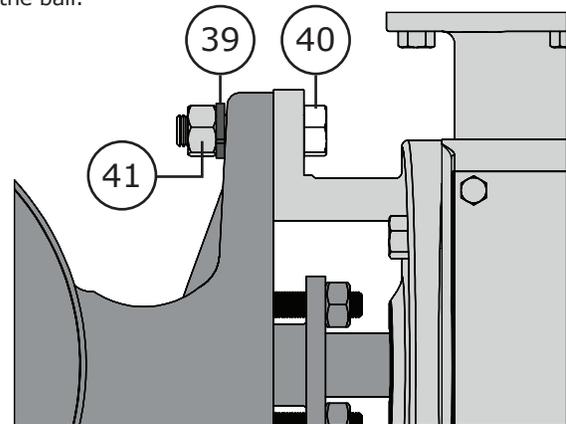


Figure 7 Actuator Mounting Detail

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PERIODIC INSPECTION

Special Equipment Required:

- Bypass or block valves.

Before You Begin:

- Read Safety Caution (Page 2).
- Use safe work practices and lock out procedures.
- Disconnect supply lines (air or gas), electric power, or control signal to the actuator. Sudden movement of actuator can cause damage or injury, make sure actuator will not operate.
- Vent any pneumatic actuator loading pressure and relieve any actuator spring preload if present.
- Be aware of potentially hazardous process material that may be present in-line and in-valve. Isolate the valve from process pressure. Use a bypass or block valve if necessary, or completely shut off the process.
- Relieve process pressure and drain the process fluid from up and down stream of valve.

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 (if equipped) any NPT connection.
- 4 Clean and repaint areas as required.
- 5 Ensure all accessories, mounting brackets, and fasteners are secure.
- 6 Clean any dirt and foreign material from the valve shaft (Key 11).

MAINTENANCE

NOTE: Packing and ball seals (Key 26) should all be inspected frequently for leaks, wear and damage. Maintenance to the packing can be made while the valve is still in-line, although the actuator must be removed to replace the packing. Ball seal maintenance must be performed with the valve removed from the pipe line.

Before You Begin:

- Read Safety Caution (Page 2).
- Determine if valve has PTFE, graphite, or live loaded packing (Refer to Figures 59 & 60).
- Follow Steps 2 – 6 of PERIODIC INSPECTION before you begin.

Special Tools Required:

- Mechanics Pick Set

PACKING MAINTENANCE

Determine the type of packing installed in the valve. Refer to Figures 59, 60, 61, and 62 for packing styles. For live loaded packing, refer to ASSEMBLY / LIVE LOADED PACKING (Page 36) for proper adjustment procedures.

If the packing is leaking, tightening of the packing flange may stop the leak. If extra tightening of the packing does not stop the leakage, it is possible that the shaft (Key 11) or bore of the packing box is damaged. Replace or repair parts as necessary. Refer to DISASSEMBLY / PACKING REMOVAL (Page 15) and ASSEMBLY / PACKING INSTALLATION (Page 35) for instructions to remove old packing and install new packing.

NOTE: To remove and replace the valve packing it is necessary to remove the actuator from the valve (Refer to Page 14 for ACTUATOR REMOVAL instructions). It is also recommended that the valve be removed from the pipe line, but not necessary. Packing box parts can be removed carefully using a mechanics pick set while the valve is still in-line.

BALL SEAL MAINTENANCE

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



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MAINTENANCE (Continued)

BALL SEAL MAINTENANCE (Continued)

Maintenance for ball seals consists mainly of seal replacement. Should seals require maintenance or inspection, refer to the VALVE REMOVAL instructions below. Once the valve has been removed from the pipe line, refer to the DISASSEMBLY / BALL SEAL REMOVAL instructions (Page 16) and the ASSEMBLY / BALL SEAL INSTALLATION instructions (Page 40) for information on removing and replacing the seal.

VALVE REMOVAL

Before You Begin:

- Read Safety Caution (Page 2).
- Use safe work practices and lock out procedures.
- Place the valve into the OPEN position, this helps to prevent damage to the valve ball (Key 6) during removal. It is important that the back edge of the ball never be rotated past the ball seal, damage to the seal will occur.
- 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. Disconnect supply lines (air or gas), electric power, or control signal to the actuator.
- Vent any pneumatic actuator loading pressure and relieve any actuator spring preload if present.
- Be aware of potentially hazardous process material that may be present in-line and in-valve. Isolate the valve from process pressure. Use a bypass or block valve if necessary, or completely shut off the process.
- Relieve process pressure and drain the process fluid from up and down stream of valve.

- 1 Support the valve or valve/actuator assembly, refer to UNPACKING VALVE FROM SHIPPING CONTAINER section (Page 9) for support details.
- 2 Remove the line bolting (Key 44).
- 3 Remove and replace the line flange gaskets. Gaskets cannot be re-used.
- 4 Once 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.

ACTUATOR REMOVAL

Note: Actuator removal does not require that the valve be removed from the pipeline. In some circumstances it may be easier to remove the actuator from the valve while the valve is still in the pipeline.

Before You Begin:

- Read Safety Caution (Page 2).
- Use safe work practices and lock out procedures.
- Sudden movement of actuator can cause damage or injury, it helps to have the actuator de-energized Disconnect supply lines (air or gas), electric power, or control signal to the actuator. Sudden movement of actuator can cause damage or injury, make sure actuator will not operate.
- Vent any pneumatic actuator loading pressure and relieve any actuator spring preload if present.
- Be aware of potentially hazardous process material that may be present in-valve.

- 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.
- 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).
- 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.

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DISASSEMBLY

Before You Begin:

- Read Safety Caution (Page 2).
- Use safe work practices and lock out procedures.
- Remove the actuator from the valve. Use caution, even with the actuator removed the valve ball can still rotate.
- Vent any pneumatic actuator loading pressure and relieve any actuator spring preload if present.
- Be aware of potentially hazardous process material that may be present in-valve.

PACKING REMOVAL

Before You Begin:

- Be aware of potentially hazardous process material that may be present in between the packing.
- Use caution and avoid damaging or scratching the packing bore or drive shaft (Key 11) while removing the packing.
- Packing may be removed without removing the drive shaft (Key 11) from the valve, however it is easier to remove the packing and inspect the valve shaft/packing bore when the drive shaft has been removed.

Special Tools Required:

- Mechanics Pick Set

- 1 Remove the packing nuts (Key 24).
- 2 **For Standard Packing:** Remove the packing follower (Key 20). Refer to Figure 8. **NOTE:** 16 Inch valves utilize a 2 piece packing follower (Key 20) and packing flange (Key 20A), refer to Figure 75.
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 9.
- 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 8 & 9. **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. Refer to Figure 8.
- 4 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

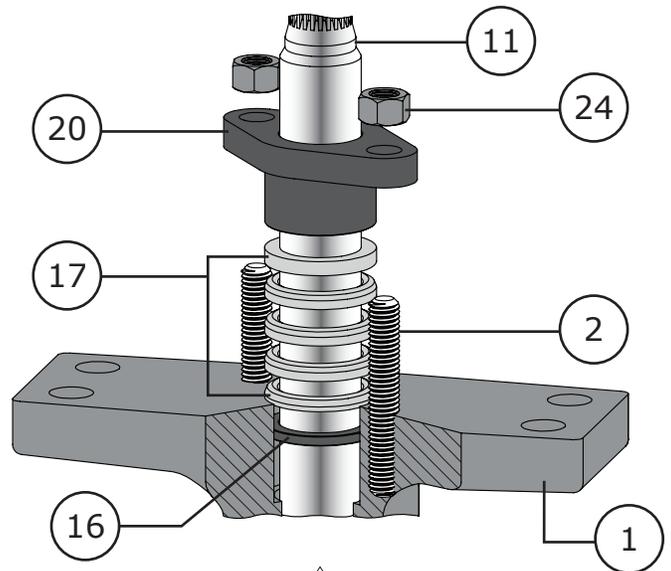


Figure 8 Standard Packing Removal

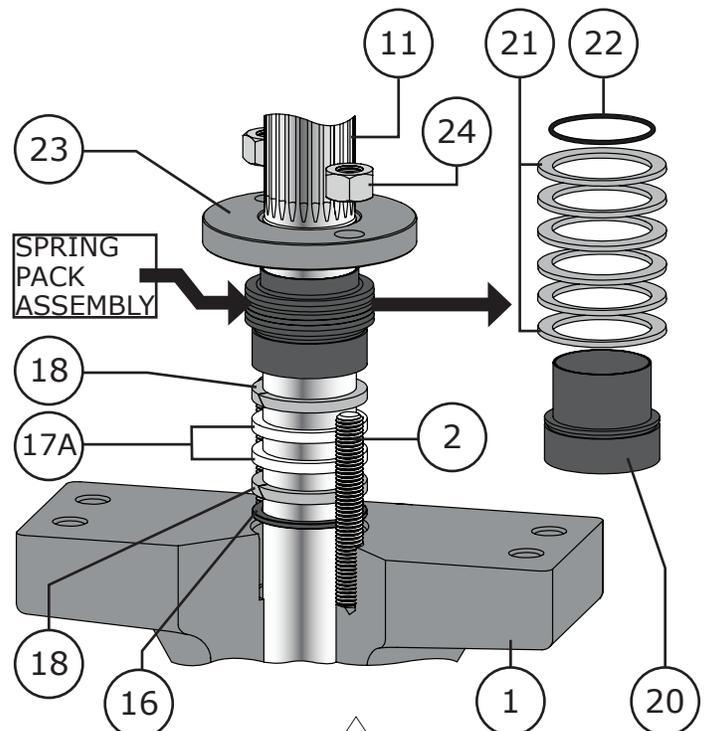


Figure 9 Sample Live Loaded Packing Removal



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DISASSEMBLY (Continued)

BALL SEAL REMOVAL

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

Before You Begin:

- Read Safety Caution (Page 2).
- Use safe work practices and lock out procedures.
- Be aware of potentially hazardous process material that may be present in-valve.
- Place the valve in to the OPEN position.

For 1 to 8 Inch 570 Valves (Refer to Figures 10 & 11):

- 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. **NOTE:** Gaskets can not be reused.

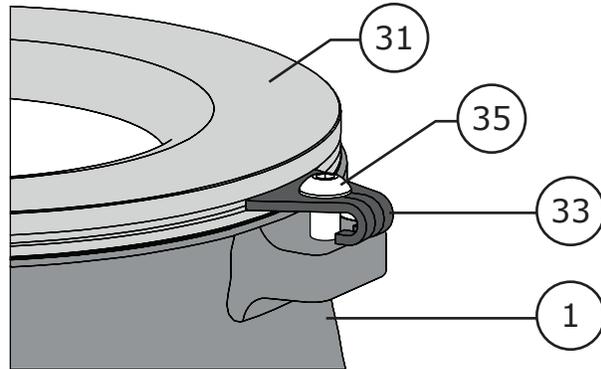
For 1 to 12 Inch 571/573 Valves (Refer to Figures 10 & 11):

- 1 Remove the seal protector screws (Key 36) and seal protector washers (Key 34).
- 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. **NOTE:** Gaskets can not be reused.

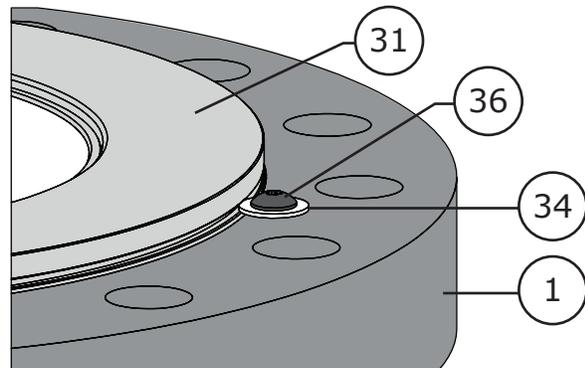
For 16 Inch Valves (Refer to Figures 10 & 11):

- 1 Remove the 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). **NOTE:** To aid in safe seal protector ring removal, use the extractor holes. Extractor holes can be used to push the seal out of the body by threading in bolts, or to lift the seal protector ring by attaching lifting hooks.
- 3 Remove the gasket (Key 30) and ball seal (Key 26) if present. **NOTE:** Gaskets can not be reused.

FOR 1 - 8 INCH VALVES



FOR 1 - 12 INCH 571/573 VALVES



FOR 16 INCH VALVES

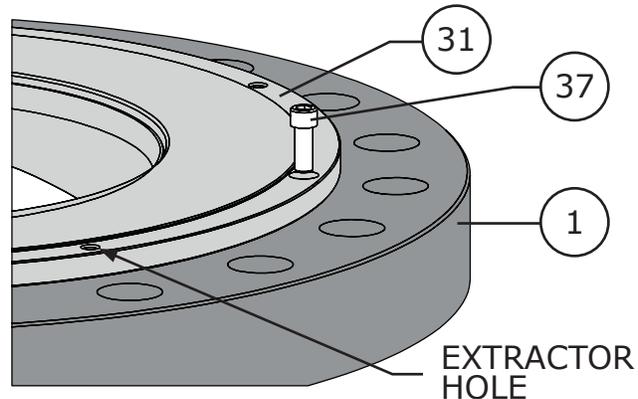


Figure 10 Seal Protector Ring Retaining Parts Removal

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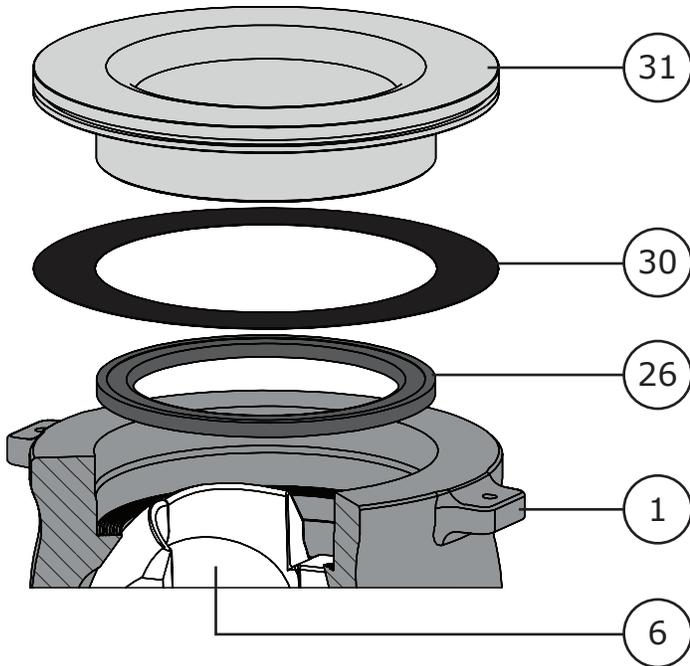


Figure 11 Seal Protector Ring / Flow Ring Removal

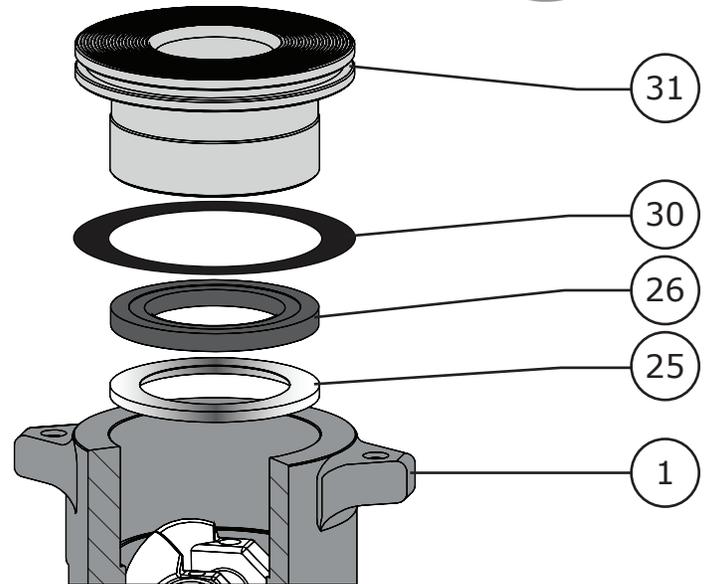


Figure 12 Backup Ring Removal

DISASSEMBLY (Continued)

BALL SEAL REMOVAL (Continued)

For 1 to 2 Inch Valves (Refer to Figure 12):

- 4 Remove the back up ring (Key 25) if present.

For All Sizes:

- 5 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary. Pay close attention to gasket sealing surfaces.

METAL BALL SEAL DISASSEMBLY

- 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 13.
- 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.

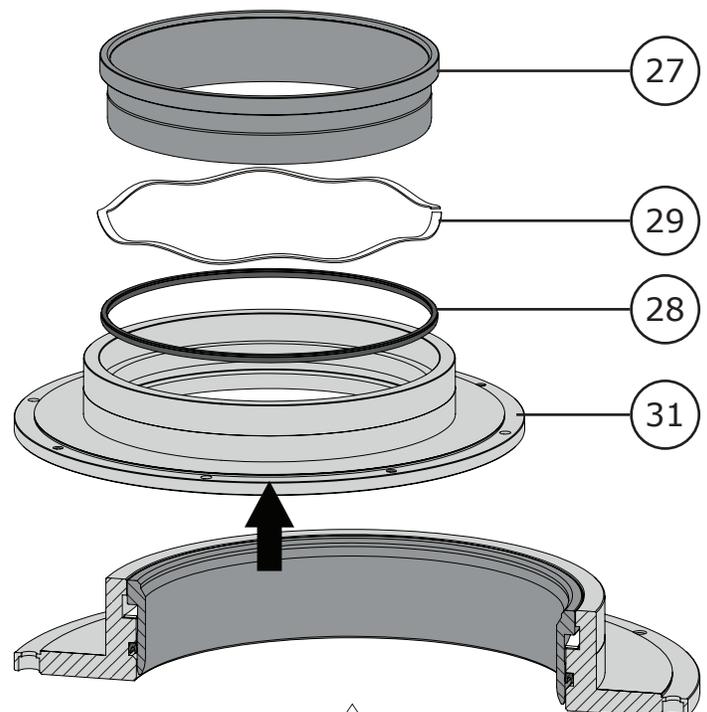


Figure 13 Metal Ball Seal Disassembly



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DISASSEMBLY (Continued)

BALL AND SHAFT REMOVAL

Before You Begin:

- Read Safety Caution (Page 2).
- Use safe work practices and lock out procedures.
- Be aware of potentially hazardous process material that may be present in-valve.
- Place 1 to 4 inch 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 14). **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.
- Threaded rod (5/16-18) for 1 & 1-1/2" valve follower shaft removal.

For 1 to 2 Inch Valve Shaft Removal:

NOTE: 1 to 2 inch 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 to the stake marks. Refer to Figure 15.

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 Place 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 with 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.

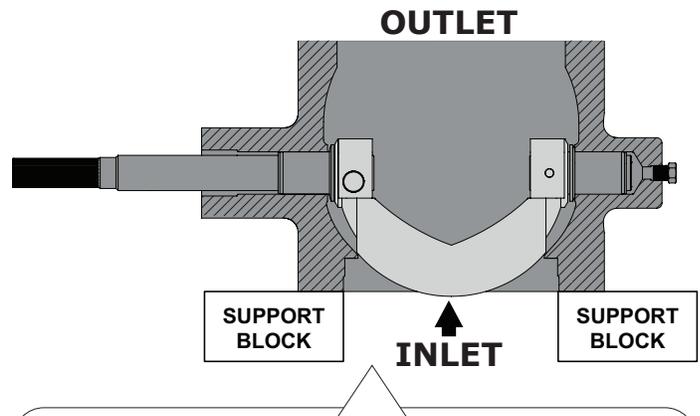


Figure 14 Valve Placement for 6" to 16" Disassembly

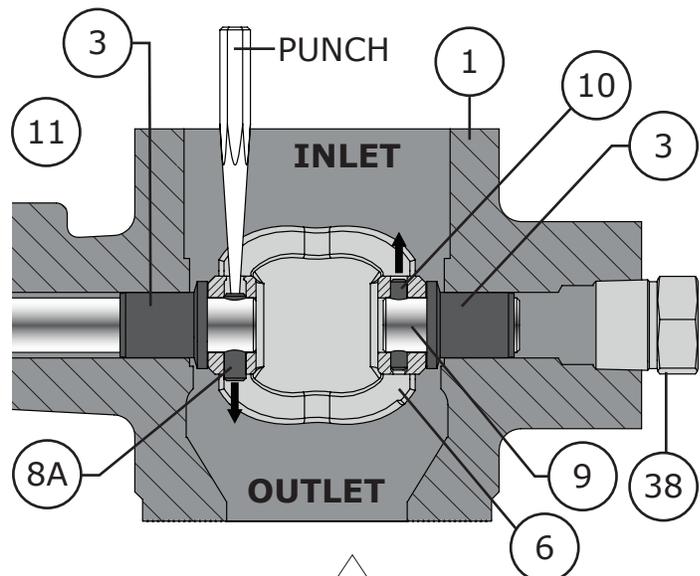


Figure 15 2 Inch Valve Pin Removal

- 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 inch valves, rotate the ball (Key 6) 180 degrees, pins are installed from opposite sides of each other as shown in Figure 15.
- 6 Remove the drive shaft (Key 11) from the actuator side of the valve. Refer to Figure 16.
- 7 Remove the pipe plug (Key 38) **NOTE:** Old style valve bodies (Key 1) may not have a pipe plug.

