

BxL[®] Control Valve

Body Sub-assembly

37



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Installation, Operation and Maintenance Instructions

1.1 - GENERAL INFORMATION

The following instructions are designed to assist in the installation, operation and maintenance of the B \bar{X} L eccentric disc control valves, as necessary.

Users and maintenance personnel should read this bulletin carefully before the installation, operation or servicing of the valve, actuator, positioner or any other accessory installed on the valve.

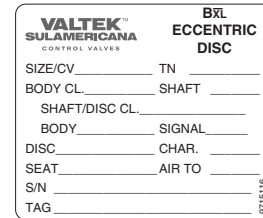


Figure 1 - Name Plate



WARNING

If it is necessary to store the products before field installation, Valtek Sulamericana recommends that valves be stored in dry, fresh, closed places. Do not store valves in places where relative humidity is higher than 85% or the room temperature is lower than 41°F or higher than 113°F (5 – 45°C). Environments containing excessive UV radiation, acid or alkaline mist or ozone sources must be avoided.

Product storage in non-recommended places may void the manufacturer warranty.

1.2 - UNPACKING

- When removing the valve from its package, check the packing list or valve datasheet, comparing it with the received material. A specification sheet of the valve and assembled accessories is shipped inside each shipping container.
- When lifting the valve from shipping container, position the lifting straps properly in order to avoid damages to the valve tubings and accessories assembled in the valve. The B \bar{X} L valves may be lifted by the lifting rings provided on the top of the actuators (only for sizes 25 and 50). In case there is no lifting ring provided, lift the valve using straps passing through to the yoke legs and the opposite end of the valve body.
- In case of damages during transport, immediately contact the shipper.
- In case of any problem, call your Valtek Sulamericana representative.

1.3 - IDENTIFICATION

All B \bar{X} L valves have a stainless steel name plate (see Fig. 1). The name plate provides the following data:

- SIZE/CV: Valve size in inches / Rated Cv
- TN: Trim size
- BODY CL: Body rating (ANSI)
- SHAFT: Shaft material
- SHAFT/DISC CL: Shaft/disc rating
- SIGNAL: Instrument signal range
- DISC: Disc material
- CHAR: Flow characteristic
- SEAT: Seat material
- AIR TO: Air action (open/close)
- S/N: Serial number
- TAG: Customer identification



1.4 - SAFETY WARNINGS

To avoid potential injury and/or damage to the valve parts, WARNING and CAUTION notes must be strictly observed. Changing this product characteristics, using non-original spare parts or using maintenance procedures different from those presented herein may affect the performance of the valve, be hazardous to personnel and equipment and may void the manufacturer warranty.



WARNING

Standard industry safety practices must be applied when using this equipment. Industry safety standards for personal protection and for equipment handling must also be observed.



CAUTION

Removing the valve for maintenance: Piping must be completely depressurized and process fluid drained. In case of toxic, caustic or hazardous fluid services, the valve must be decontaminated to avoid accidents.

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WARNING

It is the user responsibility the properly material selection of the fasteners necessary to install the valve in the process. User will take into account the material strength and its resistance to stress corrosion cracking. As with any mechanical equipment, periodic inspection and maintenance is required.

1.5 - INSTALLATION

- Before installing the valve, clean the piping to remove contaminants, scales and other foreign materials. Clean the flange gasket surfaces to assure that there is no leakage.
- Check the flow direction to assure that the valve is properly installed.

Fail-open valves must be installed with shaft downstream, as well as the valves that operate with liquid service (regardless of the failsafe position).

As a general rule, fail-closed valves must be installed with the shaft upstream only for gas services.

Under certain special operating conditions with liquid service, valves may be installed with shaft upstream. Consult the manufacturer for these special applications.

- Keep the valve completely closed before