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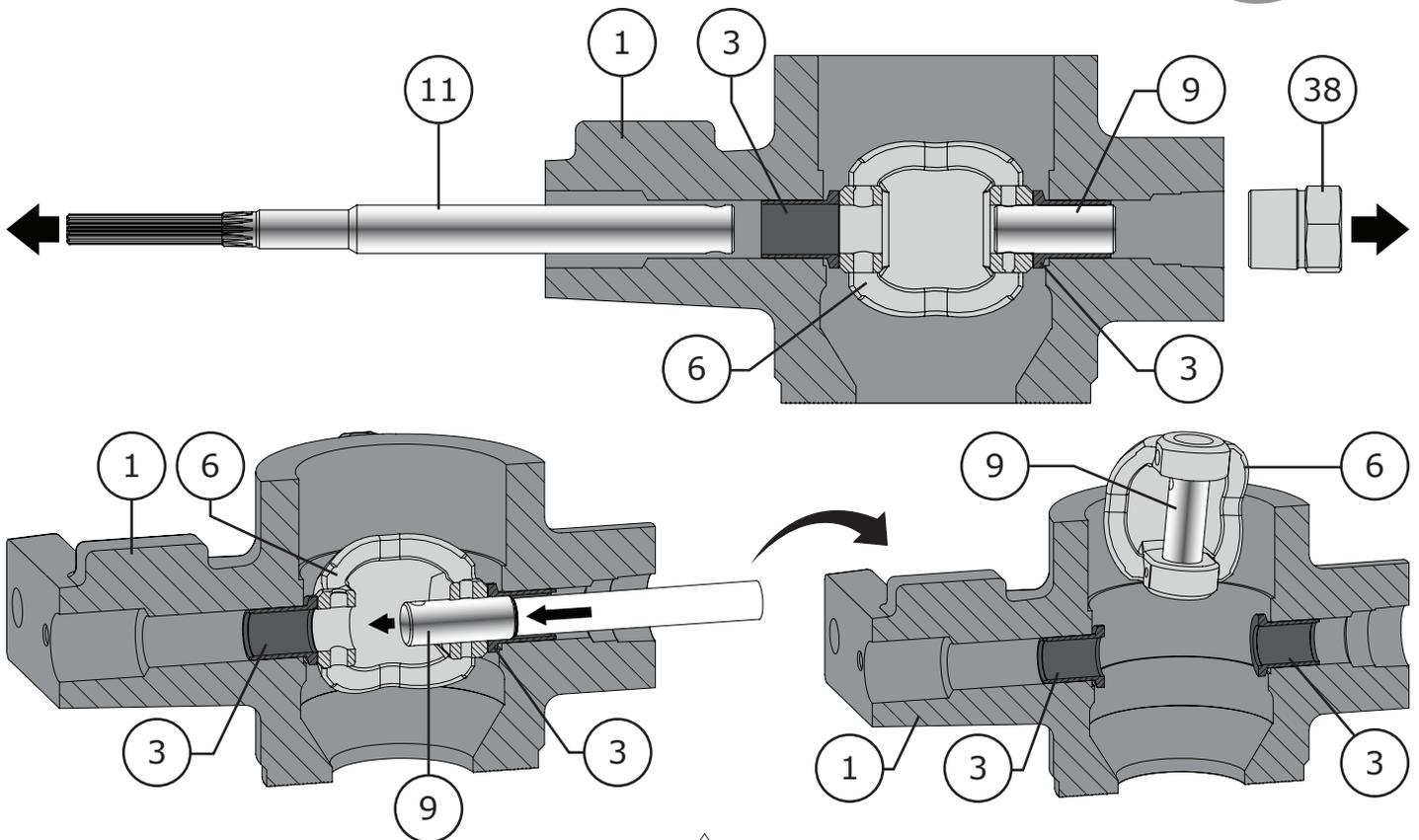


Figure 16 Follower Shaft and Ball Removal (Steps 6 to 10) for 2 Inch Valves

DISASSEMBLY (Continued)

BALL AND SHAFT REMOVAL (Continued)

For 1 to 2 Inch Valve Shaft Removal (Continued):

- 8** Support the ball (Key 6) and push the follower shaft (Key 9) towards the center of the ball. Refer to Figure 16.

For Old Style 1 & 1-1/2 inch valves: Some old style valve bodies do not have a pipe plug (Key 38). Use a piece of 5/16-18 threaded rod inserted into the follower shaft (Key 9) to pull it in towards the center of the ball (Key 6). Refer to Figure 17.

- 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.

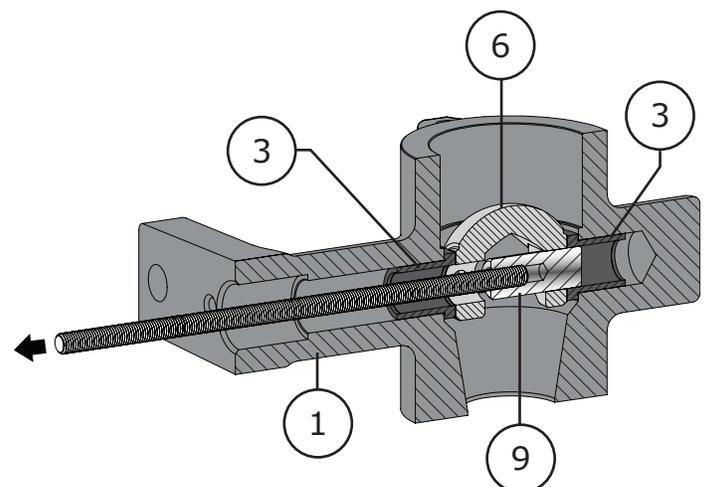


Figure 17 Follower Shaft Removal 1 & 1-1/2 Inch Valves



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DISASSEMBLY (Continued)

BALL AND SHAFT REMOVAL (Continued)

For 3 to 12 Inch Valve Shaft Removal:

NOTE: 3 to 12 inch 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 18.

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 18 and Figure 14.
- 2 With the ball (Key 6) in the OPEN position with the tapered end of the shaft connection facing up as shown in Figure 18, 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.

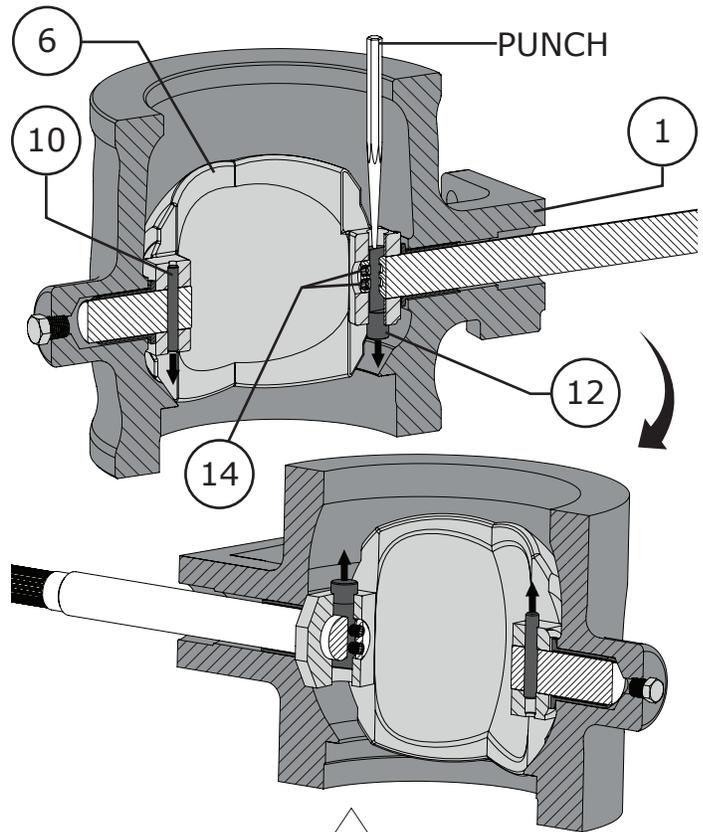


Figure 18 3 to 12 Inch Shaft Connection Removal

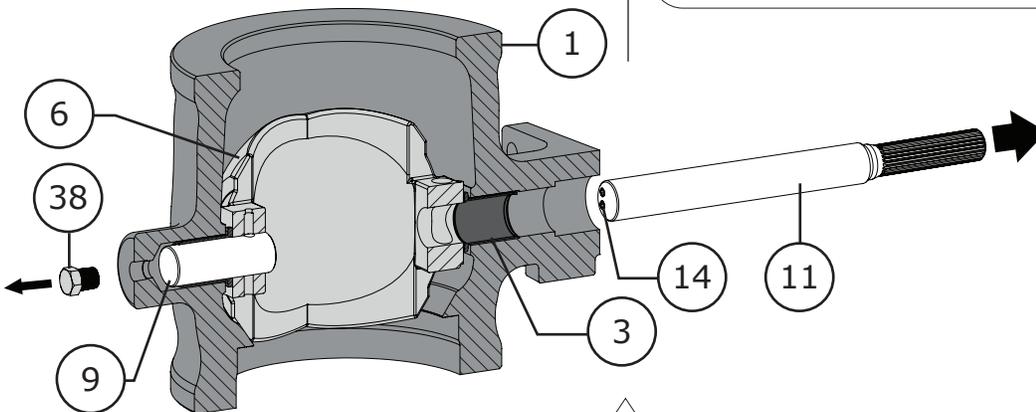


Figure 19 3 to 12 Inch Drive Shaft / Pipe Plug Removal

- 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 18).
- 5 Using the valve shaft (Key 11), rotate the valve ball (Key 6) 180 degrees, as shown in Figure 18, in order to finish removing the shaft key (Key 12) and follower shaft pin (Key 10).

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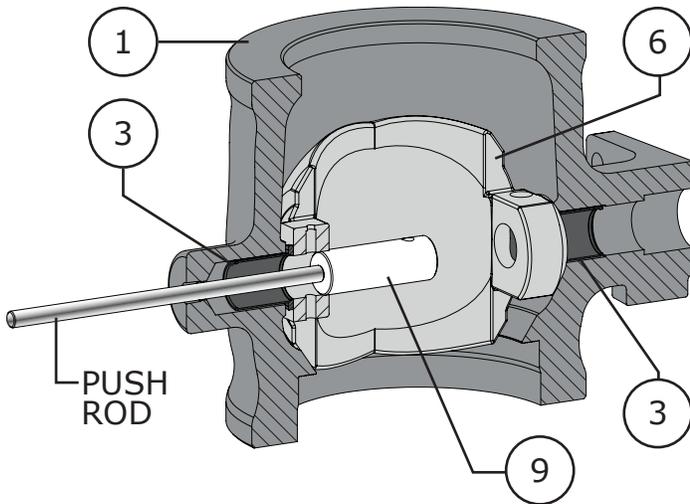


Figure 20 3 to 12 Inch Follower Shaft Removal

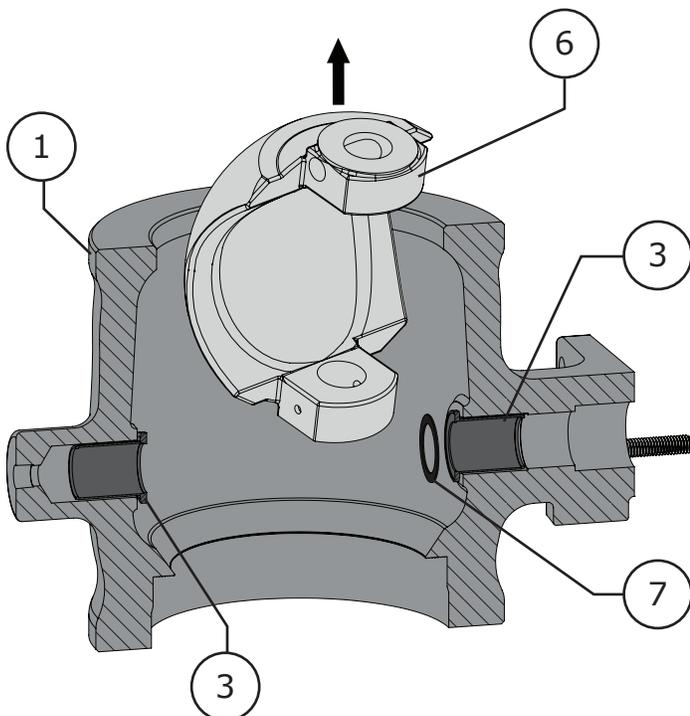


Figure 21 3 to 12 Inch Ball Removal

DISASSEMBLY (Continued)

BALL AND SHAFT REMOVAL (Continued)

For 3 to 12 Inch Valve Shaft Removal (Continued):

- 6 Remove the drive shaft (Key 11) from the actuator side of the valve. Refer to Figure 19.
- 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 20.
- 9 Carefully remove the ball (Key 6) and follower shaft (Key 12) inside the valve body. Be very cautious not to damage the sealing surface of the ball. **NOTE:** The thrust washer (Key 7 for 6" to 12" valves) is glued in place, only remove if necessary.
- 10 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

For 16 Inch Valve Shaft Removal:

NOTE: 16 inch valves use a combination of 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 24, 25, & 26.

- 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 18 and Figure 14.
- 2 With the ball (Key 6) in the OPEN position support the ball so that it will not rotate.
- 3 Remove the shaft retainers (Key 15). Refer to Figure 23.
- 4 Remove the nuts (Key 24), 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 16. Spiral wound gaskets cannot be reused.
- 5 Remove the follower shaft (Key 9) by pushing it towards the center of the ball (Key 6). Refer to Figure 24.
- 6 Remove the follower shaft pin (Key 10) from the follower shaft (Key 9). Refer to Figure 25.



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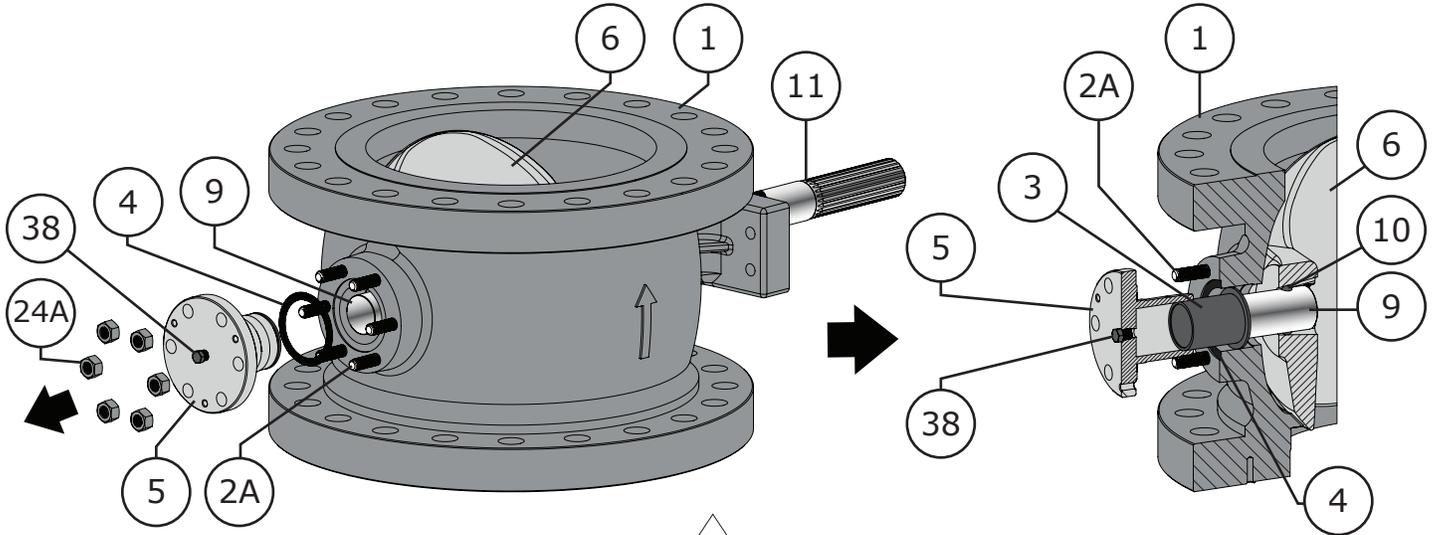


Figure 22 16 Inch Flange / Spiral Wound Gasket / Bearing Removal

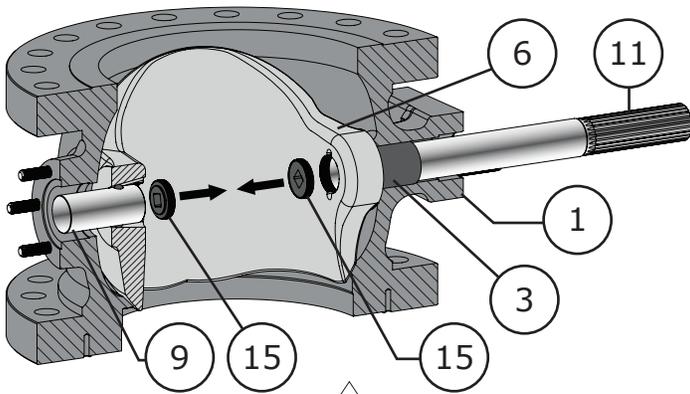


Figure 23 16 Inch Shaft Retainer Removal

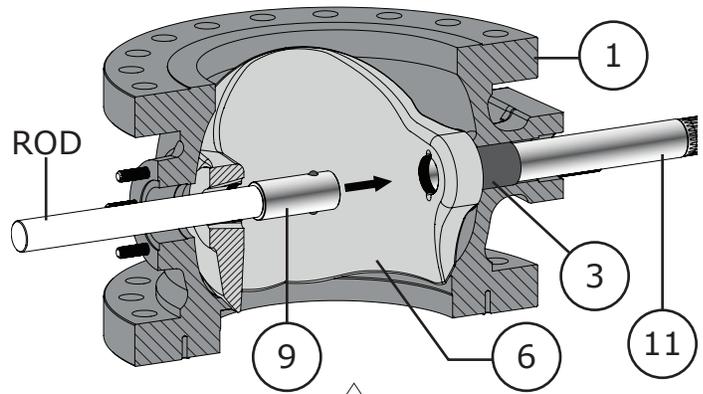


Figure 24 16 Inch Follower Shaft Removal

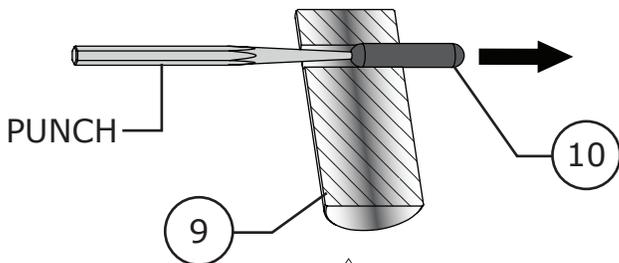


Figure 25 16 Inch Follower Shaft Pin Removal

DISASSEMBLY (Continued)

BALL AND SHAFT REMOVAL (Continued)

For 16 Inch Valve Shaft Removal (Continued):

- 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 26.

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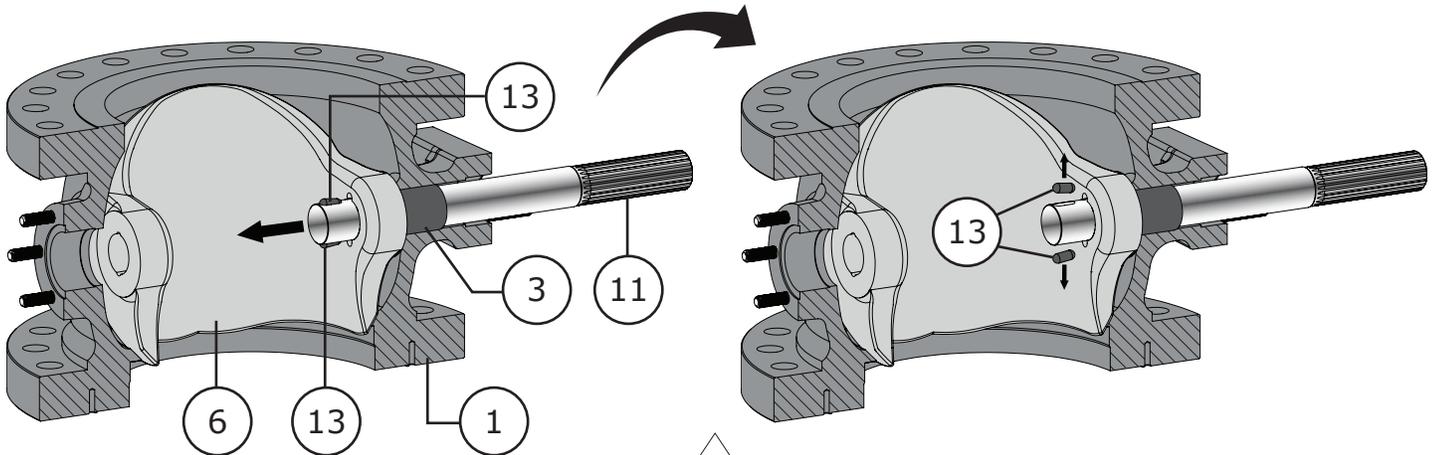


Figure 26 16 Inch Drive Shaft Pin Removal

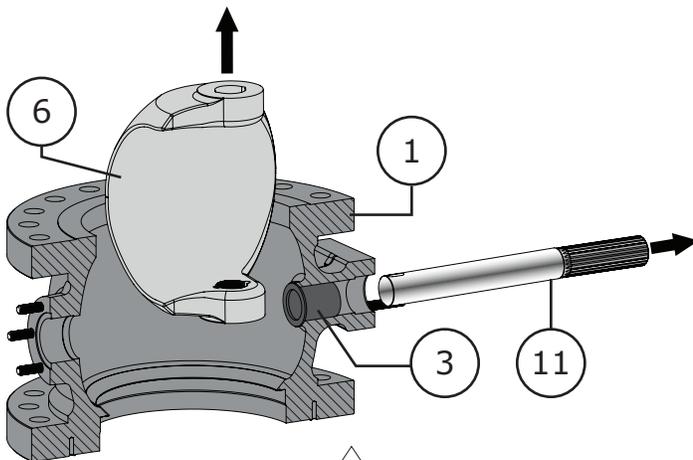


Figure 27 16 Inch Follower Shaft Removal

DISASSEMBLY (Continued)

BALL AND SHAFT REMOVAL (Continued)

For 16 Inch Valve Shaft Removal (Continued):

- 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 27.
- 9 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary. Spiral wound gaskets (Key 4) can not be reused.

DISASSEMBLY (Continued)

BEARING REMOVAL

Before You Begin:

- Read Safety Caution (Page 2).
- Use safe work practices and lock out procedures.
- Be aware of potentially hazardous process material that may be present in-valve.

NOTE: If the bearings (Key 3) need to be replaced, be aware that Dyna-Flo bearing configurations have changed for 570 series control valves. New replacement bearing kits will reflect this change:

Inboard and outboard bearings are only present for valve sizes 6" through 12" with S17400 bearing material. All other bearing combinations and sizes utilize two identical bearings. Refer to Figure 33.

Inspect the bearings, remove the bearings only if they are damaged and require removal.

If the thrust washer (Key 7) has come unglued or was damaged and needs to be replaced, be aware that the faces of the thrust washer are not the same and that one face needs to be in contact with the bearing (Key 3) while the other face will be in contact with the ear of the valve ball (Key 6). To determine which face is which, a simple water test can be used, refer to Page 25 for details.



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DISASSEMBLY (Continued)

BEARING REMOVAL (Continued)

For Old Style 1 & 1-1/2 Inch Valve Bearing Removal:

NOTE: Old style 1 & 1-1/2 inch 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 28.
- 2 Pull or drive the inboard bearing (Key 3) towards the center of the valve body (Key 1) and remove it. Refer to Figure 29A.
- 3 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

For 1 to 12 Inch Valve Bearing Removal:

NOTE: 1 to 12 inch 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 29B.
- 2 Pull or drive the inboard bearing (Key 3) towards the center of the valve body (Key 1) and remove it. Refer to Figure 29A & 29C.
- 3 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

For 16 Inch Valve Bearing Removal:

NOTE: Outboard bearings for a 16 inch valve 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 Figure 36.

- 2 Pull or drive the inboard bearing (Key 3) towards the center of the valve body (Key 1) and remove it. Refer to Figure 29C.
- 3 Inspect all parts for damage or corrosion, clean, repair, and replace parts as necessary.

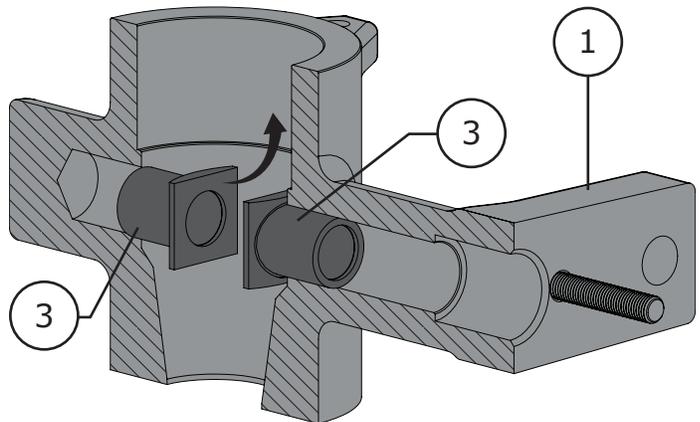


Figure 28 Old Style 1 & 1-1/2 Inch Outboard Bearing Removal

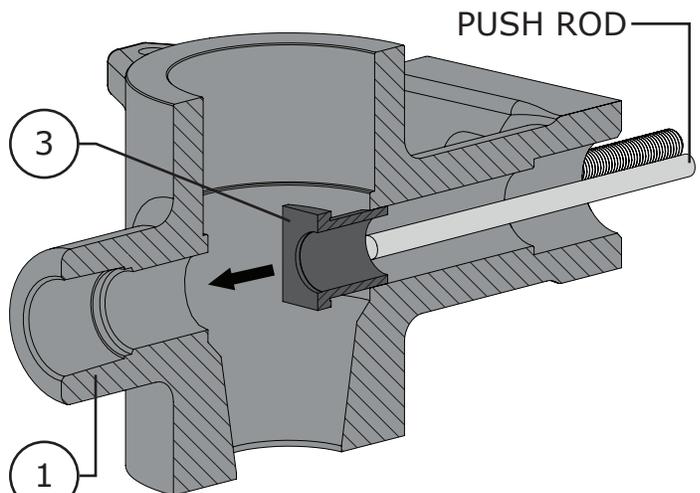


Figure 29A 1 to 2 Inch Inboard Bearing Removal

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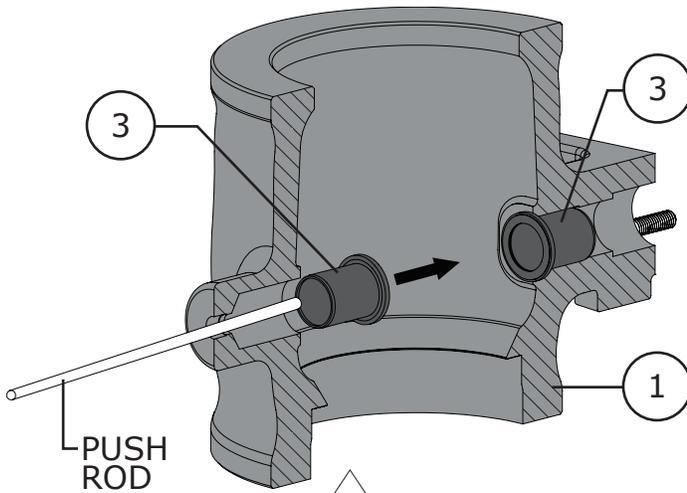


Figure 29B 3 to 12 Inch Outboard Bearing Removal

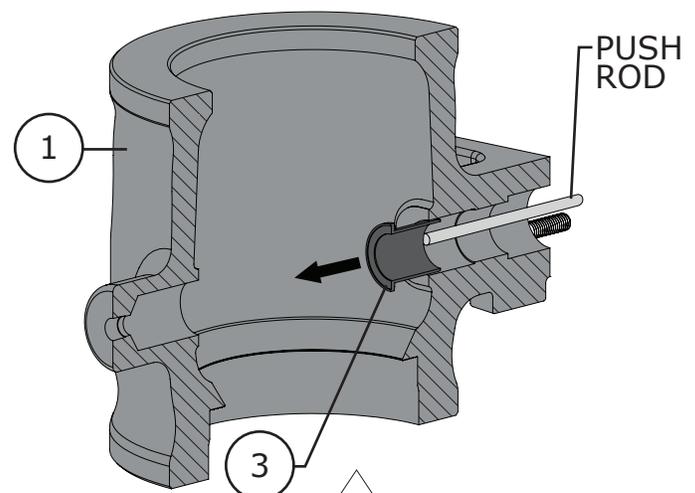


Figure 29C 3 to 16 Inch Inboard Bearing Removal

WATER BEADING

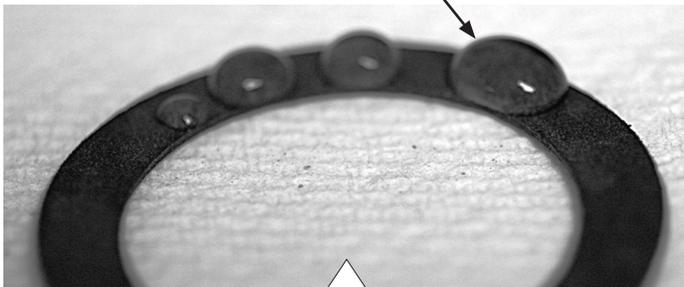


Figure 30 Bearing Side - Thrust Washer Water Test

WATER SPREADING

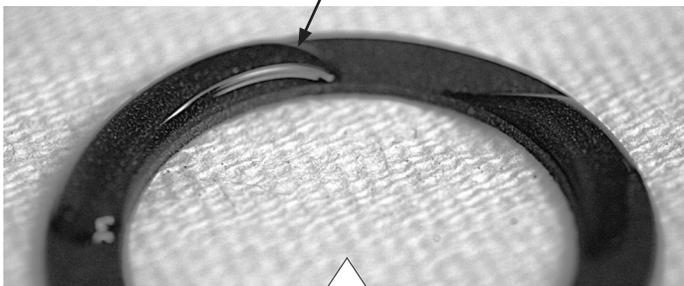


Figure 31 Bondable Side - Thrust Washer Water Test

THRUST WASHER WATER TEST

Thrust washers (Key 7) should only need to be removed and replaced if there is wear or damage, otherwise they can be left attached to the bearing (Key 3) during maintenance.

When installing a thrust washer (Key 7) you must be aware that there is a difference between each side of the material. Thrust washers have a bondable side and a bearing side, the bearing side is slippery and needs to be in contact with the mating part (i.e. The ear of the valve ball, Key 6). The opposite side of the thrust washer is the bondable side, the bondable side is the side of the material that receives glue and remains fixed (i.e. The side that touches the bearing).

In order to determine which side is which when dealing with thrust washers, a simple water test can be used. If you apply water to each side of the material you can observe that the water will bead up on the bearing side, while water on the bondable side will appear to spread or get wet, refer to Figures 30 & 31 to help identify each side.



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ASSEMBLY

Before You Begin:

- Read Safety Caution (Page 2).
- Use safe work practices and lock out procedures.
- Clean and inspect all parts.
- Replace or repair damaged parts. Replace all soft parts (Seals, o-rings, gaskets, packing).
- Place 1 to 4 inch 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 to allow for unobstructed ball rotation (refer to Figure 14). **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:

- Pointed center punch.
- Bearing driver (Refer to Figure 32 and Table 15).
- Threaded rod (5/16-18) for 1 & 1-1/2" valve follower shaft installation.
- Lifting device (example: crane).
- Work surface that will support the assembled weight of the valve and actuator if applicable.

Lubricants Required:

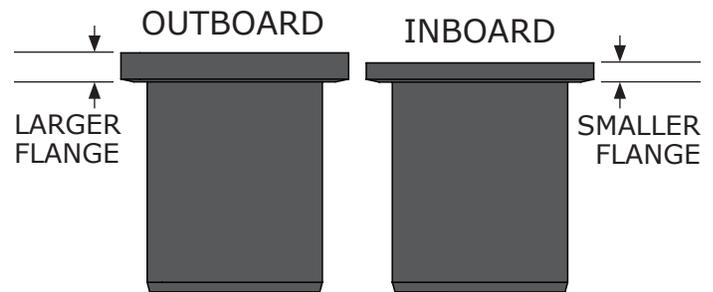
- Permatex® Nickel Anti-Seize or equivalent (Key A)
- Dow Corning Molykote® 111 or equivalent (Key B)
- Lubriplate® No. 105 Grease or equivalent (Key C)
- LOCTITE® 495 Instant Adhesive or equivalent (Key D)

BEARING INSTALLATION

NOTE: If the bearings (Key 3) need to be replaced, be aware that Dyna-Flo bearing configurations have changed for 570 series control valves. New replacement bearing kits will reflect this change:

Inboard and outboard bearings are only present for valve sizes 6" through 12" with S17400 bearing material. All other bearing combinations and sizes utilize two identical bearings. Refer to Figure 33.

Thrust washers (Key 7) are only required for valves sizes 6" through 16" with S17400 bearing material. All other bearing combinations and sizes no longer require a thrust washer.



DIFFERENTIATION BETWEEN THE INBOARD AND OUTBOARD BEARINGS (KEY 3) CAN BE PERFORMED THROUGH VISUAL INSPECTION. THE INBOARD BEARING HAS A SMALLER FLANGE COMPARED TO THE OUTBOARD BEARING. THIS SMALLER FLANGE ALLOWS FOR THE ACCOMMODATION OF THE THRUST WASHER (KEY 7) BETWEEN THE BEARING AND THE BALL (KEY 6).

Figure 33 6 to 16 Inch S17400 Bearing Identification

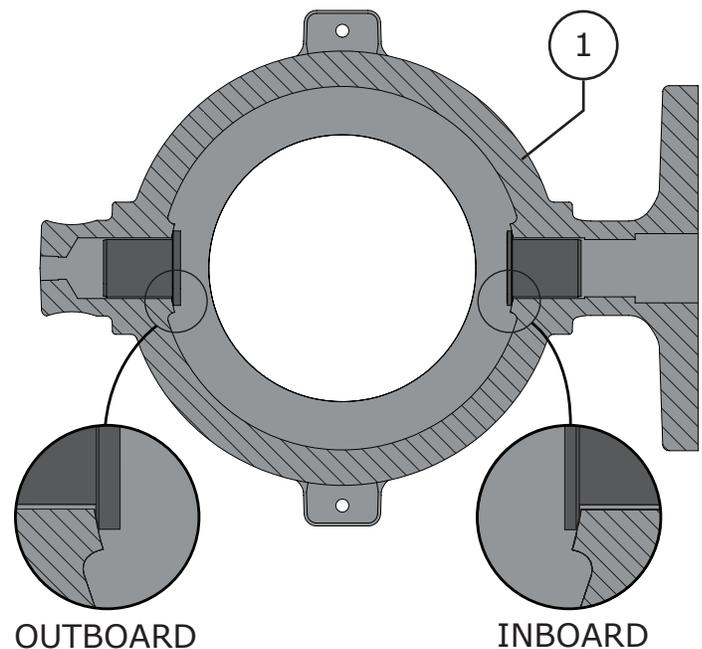


Figure 34 6 to 12 Inch S17400 Bearing Placement

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ASSEMBLY (Continued)

BEARING INSTALLATION (Continued)

For 1 to 12 Inch Valves:

- 1 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the outside surface of the bearings (Key 3). Refer to Figure 35.
- 2 Refer to Figure 33 and determine if there is an inboard and outboard bearing.
- 3 Install the bearings (Key 3) in the appropriate location. The flange of the bearing should make contact with the valve body (Key 1), refer to Figure 34. **NOTE:** Use a bearing driver (Figure 32, Table 15) to install the bearings if proper installation becomes difficult.

For 16 Inch Valves:

- 1 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the outside surface of the bearings (Key 3). Refer to Figure 35.
- 2 Install a bearing into the flange (Key 5) as shown in Figure 36.
- 3 Install a bearing (Key 3) in the inboard bore of the valve body (Key 1) as shown in Figure 34. The flange of the bearing should make contact with the valve body. **NOTE:** Use a bearing driver (Figure 32, Table 15) to install the bearings if proper installation becomes difficult.

BALL / SHAFT INSTALLATION

Before You Begin:

- Read Safety Caution (Page 2), ASSEMBLY: Before You Begin, Special Tools Required, and Lubricants Required (Page 26).
- Refer to the valve nameplate (Key 42), Figures 5 & 6, and Table 14 (Pages 11 & 12) to determine the proper orientation of the valve ball (Key 6) in the body (Key 1).

CAUTION: Dropping the ball inside the valve body could cause damage or injury. It is recommended that precautions be taken to support or cradle the ball during installation.

For 1 to 1-1/2 Inch Valves:

- 1 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the follower shaft (Key 9) and insert the follower shaft in the ball (Key 6) as shown in Figure 37.

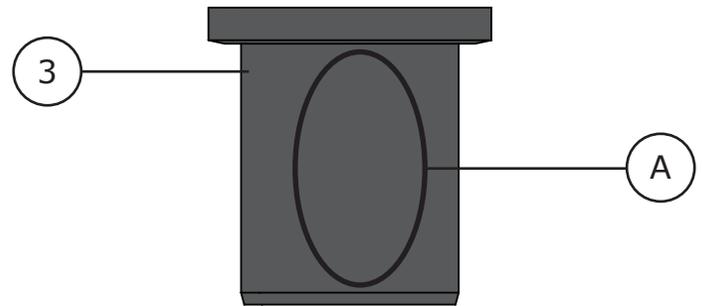


Figure 35 Anti-Seize Application to Bearing

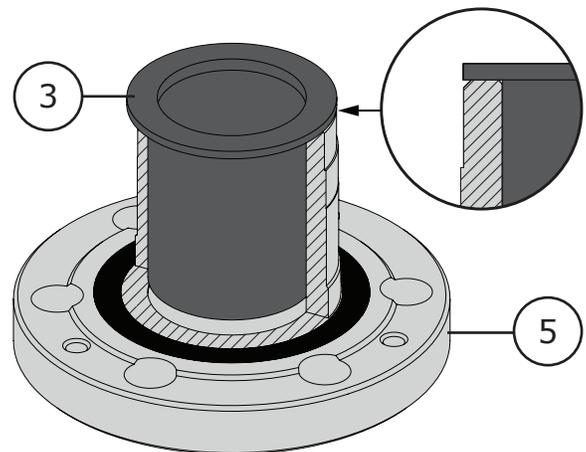


Figure 36 16 Inch Outboard Bearing Installation

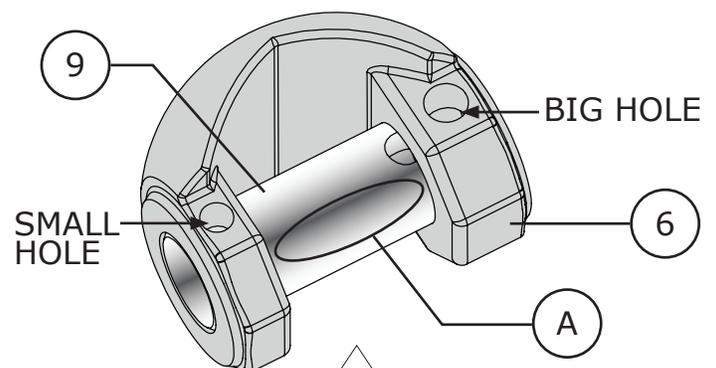


Figure 37 1 to 1-1/2 Inch Follower Shaft Installation



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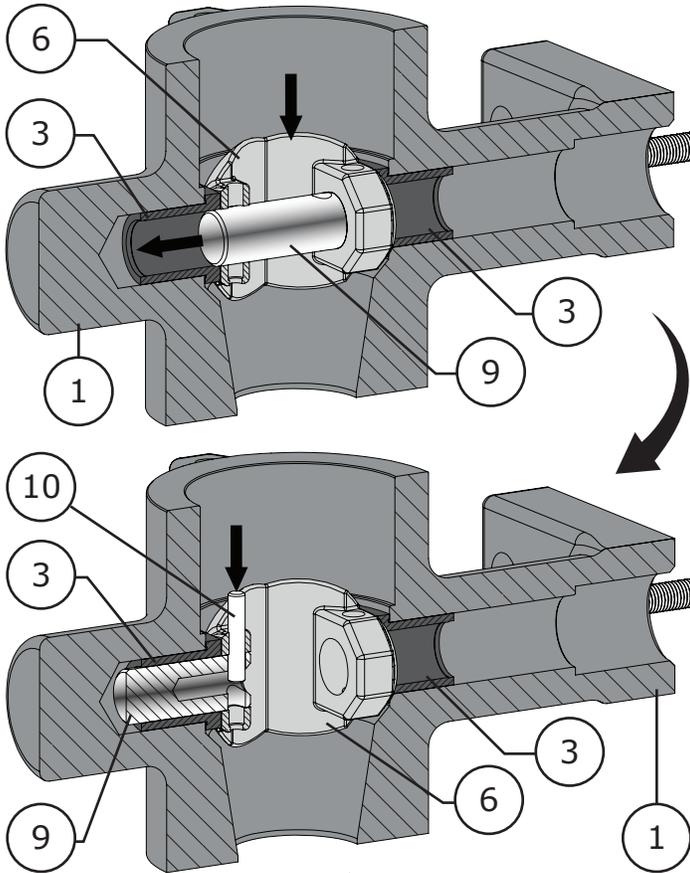


Figure 38 1 to 1-1/2 Inch Ball/Follower Shaft Installation

ASSEMBLY (Continued)

BALL / SHAFT INSTALLATION (Continued)

For Old Style 1 to 1-1/2 Inch Valves (Continued):

- 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 in to the bore. Refer to Figure 38.
- 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.
- 4 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the drive shaft (Key 11) and insert the drive shaft in to the body (Key 1) through the inboard bore as shown in Figure 39. Align any locator marks made to the drive shaft and ball during disassembly or refer to Pages 46 and 47 for proper ball/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 39.
- 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 40 and 41.
- 7 Proceed to the PACKING INSTALLATION instructions on Page 35.

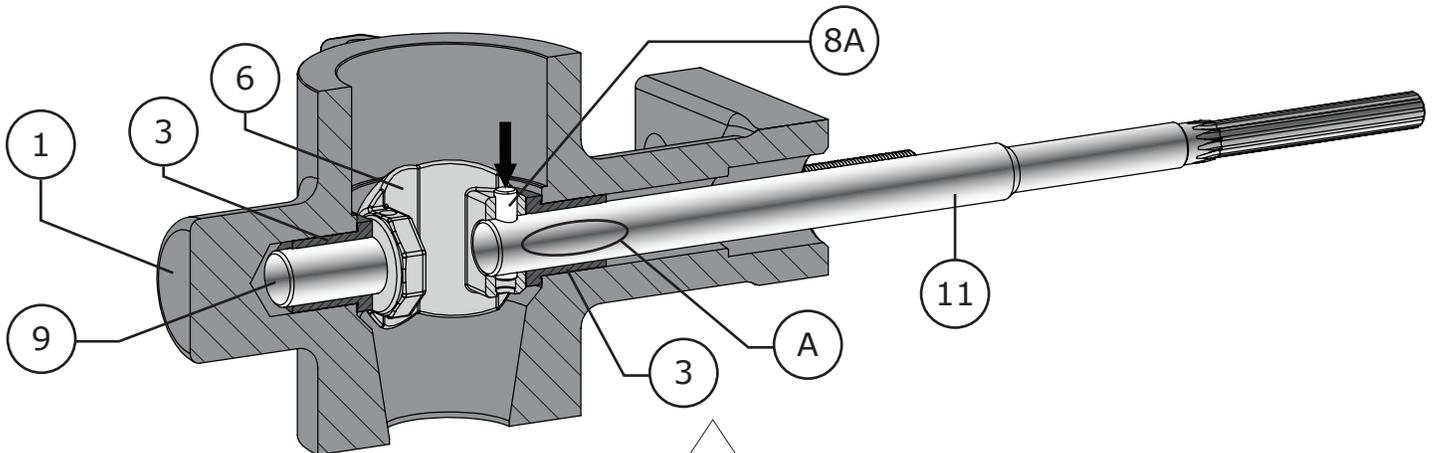


Figure 39 1 to 2 Inch Drive Shaft Installation

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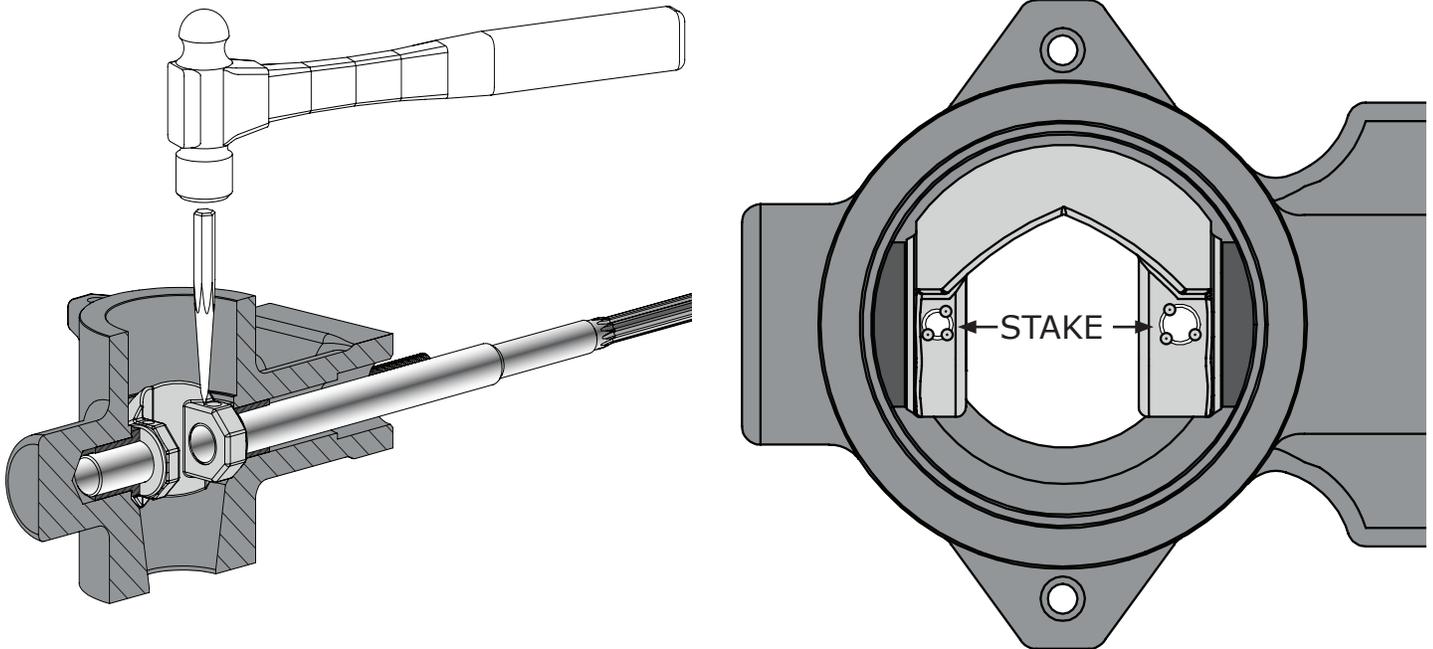


Figure 40 1 to 2 Inch Shaft Connection Pin Stake Locations (2 inch valve stake locations are 180° apart)



Figure 41 1 to 2 Inch Shaft Connection Stake Example

ASSEMBLY (Continued)

BALL / SHAFT INSTALLATION (Continued)

For 1 to 12 Inch Valves:

- 1 Apply LOCTITE® 495 Instant Adhesive or equivalent (Key D) to the back side of the thrust washer (Key 7) if applicable. Insert the thrust washer into the thrust washer groove of the inboard bearing (Key 3) so the adhesive will hold it in place, wait a few seconds for the adhesive to set. Refer to Figure 42 and THRUST WASHER WATER TEST on Page 25 for proper thrust washer orientation.
- 2 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the follower shaft (Key 9) and insert the follower shaft in to the body (Key 1) through the pipe plug hole as shown in Figure 43. The follower shaft should sit inside the outboard bearing (Key 3) ready to be pushed into the outboard ear of the ball (Key 6).

NOTE: For 6 and 8 inch valves the pipe plug hole is too small for the follower shaft. 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 45.



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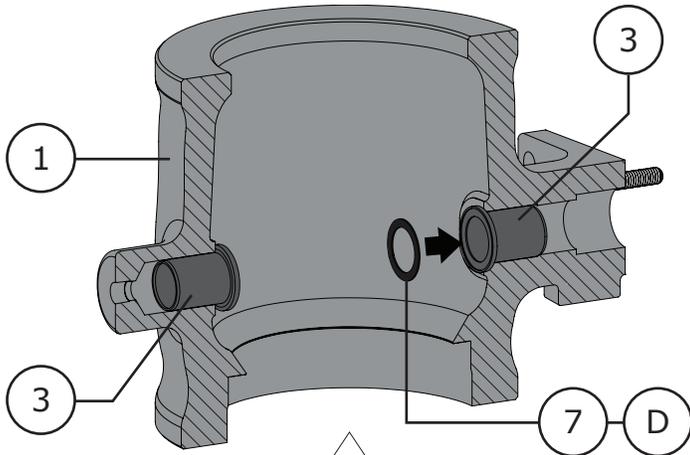


Figure 42 Thrust Washer Installation

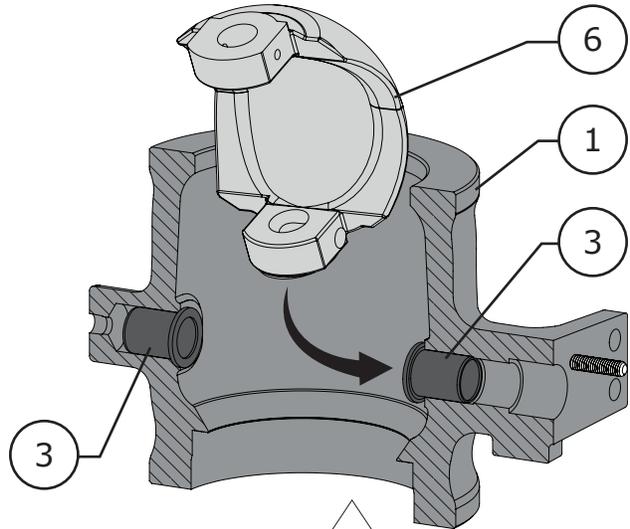


Figure 44 2 to 12 Inch Valve Ball Installation

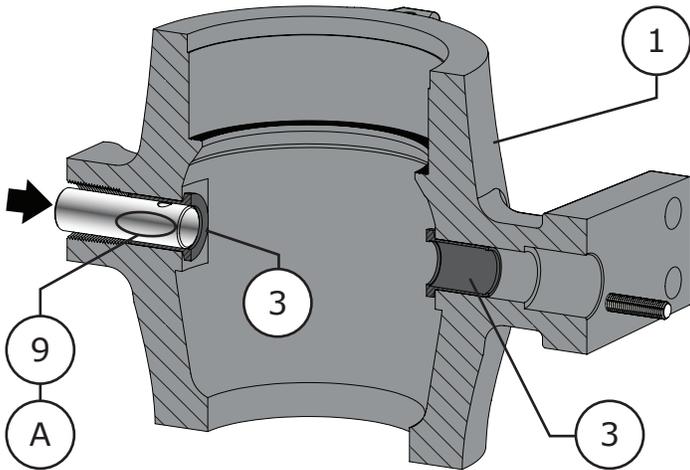


Figure 43 2, 3, 4, 10 & 12 Inch Follower Shaft Installation

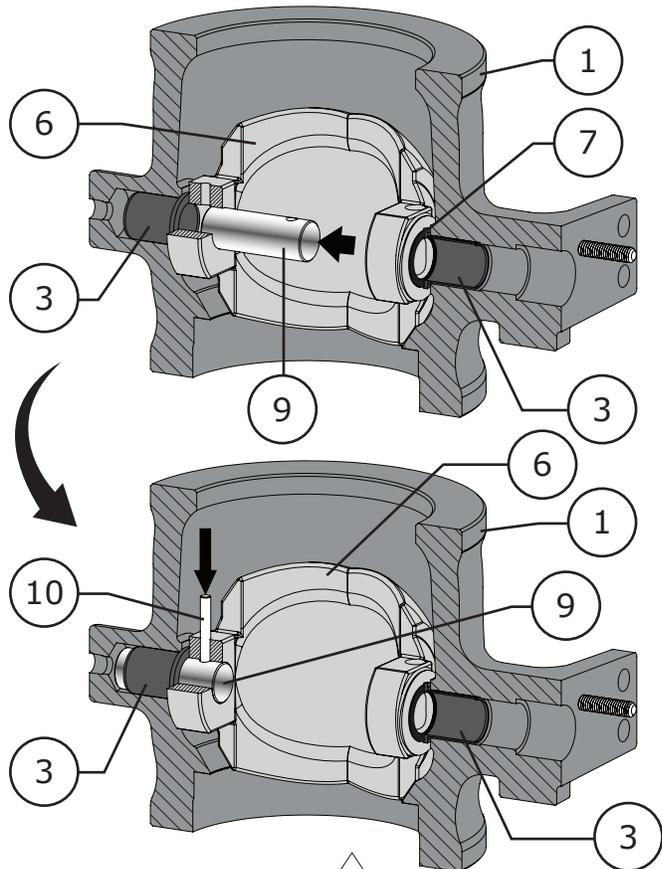


Figure 45 6 & 8 Inch Follower Shaft / Pin Installation

ASSEMBLY (Continued)

BALL / SHAFT INSTALLATION (Continued)

For 1 to 12 Inch Valves (Continued):

- 3** Insert the ball (Key 6) in to the valve body (Key 1) and align the follower shaft ear with the outboard bore of the valve body. **NOTE:** Use caution when installing a valve ball, make sure the ball is properly supported and can not be dropped. Dropping a valve ball can cause damage and injury.

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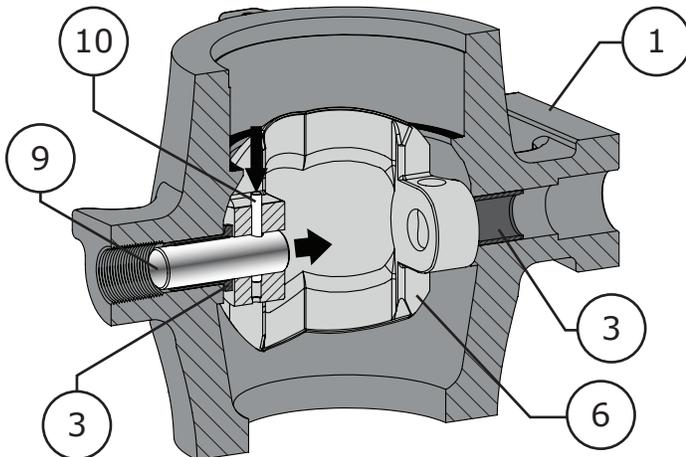


Figure 46 2, 3, 4, 10 & 12 Inch Follower Pin Installation

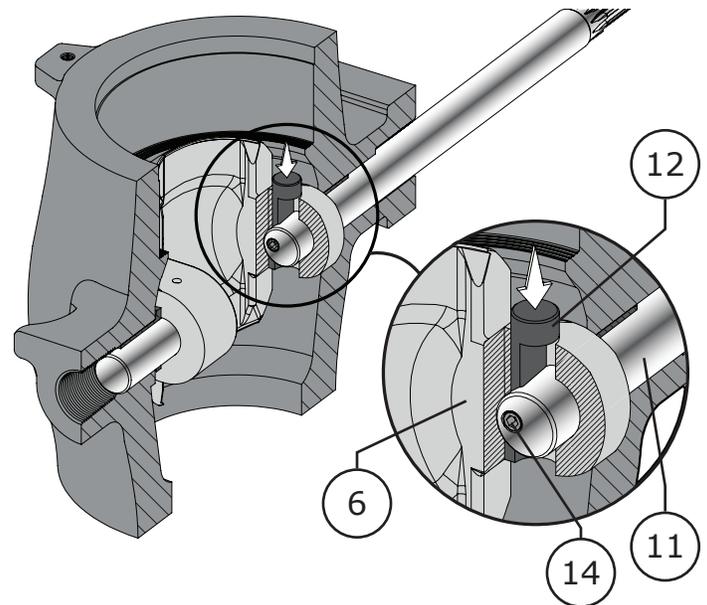


Figure 48 3 to 12 Inch Shaft Key Installation

ASSEMBLY (Continued)

BALL / SHAFT INSTALLATION (Continued)

For 1 to 12 Inch Valves (Continued):

- 4 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) through the ball and follower shaft. Refer to Figures 43 & 46 for valve sizes 2, 3, 4, 10, & 12. Refer to Figure 45 for valve sizes 6 & 8.

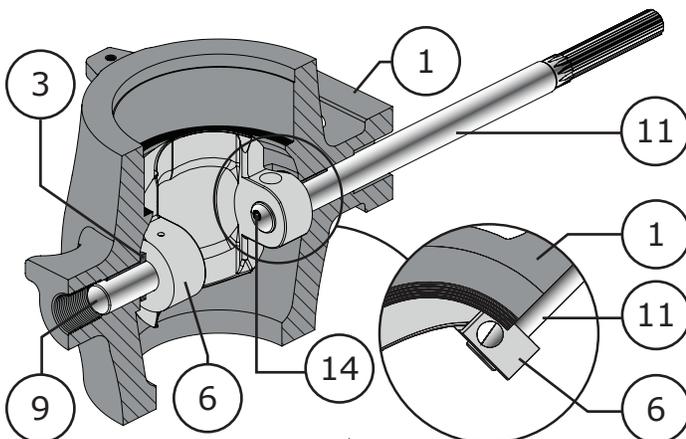


Figure 47 3 to 12 Inch Valve Drive Shaft Installation

- 5 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the drive shaft (Key 11) and insert the drive shaft in to the body (Key 1) through the inboard bore as shown in Figure 47 for 3 to 12 inch valves (Figure 39 for 2 inch valves). Align any locator marks made to the drive shaft and ball during disassembly or refer to Pages 46 and 47 for proper ball/shaft orientation.
- 6 Install the shaft key (Key 12) or shaft connection pin (Key 8A, for 2 inch valves) as shown. Refer to Figure 39 for 1 to 2 inch valves. Refer to Figures 47 & 48 for 3 to 12 inch valves.
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 in place refer to the DRIVE SHAFT CONNECTION instructions on Page 46 & 47.
- 7 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 40 and 41.
- 8 Proceed to the PACKING INSTALLATION instructions on Page 35.



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ASSEMBLY (Continued)

BALL / SHAFT INSTALLATION (Continued)

For 16 Inch Valves:

- 1 Apply LOCTITE® 495 Instant Adhesive or equivalent (Key D) to the back side of the thrust washer (Key 7) if applicable. Insert the thrust washer into the thrust washer groove of the inboard bearing (Key 3) so the adhesive will hold it in place, wait a few seconds for the adhesive to set. Refer to Figure 42 and THRUST WASHER WATER TEST on Page 25 for proper thrust washer orientation.
- 2 Insert the drive shaft (Key 11) in to the valve body (Key 1) through the inboard bore as shown in Figure 49. The drive shaft should sit inside the bearing (Key 3) ready to be pushed in to the inboard ear of the ball (Key 6).
- 3 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, make sure the ball is properly supported and cannot be dropped. Dropping a valve ball can cause damage and injury.
- 4 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 Figure 50 and Pages 46 & 47 for proper ball/shaft orientation.

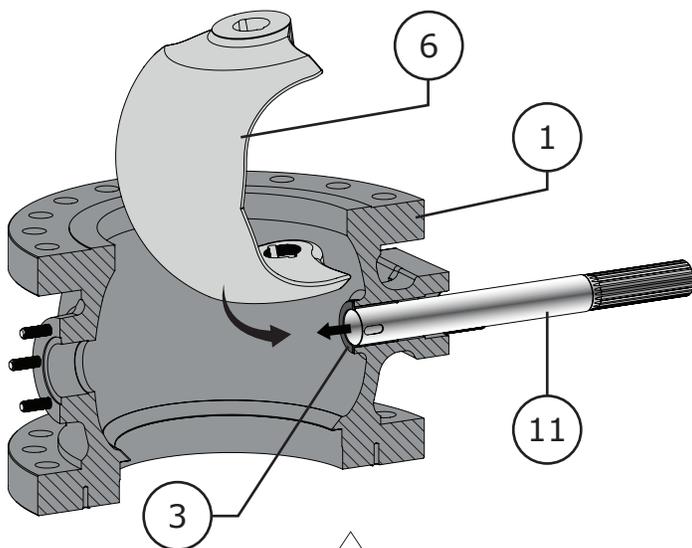


Figure 49 16 Inch Drive Shaft / Ball Installation Step 2

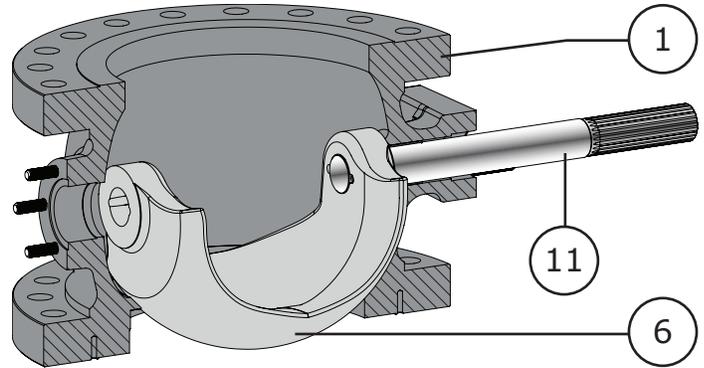


Figure 50 16 Inch Drive Shaft / Ball Installation Step 2

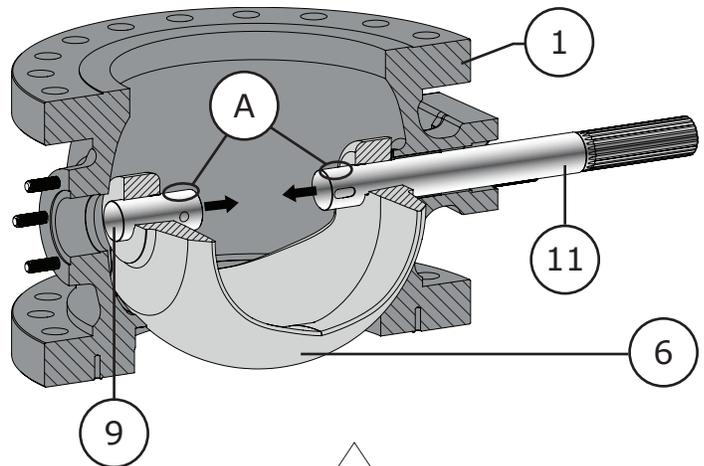


Figure 51 Step 6 - Ball / Shaft Installation

- 5 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 51.
- 6 Depending on how you are supporting the ball, readjustment of your supports may be necessary to allow both shafts (Keys 9 & 11) to be pushed through the ears of the ball towards the center of the ball. Shafts will need to be pushed through the ears of the ball until the pin hole/grooves are clearly visible on the shafts. Refer to Figure 51.
- 7 Apply Permatex® Nickel Anti-Seize or equivalent (Key A) to the shafts (Keys 9 & 11) and pins (Keys 10 & 13). 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 & 53.

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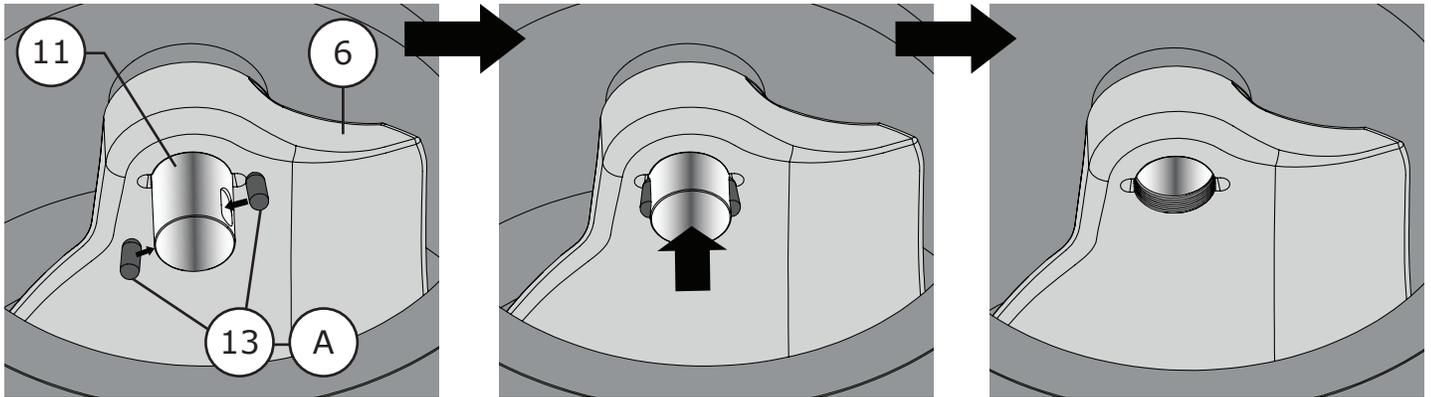


Figure 52 16 Inch Drive Shaft Pins Installation

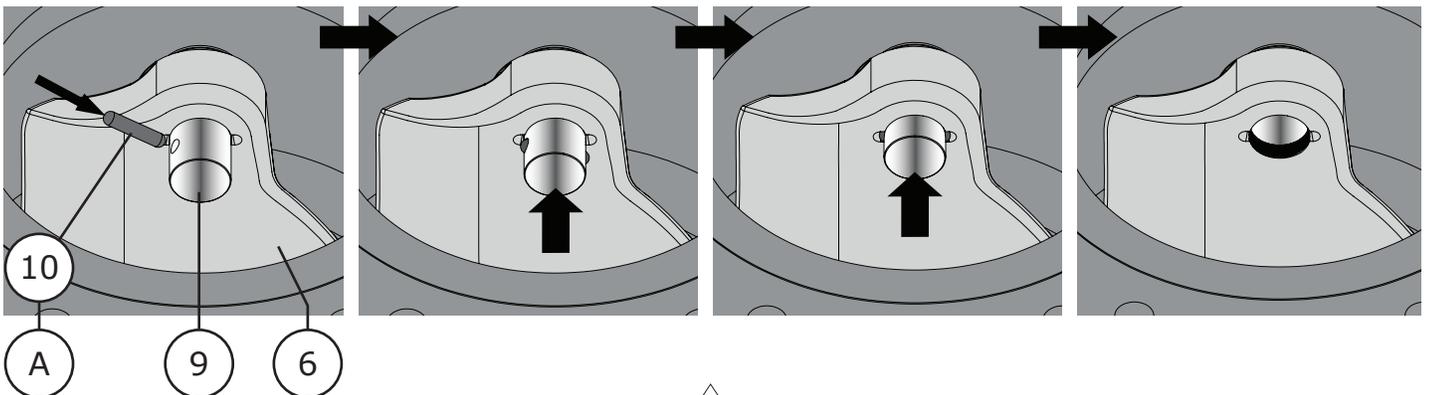


Figure 53 16 Inch Follower Shaft Pin Installation

ASSEMBLY (Continued)

BALL / SHAFT INSTALLATION (Continued)

For 16 Inch Valves (Continued):

- 8 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.
- 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.



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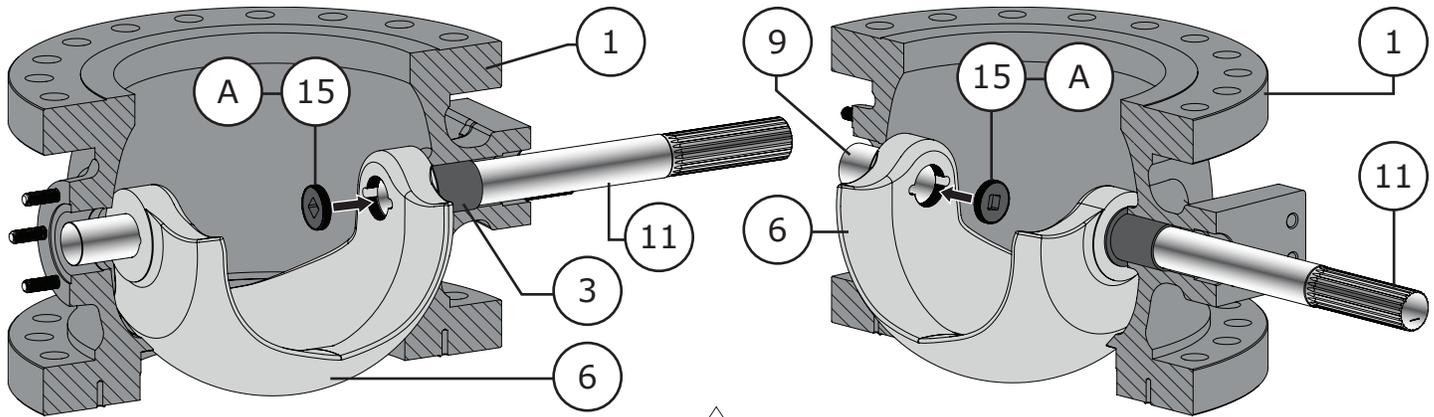
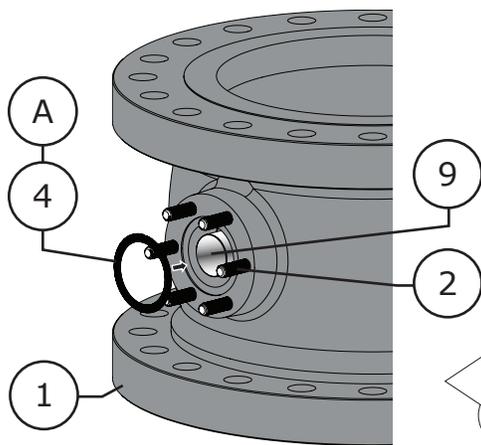


Figure 54 16 Inch Shaft Retainer Installation



ASSEMBLY (Continued)

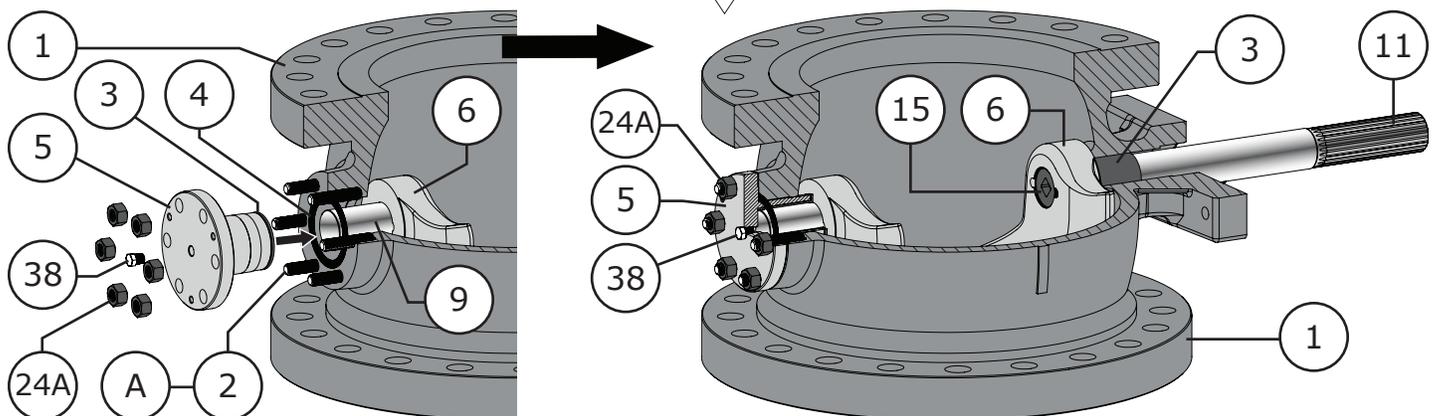
BALL / SHAFT INSTALLATION (Continued)

For 16 Inch Valves (Continued):

- 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, 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 Inch Spiral Wound Gasket Installation

Figure 56 16 Inch Flange / Outboard Bearing Installation



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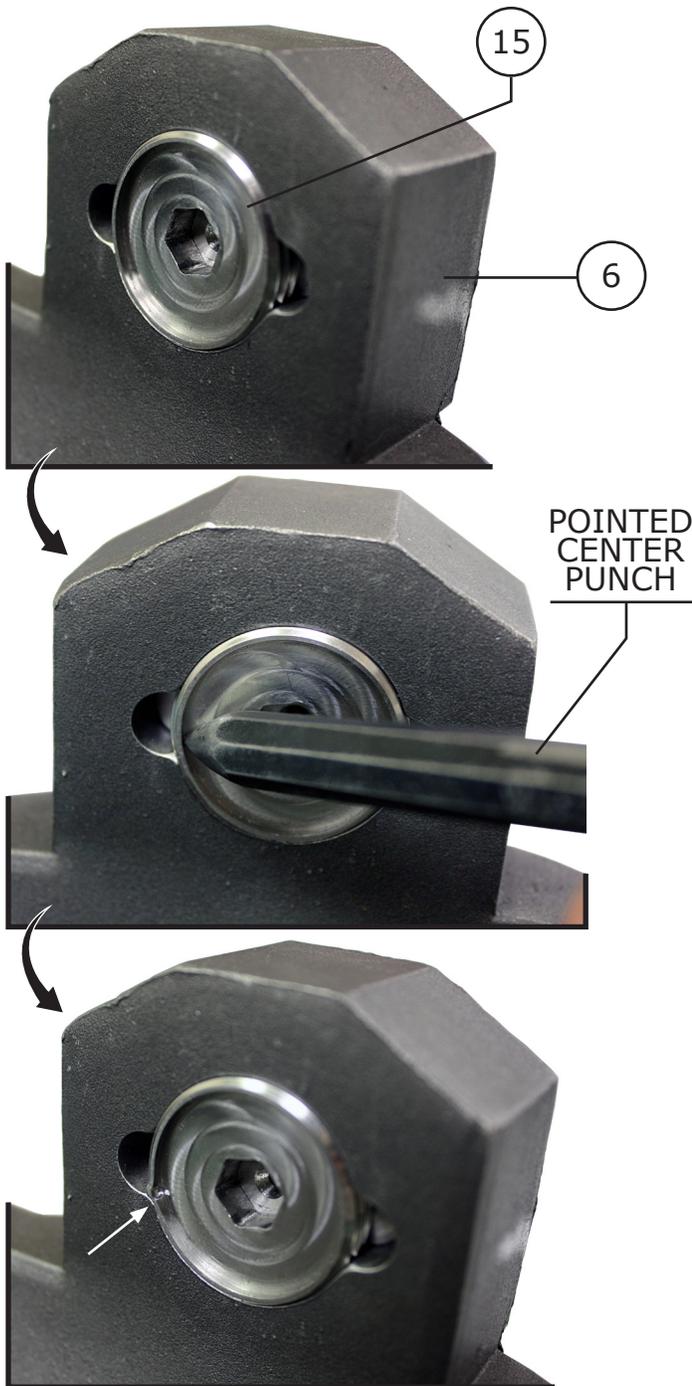


Figure 57 16 Inch Shaft Retainer Stake Details

ASSEMBLY (Continued)

PACKING INSTALLATION

Refer to **Before You Begin** section on Page 26 before proceeding with packing installation.

Lubricants Required:

- Permatex® Nickel Anti-Seize or equivalent (Key A)
- Dow Corning Molykote® 111 or equivalent (Key B)

NOTE: To prevent trapping air between packing during installation, it is recommended that packing rings be installed one 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.

- 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® 111 (Key B) to the PTFE packing rings (Key 17). Install the packing rings one ring at a time (as described in the NOTE above) in the proper order and orientation as shown in Figure 59. **WARNING:** For oxygen service do not apply Molykote® 111, Molykote® 111 in oxygen service applications can cause an explosion.
- 3 Install the packing follower (Key 20). **NOTE:** 16 inch valves utilize a 2 piece packing follower (Key 20) and packing flange (Key 20A), refer to Figure 75.
- 4 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.

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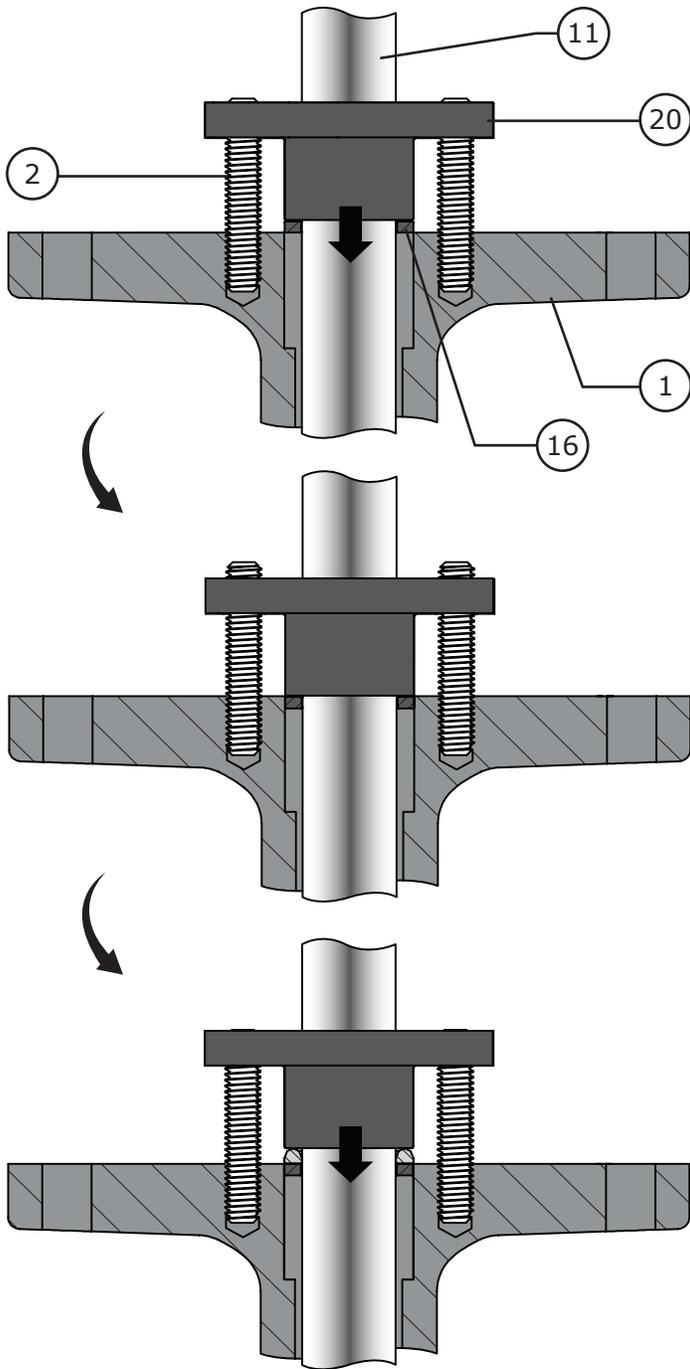


Figure 58 Packing Ring Installation Detail

ASSEMBLY (Continued)

PACKING INSTALLATION (Continued)

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 NOTE on Page 35.
- 2 Install the packing rings one ring at a time (as described in the NOTE on Page 35) in the proper order and orientation as shown in Figure 59.
- 3 Install the packing follower (Key 20). **NOTE:** 16 inch valves utilize a 2 piece packing follower (Key 20) and packing flange (Key 20A), refer to Figure 75.
- 4 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 NOTE on Page 35.
- 2 Install the anti-extrusion ring (Key 19). **NOTE:** Live-Loaded Packing is not lubricated, do not apply Molykote® 111 to packing parts.
- 3 Install the PTFE packing rings (Key 17) one ring at a time (as described in the NOTE on Page 35) in the proper order and orientation as shown in Figure 60.
- 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 61. Secure the spring washers in place using the packing flange o-ring (Key 22).
- 6 Install the packing follower assembly (Keys 20, 21, & 22).

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ASSEMBLY (Continued)

PACKING INSTALLATION (Continued)

For PTFE Live-Loaded Packing (Continued):

- 7 Install the live-loaded packing flange (Key 23).
- 8 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).

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 NOTE on Page 35.

- 2 Install the graphite packing rings (Keys 17A & 18) one ring at a time (as described in the NOTE on Page 35) in the proper order and orientation as shown in Figure 60.
- 3 Install the spring washers (Key 21) onto the packing follower (Key 20) in the order and orientation shown in Figure 62. 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).
- 6 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, loosen each packing nut a quarter turn (90 degrees).

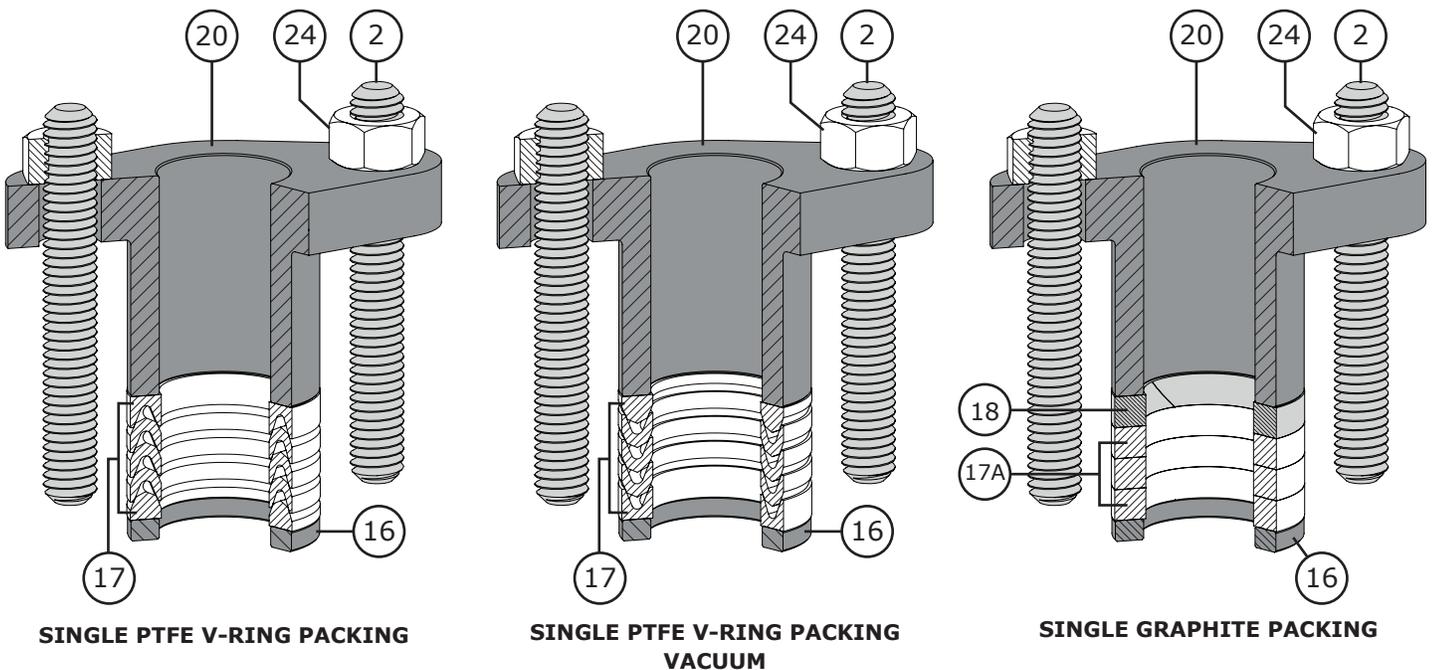


Figure 59 Standard Packing Configuration Diagrams



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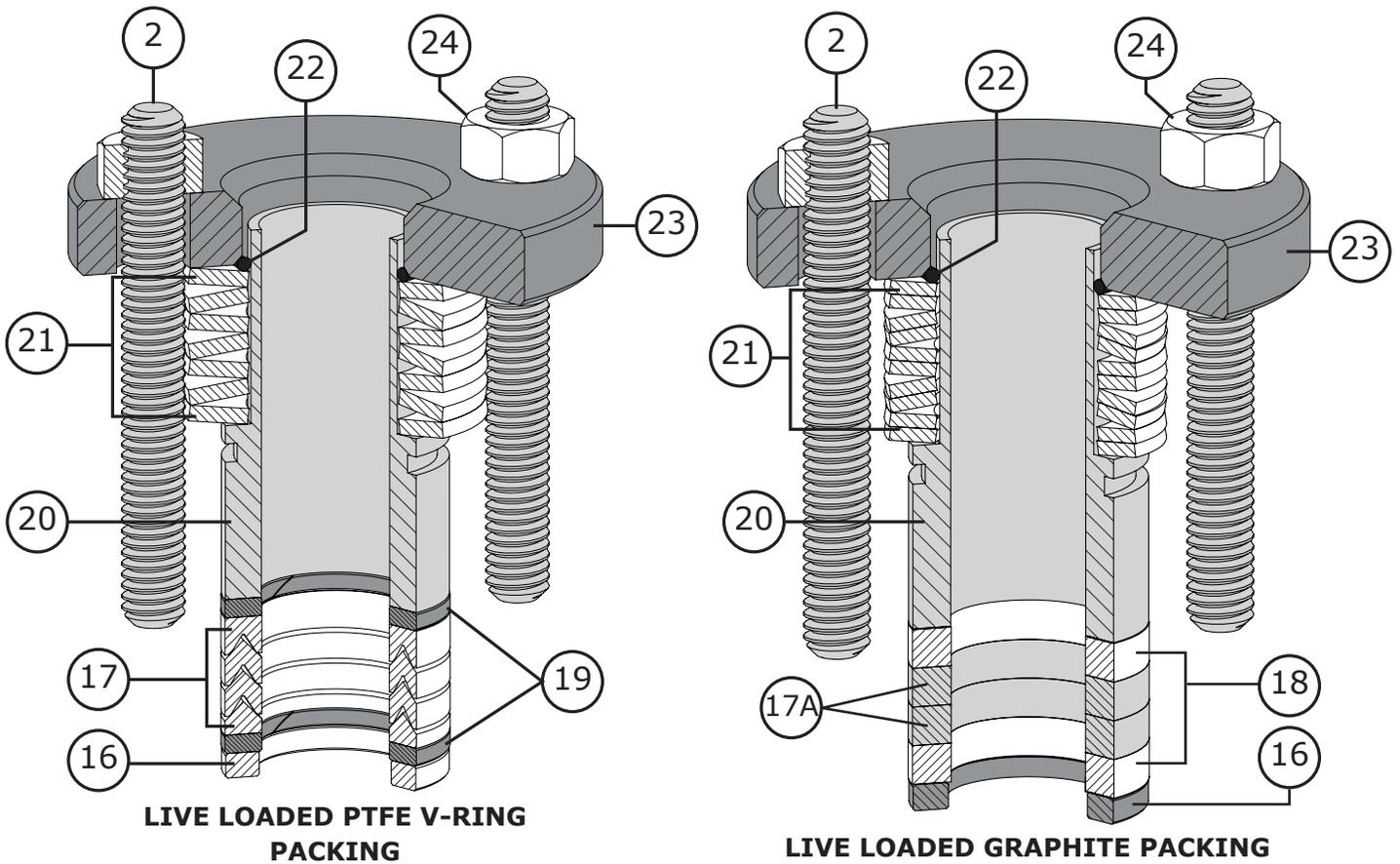


Figure 60 Packing Configuration Diagrams (Refer to Figure 61 & 62 for Spring Washer, Key 21, Arrangements)

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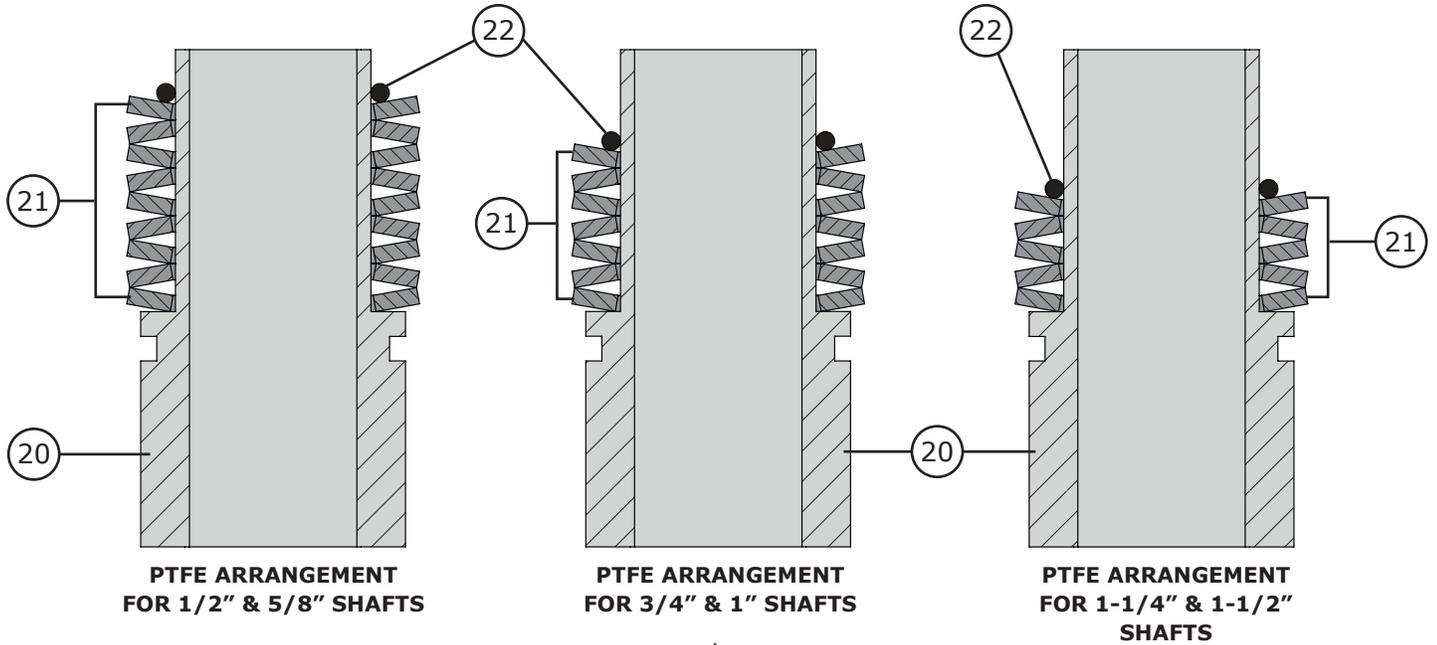


Figure 61 Live Loaded PTFE Spring Washer (Key 21) Arrangements

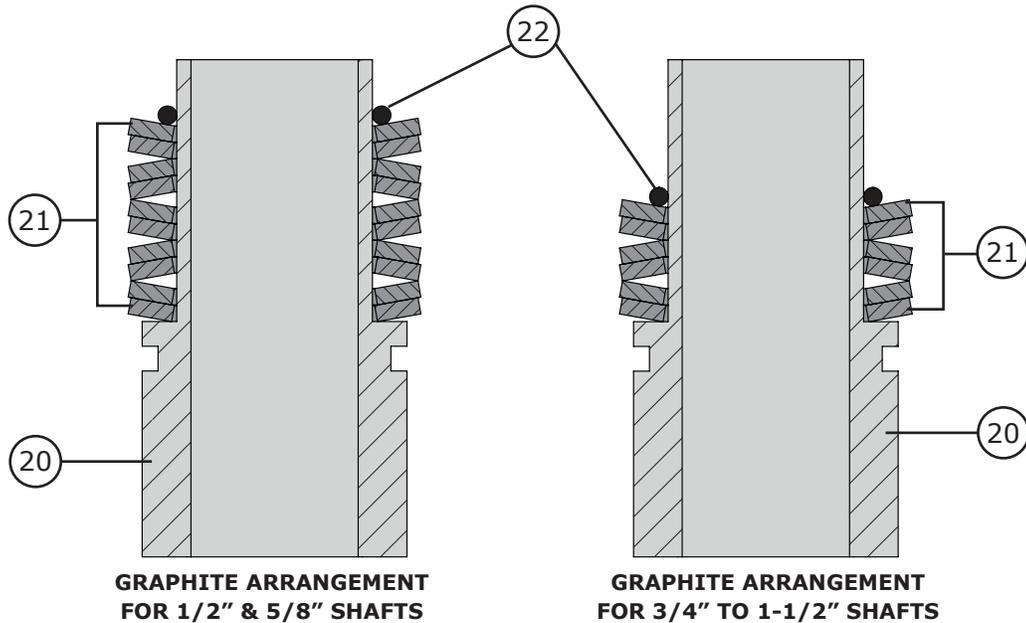


Figure 62 Live Loaded Spring Washer (Key 21) Arrangements



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ASSEMBLY (Continued)

BALL SEAL INSTALLATION

Before You Begin:

- Read Safety Caution (Page 2).
- Use safe work practices and lock out procedures.
- Clean and inspect all parts.
- Replace or repair damaged parts. Replace all soft parts (Seals, o-rings, gaskets, wave springs).
- Place valves face up (inlet side up) on your work surface. Valve balls (Key 6) should be placed in to the closed position. **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.

NOTE: 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.

Special Tools Required:

- 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)
- Lubriplate® No. 105 Grease or equivalent (Key C)

Composition Ultra 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, moving the ball out of the ball seal could damage the seal.
- 2** For 1, 1-1/2, and 2 inch valves, install the backup ring (Key 25). Refer to Figure 63. The backup ring must be installed to properly check the position of the valve ball (Key 6) as detailed in Step 3.

- 3** Inspect the position of the ball along the axis of the shaft (Key 11). The ball should be no more than 0.005 inches (0.13 mm) off the center line. It may be necessary to use a feeler gauge between the clearance angles just below where the ball seal sits, using a feeler gage the maximum difference would be 0.010 inches (0.254 mm).
If the ball is not centered it may be due to some wear on the ears of the ball or the thrust face of the bearings, re-inspect all surfaces for damage. Refer to Figure 66.
- 4** Install the ball seal (Key 26).
- 5** Install the gasket (Key 30).
- 6** Carefully install the seal protector ring (Key 31). **NOTE:** 16 inch 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 Inch 570 Valves (Refer to Figure 65):**
 - 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).
 - B** Completely tighten the seal protector screws (Key 35) evenly in an alternating pattern.
- For 1 to 12 Inch 571/573 Valves (Refer to Figure 65):**
 - 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).
 - B** Completely tighten the seal protector screws (Key 36) evenly in an alternating pattern.
- For 16 Inch Valves (Refer to Figure 65):**
 - 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).
 - 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** Apply a thin coat of Lubriplate® No. 105 Grease (Key C) to the exposed surface of the valve ball (Key 6). 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.

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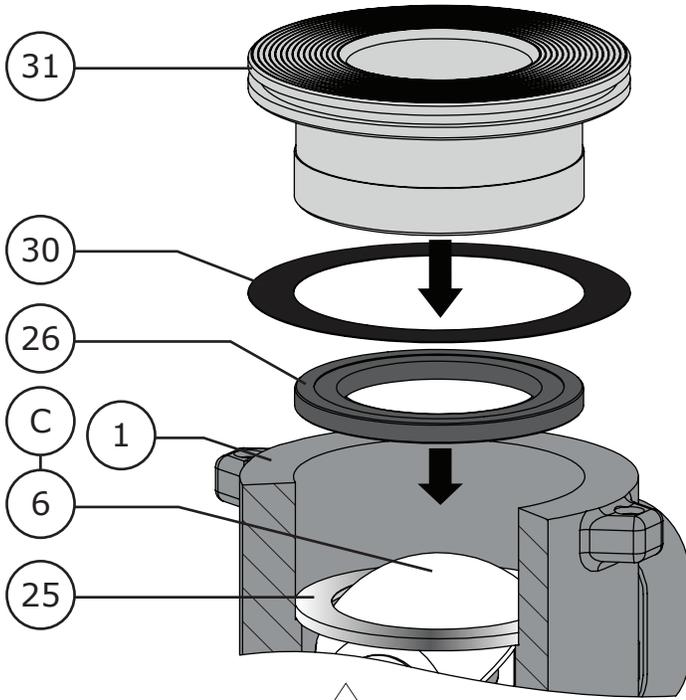


Figure 63 1 to 2 Inch Ball Seal Installation

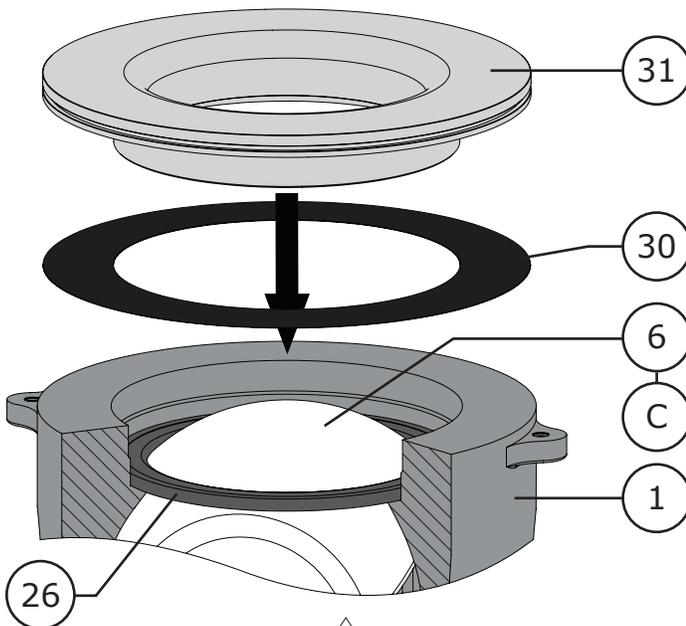
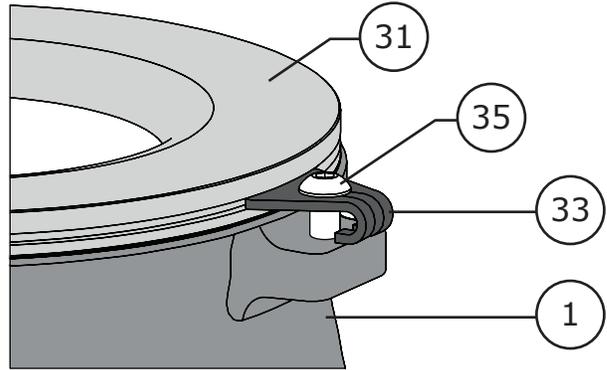
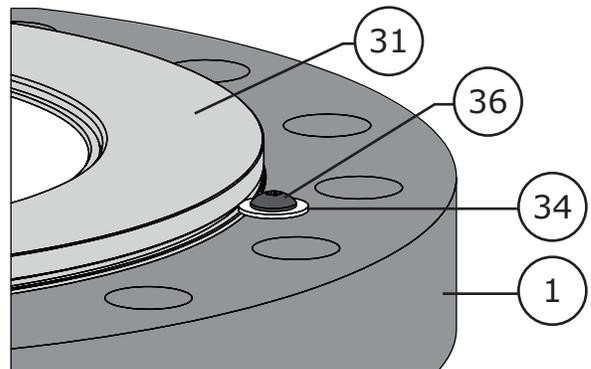


Figure 64 3 to 16 Inch Ball Seal Installation

FOR 1 - 8 INCH 570 VALVES



FOR 1 - 12 INCH 571/573 VALVES



FOR 16 INCH VALVES

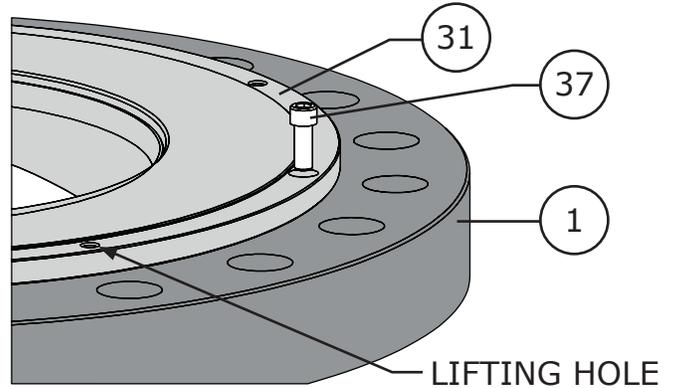


Figure 65 Seal Protector Ring Retaining Parts Installation



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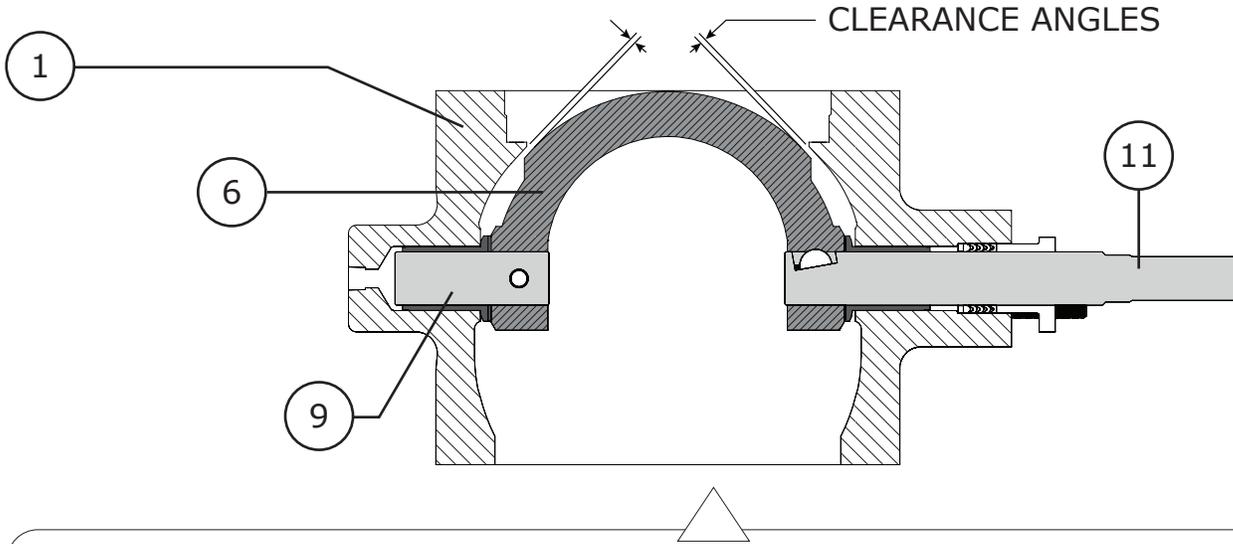


Figure 66 Diagram - Clearance Angles for Ball Centering

ASSEMBLY (Continued)

BALL SEAL INSTALLATION (Continued)

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, moving the ball passed the ball seal could damage the edge of the ball.

- 2** Inspect the position of the ball along the axis of the shaft (Key 11). The ball should be no more than 0.005 inches (0.13 mm) off the center line. It may be necessary to use a feeler gauge between the clearance angles just below where the ball seal sits, using a feeler gage the maximum difference would be 0.010 inches (0.254 mm).

If the ball is not centered it may be due to some wear on the ears of the ball or the thrust face of the bearings, re-inspect all surfaces for damage. Refer to Figure 66.

- 3** 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 67.

- 4** Install the wave spring (Key 29) in to the seal protector ring (Key 31).

- 5** 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.
- 6** Install the gasket (Key 30) on the valve body (Key 1).
- 7** 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 inch 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 Inch Valves (Refer to Figure 65):

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

For 10 to 12 Inch Valves (Refer to Figure 65):

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

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ASSEMBLY (Continued)

BALL SEAL INSTALLATION (Continued)

Metal Ball Seals (Continued)

7 For 16 Inch Valves (Refer to Figure 65):

- 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).
- 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** Apply a thin coat of Lubriplate® No. 105 Grease (Key C) to the exposed surface of the valve ball (Key 6). Manually stroke the valve if possible and observe that the valve operates smoothly.

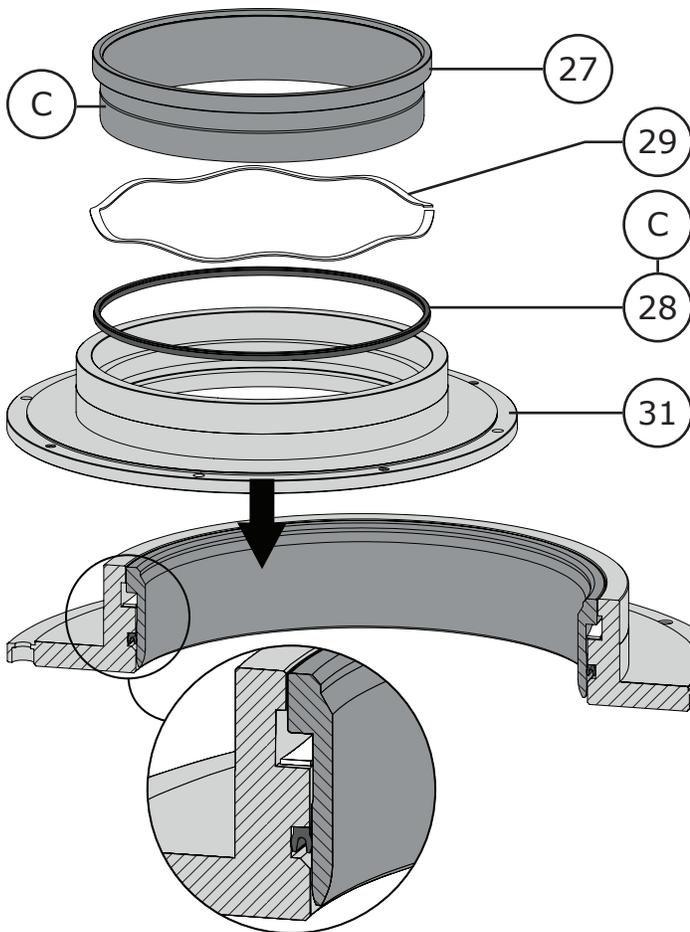


Figure 67 Metal Ball Seal Assembly

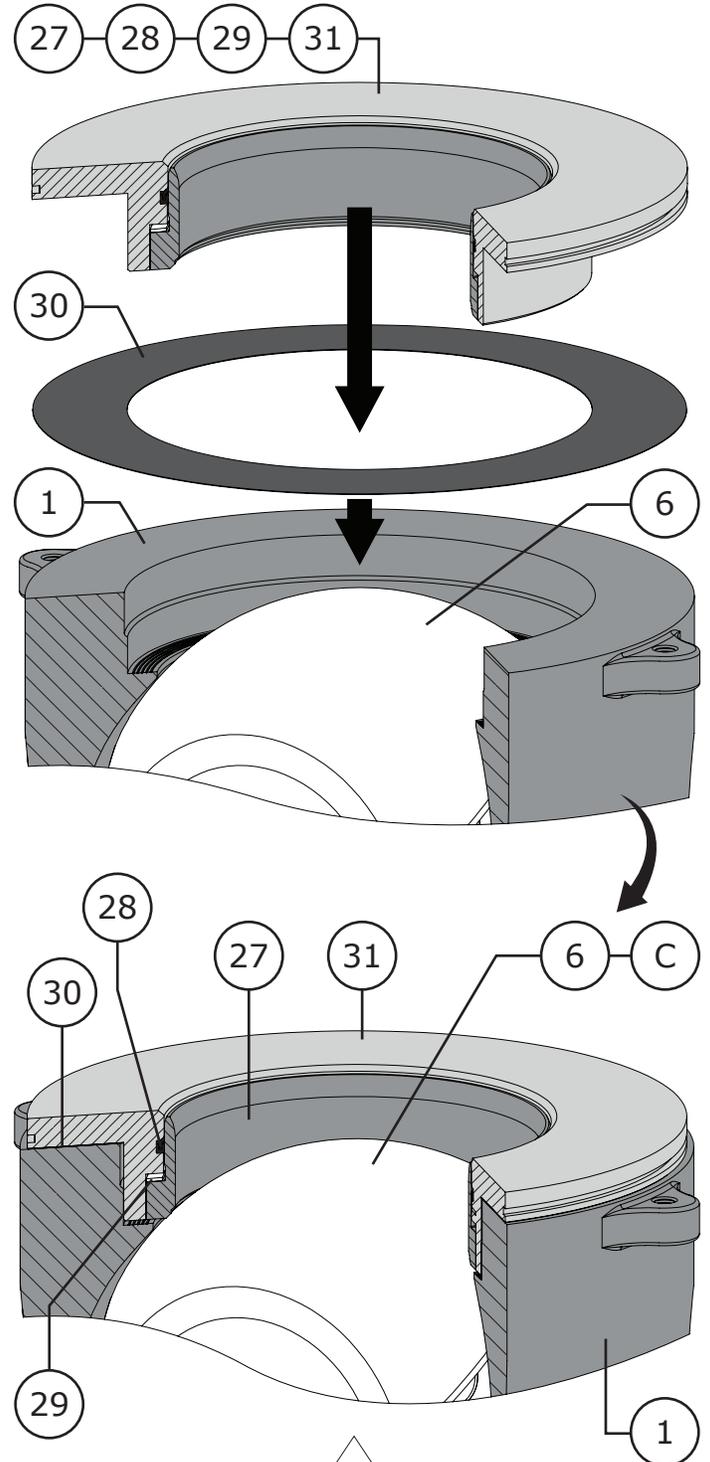


Figure 68 Metal Ball Seal Installation



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ASSEMBLY (Continued)

BALL SEAL INSTALLATION (Continued)

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, moving the ball passed the flow ring could damage the edge of the ball.

2 Inspect the position of the ball along the axis of the shaft (Key 11). The ball should be no more than 0.005 inches (0.13 mm) off the center line. It may be necessary to use a feeler gauge between the clearance angles just below where the ball seal sits, using a feeler gage the maximum difference would be 0.010 inches (0.254 mm).

If the ball is not centered it may be due to some wear on the ears of the ball or the thrust face of the bearings, re-inspect all surfaces for damage. Refer to Figure 66.

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

4 Carefully install the flow ring (Key 32). **NOTE:** 16 inch 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 65.

5 For 1 to 8 Inch Valves (Refer to Figure 65):

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).

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

For 10 to 12 Inch Valves (Refer to Figure 65):

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).

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

For 16 Inch Valves (Refer to Figure 65):

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

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.

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

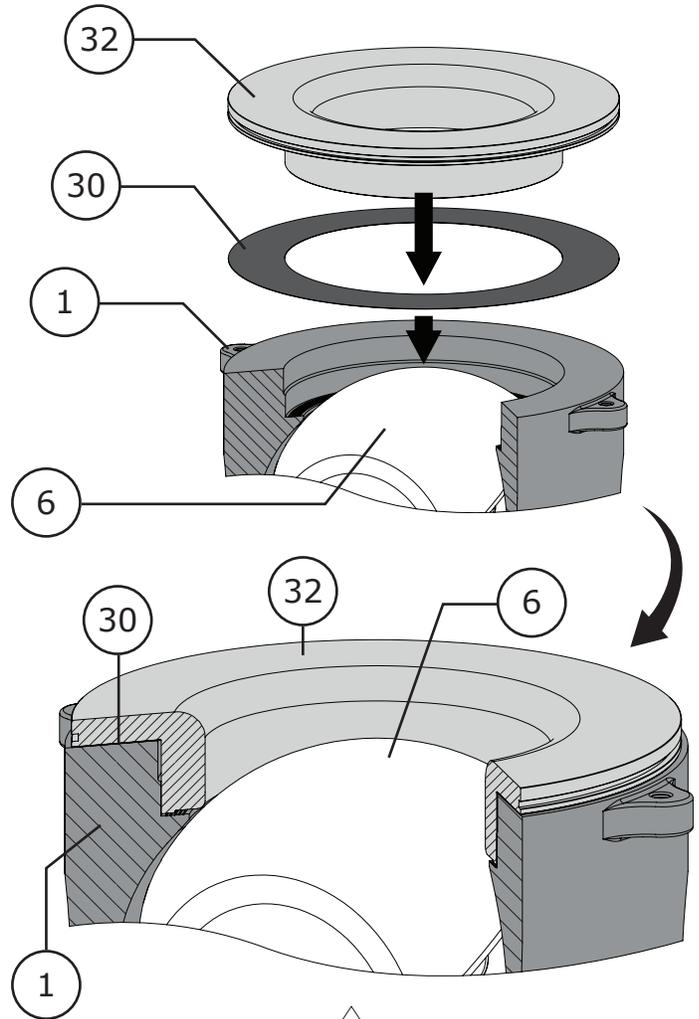


Figure 69 Flow Ring Installation

ASSEMBLY (Continued)

PIPE PLUG INSTALLATION

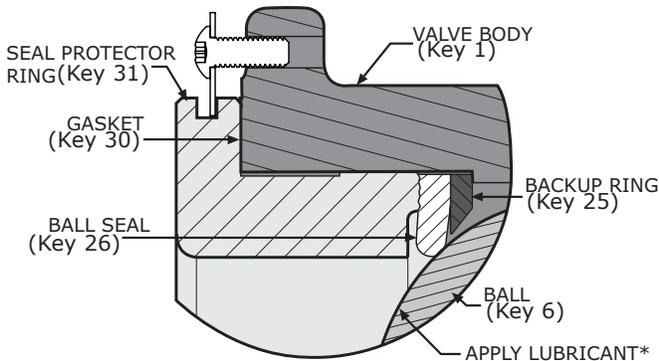
1 Apply thread sealant to the threads of the pipe plug (Key 38). Install pipe plug in to the valve body (Key 1) until completely tight.

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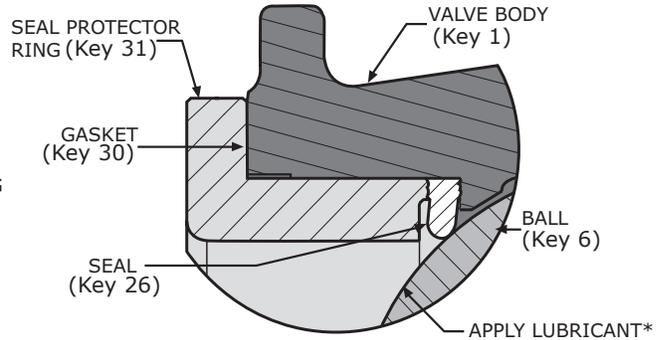
Operation, Parts, and Instruction Manual



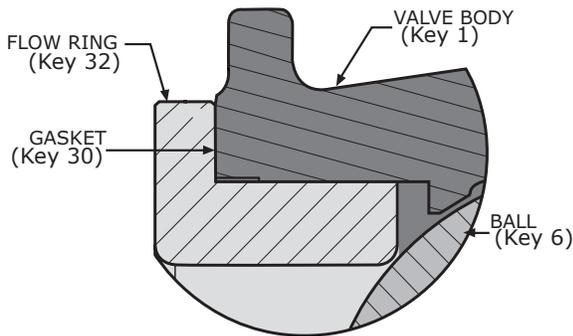
Figure 70 Ball Seal Assembly Diagrams for Valve Sizes 1 Through 16 Inch



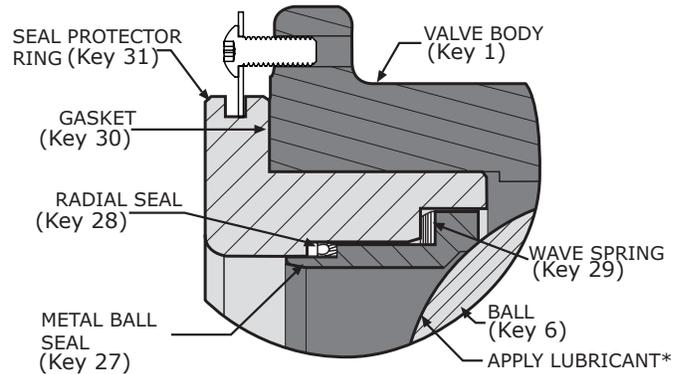
1 - 2 INCH COMPOSITION ULTRA BALL SEAL & BACKUP RING



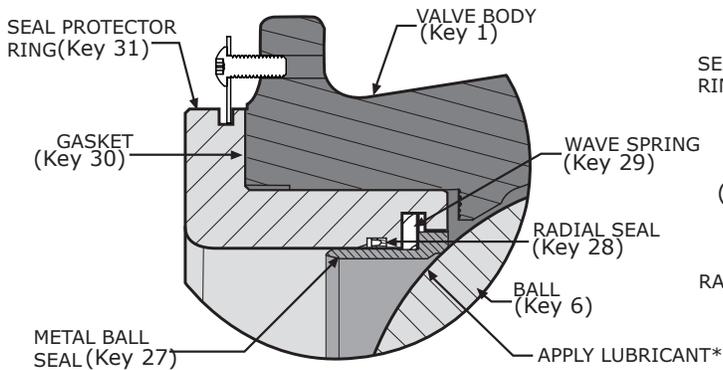
SIZE 3 - 16 INCH COMPOSITION ULTRA BALL SEAL



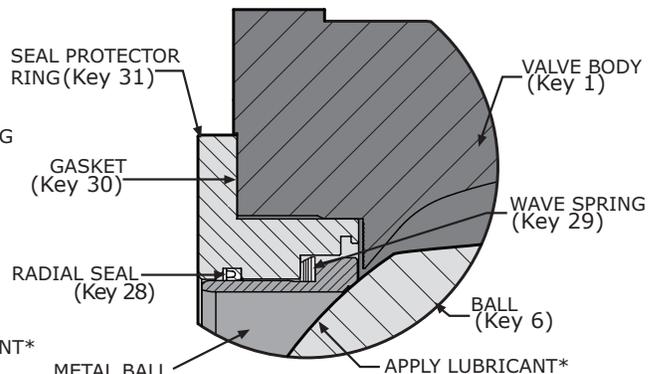
SIZE 1 - 16 INCH FLOW RING



1 - 2 INCH METAL BALL SEAL



SIZE 3 - 8 INCH METAL BALL SEAL



SIZE 10 - 16 INCH METAL BALL SEAL

* Lubricate with white petroleum grease.

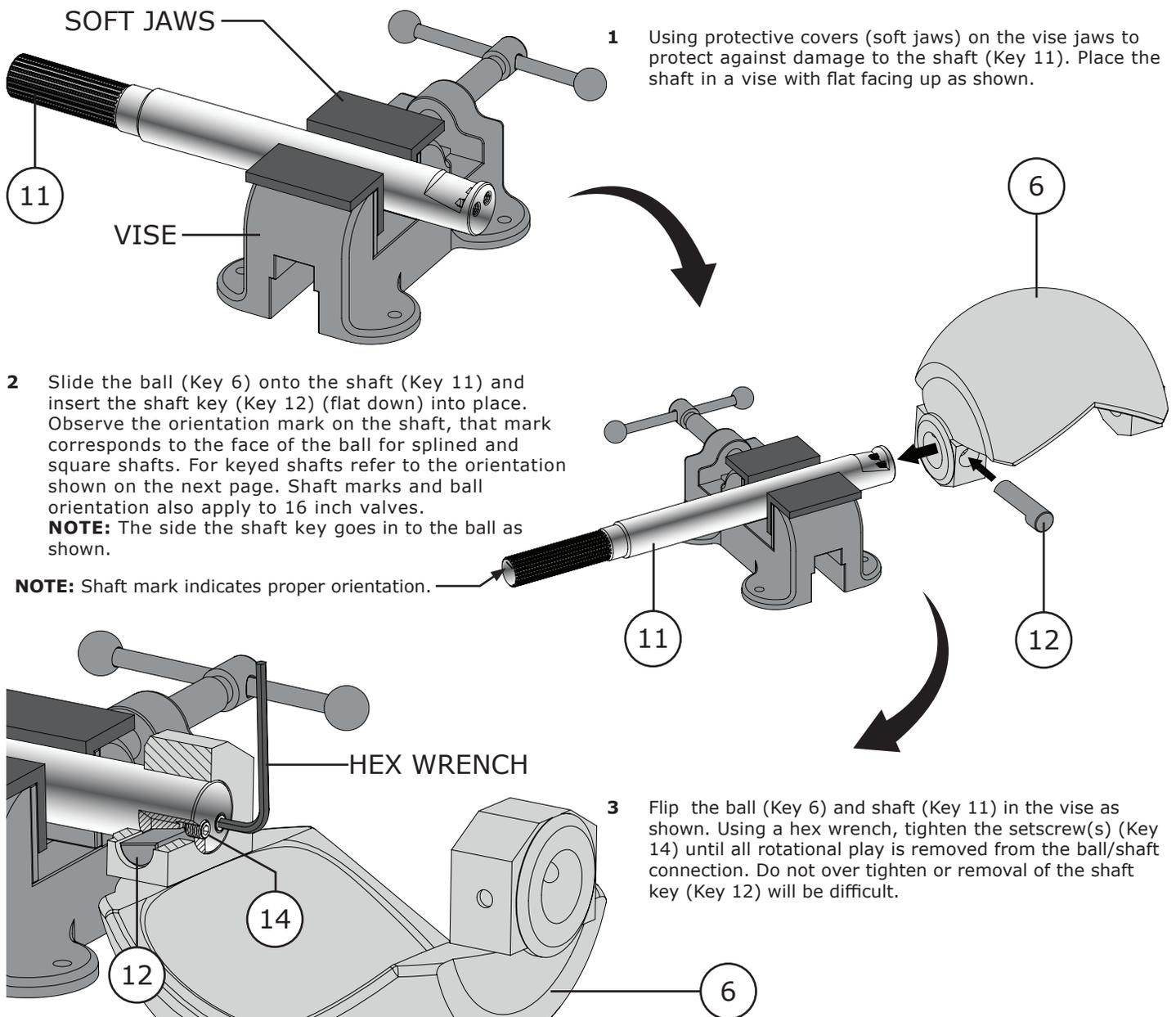


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3 THROUGH 12 INCH BALL TO SHAFT ASSEMBLY INSTRUCTIONS

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 20. The connection design allows for adjustment of a shaft key using setscrew(s) (Key 37). 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.

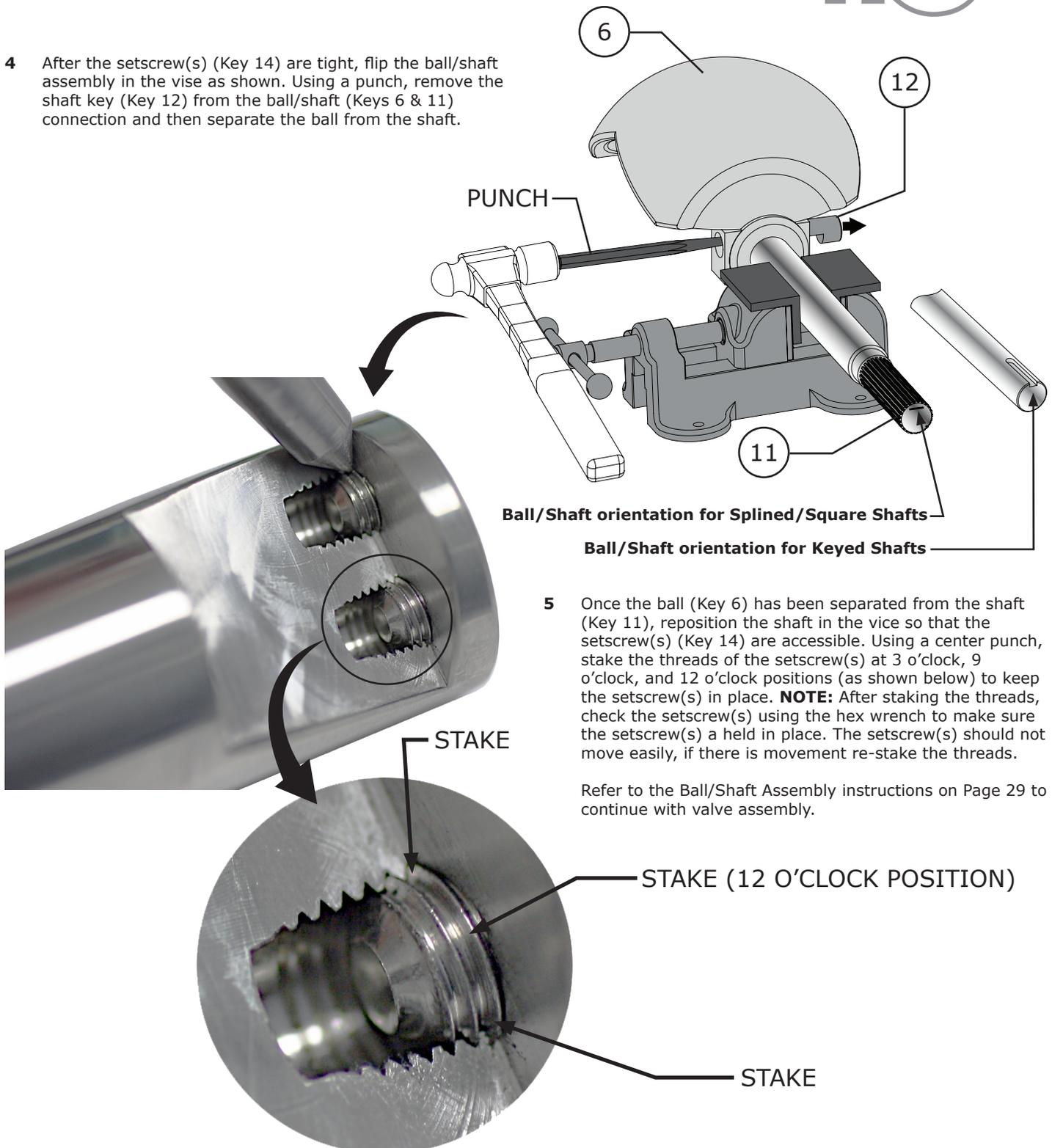


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- 4 After the setscrew(s) (Key 14) are tight, flip the ball/shaft assembly in the vise as shown. Using a punch, remove the shaft key (Key 12) from the ball/shaft (Keys 6 & 11) connection and then separate the ball from the shaft.



- 5 Once the ball (Key 6) has been separated from the shaft (Key 11), reposition the shaft in the vise 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) are held in place. The setscrew(s) should not move easily, if there is movement re-stake the threads.

Refer to the Ball/Shaft Assembly instructions on Page 29 to continue with valve assembly.



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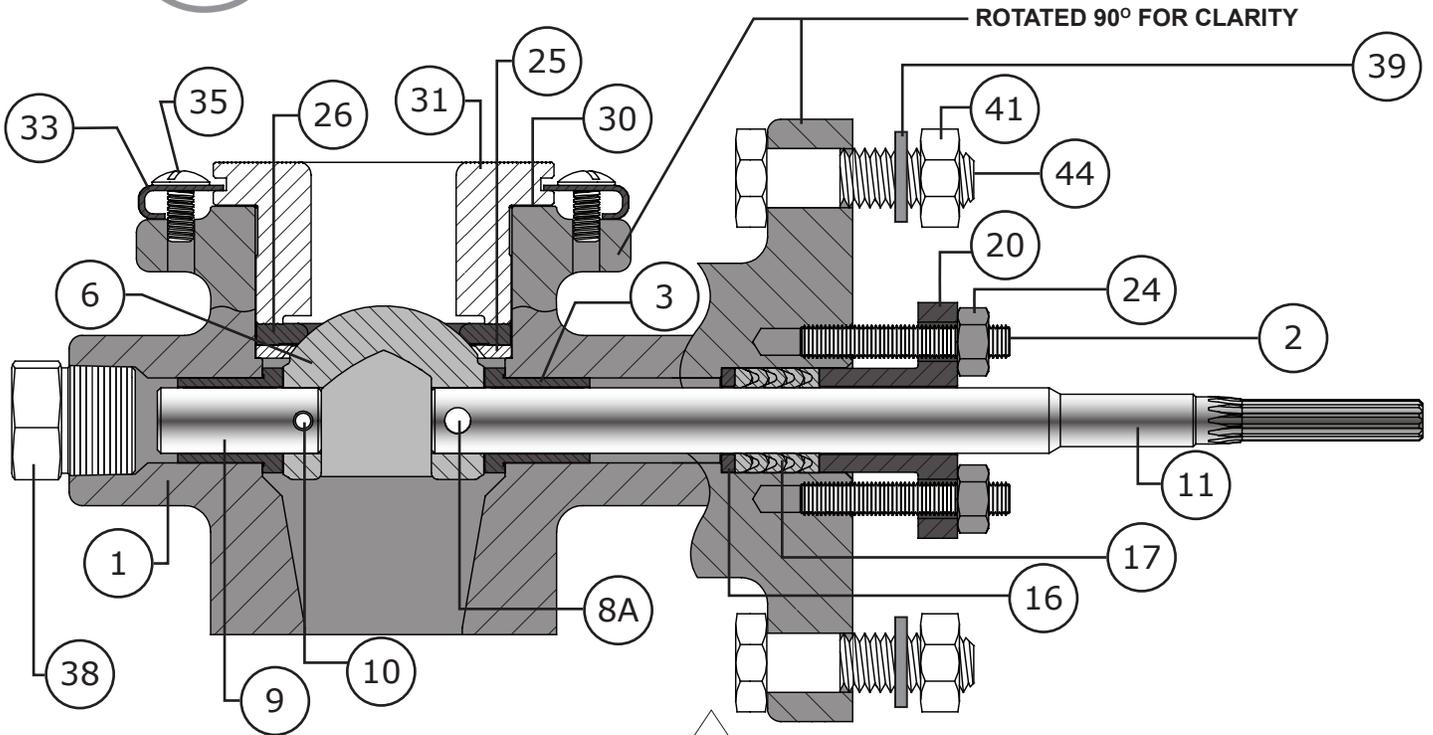


Figure 71 1 & 1-1/2 Inch Model 570 Cross Section

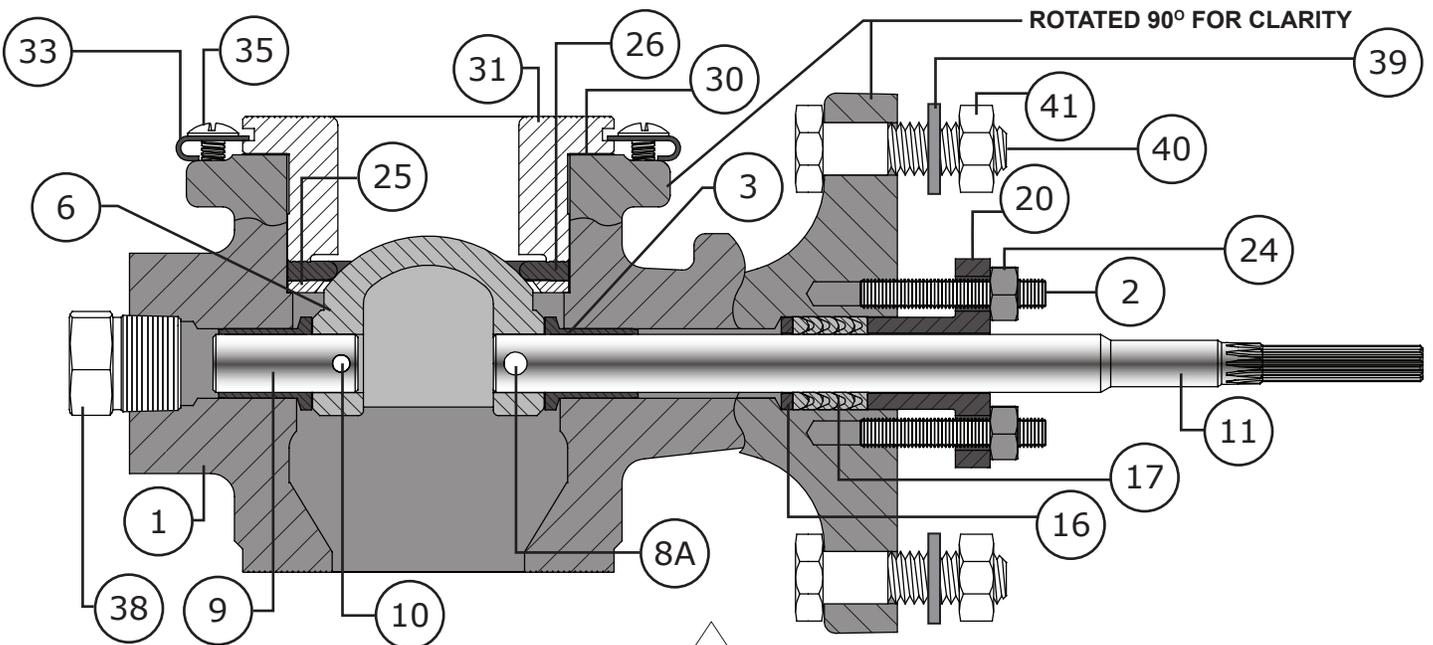


Figure 72 2 Inch Model 570 Cross Section

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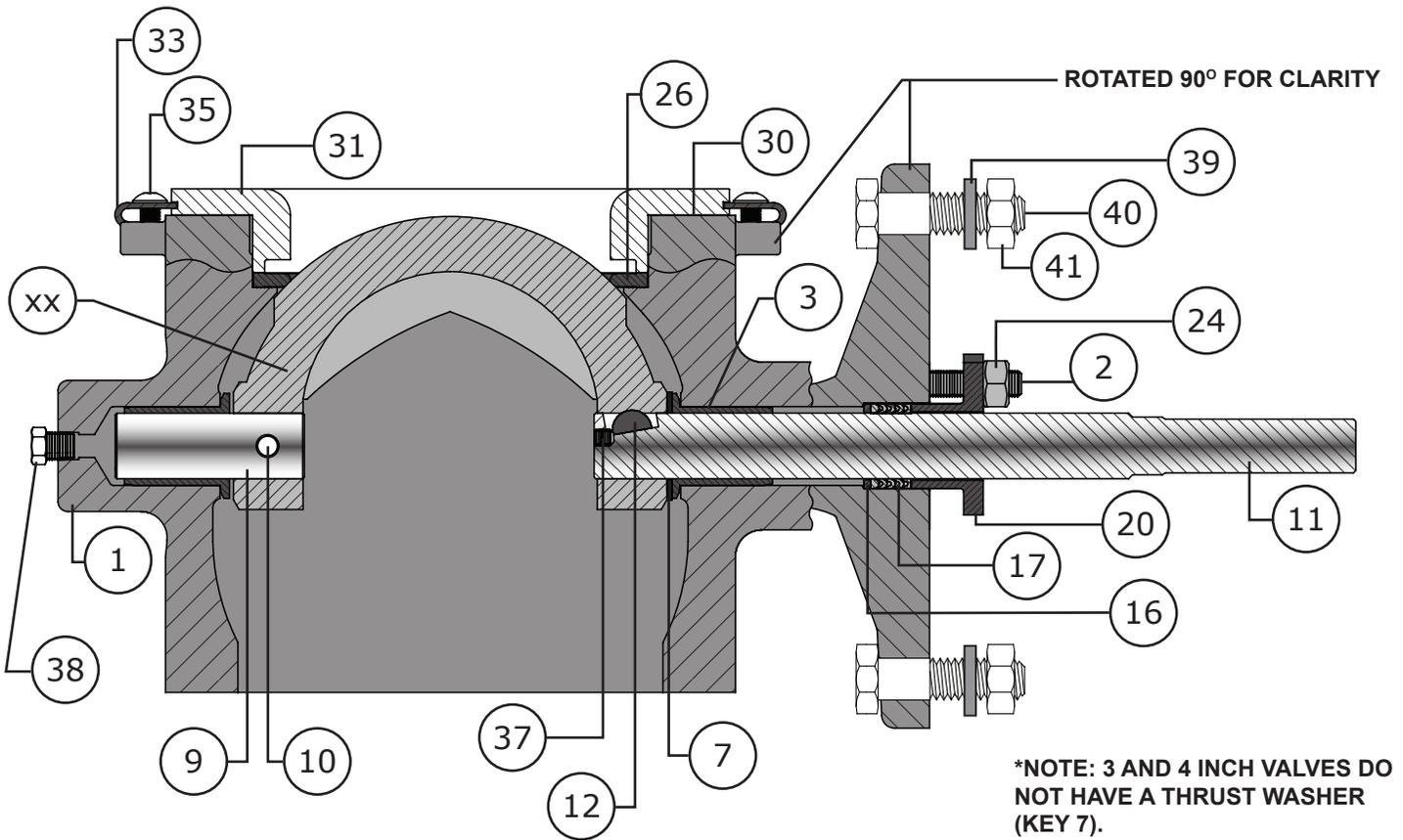
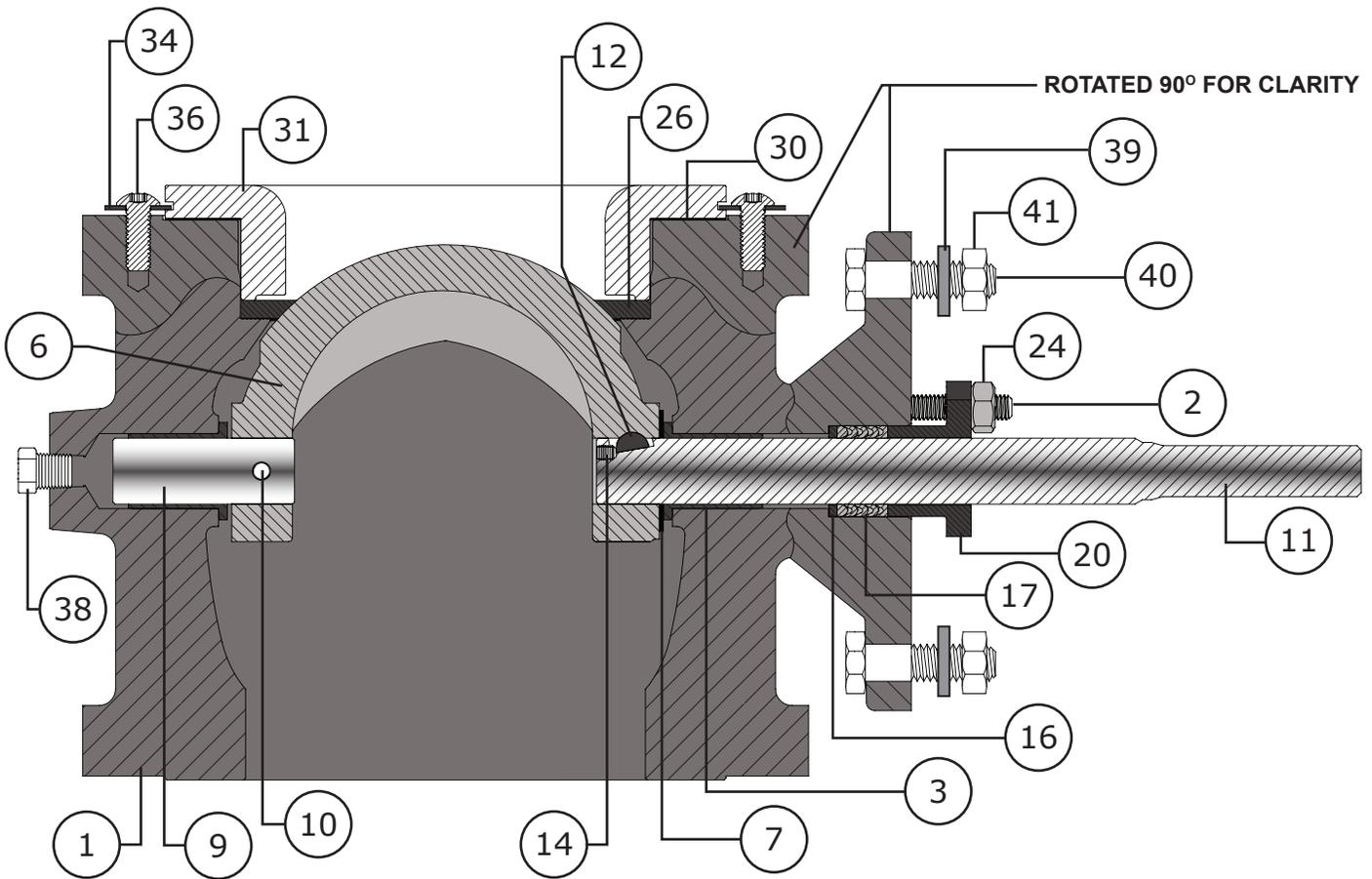


Figure 73 3 to 8 Inch Model 570 Cross Section



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***NOTE: 3 AND 4 INCH VALVES DO NOT HAVE A THRUST WASHER (KEY 7).**

Figure 74 3 to 12 Inch Model 571/573 Cross Section

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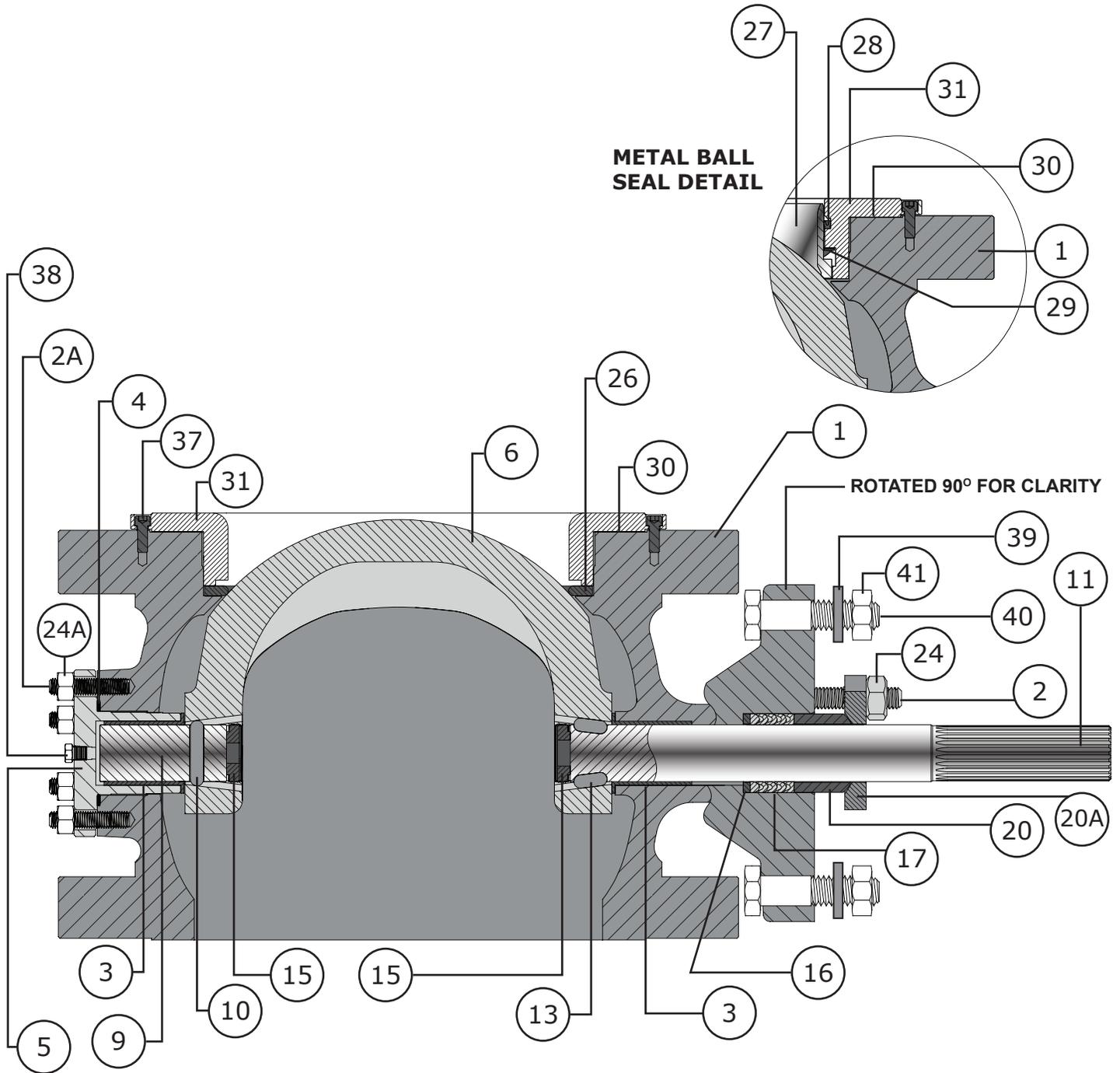


Figure 75 16 Inch Model 571/573 and 20 Inch 571 Cross Section



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Parts

Key	Description	Part Number
1	Body If you need a body as a replacement part, order by valve size, serial number and desired material.	
2	Stud, Standard Construction, Refer to Table 16 for Live Loaded Packing Studs	
	-B8M	
	1 - 4 Inch (2 Required)	1E94413522D
	6 Inch (2 Required)	12A8835X02D
	8 & 10 Inch (2 Required)	12A8950X02D
	12 Inch (2 Required)	12A8926X02D
	16 Inch (2 Required)	1J6981B8MDD
2A	Stud, Standard Construction, B7M	
	16 Inch (6 Required)	1A3781B7MDD
3	Bearings	
	-PEEK / Carbon-filled PTFE	
	1 Inch (2 Required)	570X0104X1D
	1-1/2 Inch (2 Required)	570X0504X1D
	2 Inch (2 Required)	570X2003X1D
	3 & 4 Inch (2 Required)	570X3001X1D
	16 Inch (2 Required)	570X166X01D
	-S17400 DH1150 / Carbon-filled PTFE	
	Outboard	
	6 Inch (1 Required)	570X604X01D
	8 Inch (1 Required)	570X804X01D
	10 Inch (1 Required)	570X104X01D
	12 Inch (1 Required)	570X124X01D
	Inboard	
	6 Inch (1 Required)	570X607X01D
	8 Inch (1 Required)	570X807X01D
	10 Inch (1 Required)	570X107X01D
	12 Inch (1 Required)	570X127X01D
	16 Inch (1 Required)	
	-Alloy 6	
	1 Inch (2 Required)	570X0105X3D
	1-1/2 (2 Required)	570X0505X3D
	2 Inch (2 Required)	570X209X03D
	3 Inch (2 Required)	570X308X03D
	4 Inch (2 Required)	570X308X03D
	6 Inch (2 Required)	570X611X03D
	8 Inch (2 Required)	570X813X03D
	10 Inch (2 Required)	570X105X03D
	12 Inch (2 Required)	570X126X03D

	16 Inch (2 Required)	570X165X03D
	-S44004	
	1 Inch (2 Required)	570X0105X4D
	1-1/2 (2 Required)	570X0505X4D
	2 Inch (2 Required)	570X209X04D
	3 Inch (2 Required)	570X308X04D
	4 Inch (2 Required)	570X308X04D
	6 Inch (2 Required)	570X611X04D
	8 Inch (2 Required)	570X813X04D
	10 Inch (2 Required)	570X105X04D
	12 Inch (2 Required)	570X126X04D
	16 Inch (2 Required)	570X165X04D
4	Spiral Wound Gasket, S31600/Graphite	
	16 Inch (1 Required)	14B5354X01D
5	Flange, A105/350 LF2, 16 Inch	570X1611X1D
6	Ball, CG8M chrome plated	
	1, 1-1/2, 2 Inch	Refer to Key 8
	3 Inch	570X302X08D
	4 Inch	570X405X08D
	6 Inch	570X602X08D
	8 Inch	570X810X08D
	10 Inch	570X109X15D
	12 Inch	570X129X15D
	16 Inch	570X170X15D
7	Thrust Washer, Carbon-filled PTFE	
	6 Inch	570X608X01D
	8 Inch	570X808X01D
	10 Inch	570X808X01D
	12 Inch	570X128X01D
	16 Inch	570X168X01D
8	Ball/Shaft/Pin (Key 8A) Assembly	
	-1" CG8M/CRPL Nitronic 50 Shaft	570X0110X8D
	-1-1/2" CG8M/CRPL Nitronic 50 Shaft	570X0510X8D
	-2" CG8M/CRPL Nitronic 50 Shaft	570X208X08D
9	Follower Shaft, S20910	
	1 Inch	13B0336X01D
	1-1/2 Inch	13B6678X01D
	2 Inch	13B6678X01D
	3 & 4 Inch	11B0728X01D
	6 Inch	11B0733X01D
	8 & 10 Inch	11B0717X01D
	12 Inch	570X1201X1D
	16 Inch	570X1601X1D

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Parts (Continued)

Key	Description	Part Number	
10	Follower Shaft Pin, S31600/S31603 Dual Grade		
	1 Inch	570X0109X1D	
	1-1/2 Inch	570X200001D	
	2 Inch	570X200001D	
	3 Inch	570X300001D	
	4 Inch	570X400001D	
	6 Inch	18A6138X01D	
	8 & 10 Inch	11B0738X01D	
	12 Inch	11B8596X01D	
	16 Inch	570X1609X1D	
11	Drive Shaft (Splined/Standard), S20910		
	1, 1-1/2, 2 Inch	Refer to Key 8	
	3 & 4 Inch	570X314X01D	
	6 Inch	570X601X01D	
	8 & 10 Inch	570X801X01D	
	12 Inch	570X121X01D	
	16 Inch 571	570X171X01A	
	16 Inch 573	570X161X01D	
	-For other shaft styles contact Dyna-Flo.		
	12	Shaft Key, S20910	
3 & 4 Inch		570X313X01D	
6 Inch		570X610X01D	
8 Inch		570X802X01D	
10 Inch		570X802X01D	
13	Shaft Pin, Alloy 6		
	16 Inch (2 Required)	570X162X01D	
14	Socket Set Screw, S31600/S31603 Dual Grade		
	Included with Drive Shaft (Key 11)		
	3 - 4 Inch (1 Required)	570X312X01D	
15	Shaft Retainer, S17400 DH1150		
	16 Inch (2 Required)	570X167X01D	
16	Packing Box Ring, S31600/S31603 Dual Grade		
	1 Inch	16A6082X01D	
	1-1/2 Inch	16A6083X01D	
	2 Inch	16A6083X01D	
	3 & 4 Inch	16A6084X01D	
	6 Inch	16A6085X01D	
	8 & 10 Inch	16A6086X01D	
	12 Inch	16A6087X01D	
	16 Inch	12B3373X01D	

17 Packing Set (Standard)

Refer to Table 16 for Live Loaded Packing Sets

-PTFE/Carbon TFE

1 Inch	12A9016X02D
1-1/2 Inch	1R5795X001D
2 Inch	1R5795X001D
3 & 4 Inch	12A8995X02D
6 Inch	12A8832X01D
8 & 10 Inch	12A8951X01D
12 Inch	12A8935X02D
16 Inch	1R5162X001D

17A Graphite (Packing Ring 3 Required Standard, 2 Required for Live Loaded Packing)

1 Inch	12A9134X01D
1-1/2 Inch	12A9135X01D
2 Inch	12A9135X01D
3 & 4 Inch	12A9136X01D
6 Inch	12A9137X01D
8 Inch	12A9138X01D
10 Inch	12A9138X01D
12 Inch	12A9139X01D
16 Inch	1V94960165D

18 Graphite Anti-Extrusion Rope Packing

(1 Required Standard Packing)

(2 Required for Live Loaded Packing)

1 Inch	1P3905X017D
1-1/2 Inch	1J8225X018D
2 Inch	1J8225X018D
3 & 4 Inch	14A1937X04D
6 Inch	14A0915X04D
8 Inch	14A0916X04D
10 Inch	14A0916X04D
12 Inch	14A1933X04D
16 Inch	RP250212X3D

19 Anti-Extrusion Ring - Live Loaded Packing

PEEK (Carbon/Graphite/PTFE) Refer to Table 16.

20 Packing Follower, S31600/S31603 Dual Grade

Refer to Table 16 for Live Loaded Packing Flange/Follower

1 Inch	16A6078X01D
1-1/2 Inch	16A6079X01D
2 Inch	16A6079X01D
3 & 4 Inch	26A6080X01D
6 Inch	26A6077X01D
8 & 10 Inch	26A6081X01D



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Parts (Continued)

Key	Description	Part Number
20	Packing Follower (Continued)	
	12 Inch	26A6088X01D
	16 Inch	1P92973507D
20A	Packing Flange	
	16 Inch	1P92983507D
21	Spring Washers - Live Loaded Packing	
	17-7	Refer to Table 16.
22	Packing O-Ring - Live Loaded Packing	
	Viton	Refer to Table 16.
23	Packing Flange - Live Loaded Packing	
	S31600/S31603 Dual Grade	Refer to Table 16.
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
24A	Nut, Flange, 2HM	
	16 Inch (6 Required)	1A37602HMDD
25	Backup Ring, S31600/S31603 Dual Grade	
	1 Inch	13B0338X01D
	1-1/2 Inch	13B6814X01D
	2 Inch	13B6677X01D
26	Ball Seal, Composition Ultra	
	1 Inch	13B0339X06D
	1-1/2 Inch	13B6815X07D
	2 Inch	13B6686X07D
	3 Inch	13A2565X11D
	4 Inch	13A2585X11D
	6 Inch	13A2619X11D
	8 Inch	13A2645X08D
	10 Inch	13A2662X06D
	12 Inch	13A2677X07D
	16 Inch	1V6298X002D
27	Metal Ball Seal	
	-Alloy 6	
	1 Inch	33B0341X01D
	1-1/2 Inch	33B6817X03D
	2 Inch	33B6676X03D
	3 Inch	34B4766X03D
	4 Inch	34B4767X03D
	6 Inch	34B4768X03D

8 Inch	34B4769X03D
10 Inch	34B3365X03D
12 Inch	570X125X30D
-S21800	
1 Inch	33B0341X03D
1-1/2 Inch	33B6817X01D
2 Inch	33B6676X01D
3 Inch	34B4766X01D
4 Inch	34B4767X01D
6 Inch	34B4768X01D
8 Inch	34B4769X01D
10 Inch	34B3365X01D
12 Inch	570X125X60D
16 Inch	33B0693X01D
-S31600/HFS	
16 Inch	33B0693X03D
28	Radial Seal, Carbon TFE
1 Inch	18B0261X01D
1-1/2 Inch	18B0262X01D
2 Inch	18B0263X01D
3 Inch	18B0264X01D
4 Inch	28B0265X01D
6 Inch	28B0266X01D
8 Inch	28B0267X01D
10 Inch	28B0268X01D
12 Inch	28B0269X01D
16 Inch	28B0271X01D
29	Wave Spring, N07750
1 Inch	23B0347X01D
1-1/2 Inch	23B6825X01D
2 Inch	23B6689X01D
3 Inch	24B4760X01D
4 Inch	24B4761X01D
6 Inch	24B4762X01D
8 Inch	24B4763X01D
10 Inch	22B4509X01D
12 Inch	22B4514X01D
16 Inch	23B0695X01D

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Parts (Continued)

Key	Description	Part Number
30	Gasket, Graphite Laminate	
	1 Inch	13B0344X03D
	1-1/2 Inch	13B6823X04D
	2 Inch	13B6687X01D
	3 Inch	11B0660X01D
	4 Inch	11B0672X01D
	6 Inch	11B0681X03D
	8 Inch	11B0693X01D
	10 Inch	11B0720X01D
	12 Inch	11B4682X02D
	16 Inch	13B0692X02D
31	Seal Protector Ring	
	Composition Ultra (Standard) HD Metal Seal	Consult Dyna-Flo. Consult Dyna-Flo
32	Flow Ring	Consult Dyna-Flo
33	Seal Protector Clip, 570 Valves, SST	
	1 - 4 Inch (2 Required) 6 - 8 Inch (2 Required)	24B3040X01D 22B4975X01D
34	Seal Protector Washer, 571/573 Valves, S31600	
	1 - 3 Inch (2 Required) 4 Inch (2 Required) 6 - 12 Inch (2 Required)	1A8518X001D 11B4671X01D 1A3756X001D
35	Seal Protector Clip Retaining Screw, 18-8	
	1 Inch (2 Required) 1-1/2 - 4 Inch (2 Required) 6 Inch (2 Required) 8 Inch (2 Required)	SBR18.814.012 1A8991X003D SBR18.8516.100 11B0682X02D
36	Seal Protector Washer Screw, SST	
	1 to 3 Inch (2 Required) 4 Inch (2 Required) 6 - 8 Inch (2 Required) 10 - 12 Inch (4 Required)	SBR18.814.012 1R1938X001D 11B0682X02D 11B0682X02D
37	Socket Head Cap Screw, 18-8	
	16 Inch (4 Required)	10B1058X02D
38	Pipe Plug	
	-A350 (For LCC Bodies)	
	1 Inch 1-1/2 to 4 Inch 6 & 8 Inch 10 Inch 12 Inch 16 Inch	570X0106X3D 570X212X03D 1A7675A350D 570X101X03D 570X122X03D 1A7675A350D

	-A105 Steel (For WCC Bodies)	
	1 Inch 1-1/2 to 4 Inch 6 & 8 Inch 10 Inch 12 Inch 16 Inch	570X0106X1D 570X212X01D 1A76752466D 570X101X01D 570X122X01D 1A76752466D
	-S31600/S31603 Dual Grade (For CG8M Bodies)	
	1 Inch 1-1/2 to 4 Inch 6 & 8 Inch 10 Inch 12 Inch 16 Inch	570X0106X2D 570X212X02D 1A76753507D 570X101X02D 570X122X02D 1A76753507D
39	Lock Washer, Zinc Plated Steel	
	1 - 2 Inch (2 Required) 3 - 6 Inch (4 Required) 8 - 12 Inch (4 Required) 16 Inch (4 Required)	LWZ12 LWZ12 LWZ58 LWZ34
40	Actuator Mounting Bolt, Gr. 5 Pl Steel	
	1 - 2 Inch (2 Required) 3 Inch (4 Required) 4 Inch (4 Required) 6 Inch (4 Required) 8 - 12 Inch (4 Required) 16 Inch (4 Required)	H5CZ12.134 H5CZ12.200 H5CZ12.214 H5CZ12.200 H5CZ58.212 H5CZ34.300
41	Actuator Mounting Nut, Gr. 5 Pl Steel	
	1 - 2 Inch (2 Required) 3 - 6 Inch (4 Required) 8 - 12 Inch (4 Required) 16 Inch (4 Required)	NHCZ12 NHCZ12 NHCZ58 NHCZ34
42	Name Plate, Steel	NAMEXRBDYD
43	NACE Tag, Steel	NAME7NACEZD

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Parts Ordering

Whenever corresponding with Dyna-Flo about a 570 Series Control Valves, refer to the nameplate (Key 42) for the serial number of the unit. Please order by the complete part number (as given in the following part lists) of each part required.

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Table 15

Live Loaded Packing Box Parts (Keys)

Refer to Figures 60, 61, & 62

Description	Key No.	Shaft Diameter inch (mm)		
		1/2 (12.7)	5/8 (15.9)	3/4 (19.1)
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) (17A - Graphite Rings) (18 - Anti-Extrusion Rope)	17A	13B8816X01D	13B8816X03D	13B8816X05D
	18			
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 inch (mm)		
		1 (25.4)	1-1/4 (31.8)	1-1/2 (38.1)
Packing Stud (2 Required)	2	STB8M-038-314	STB8M-012-314	STB8M-012-314
Packing Box Ring	16	16A6085X01D	16A6086X01D	16A6087X01D
Packing Set (PTFE)	17	12B7438X01D	12B7450X01D	12B7462X01D
Packing Set (Graphite) (17A - Graphite Rings) (18 - Anti-Extrusion Rope)	17A	13B8816X09D	13B8816X11D	13B8816X14D
	18			
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



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Packing Repair Kits

Live Loaded PTFE Packing

Valve Size	Shaft Diameter inches (mm)	Kit Numbers
1 Inch	1/2 (12.7)	RRTYX00001D
1-1/2 Inch	5/8 (15.9)	RRTYX00002D
2 Inch	5/8 (15.9)	RRTYX00002D
3 & 4 Inch	3/4 (19.1)	RRTYX00003D
6 Inch	1 (25.4)	RRTYX00005D
8 Inch	1-1/4 (31.8)	RRTYX00006D
10 Inch	1-1/4 (31.8)	RRTYX00006D
12 Inch	1-1/2 (38.1)	RRTYX00007D
16 Inch	2-1/8 (50.8)	RRTYX00025D

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

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.

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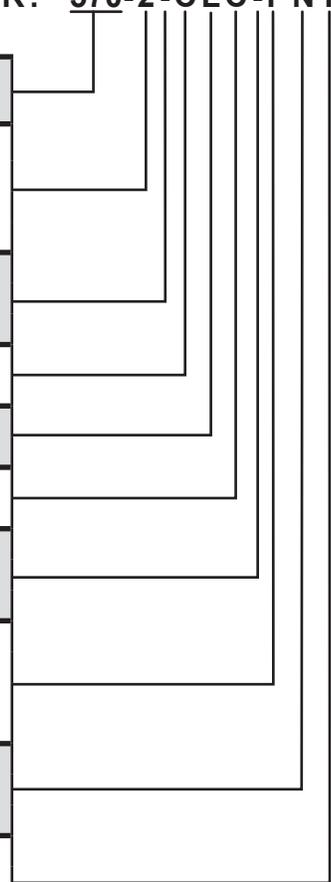


Model 570, 571, 573 Control Valve

MODEL 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					
BALL MATERIAL						-		
-	CG8M / CRPL (STANDARD)			S	CG8M / CoCr-A LEADING EDGE / CRPL			
N	CG8M / CoCr-A LEADING EDGE			B	CG8M			
ASME RATING						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		
C	PTFE COMPOSITION	H	S21800	A	ALLOY 6	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 MATERIAL / STYLE						N		
N	S20910 / SPLINED			K	S20910 / KEYED (VALVE SIZES 8" - 12" ONLY)			
P	S20910 / SQUARE END (VALVE SIZES 1" - 6" ONLY, FOR 1" & 1-1/2" VALVES CONSULT DYNA-FLO)							
BEARINGS						T		
T	S17400 / CARBON-FILLED PTFE ⁽¹⁾			T	PEEK / CARBON-FILLED PTFE ⁽¹⁾			
A	ALLOY 6			F	S44004			
NOTES								
1	BEARING MATERIAL WILL VARY DEPENDING ON VALVE SIZE, REFER TO PAGE 52, KEY 3 FOR MORE INFORMATION.							



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Our Commitment to Quality

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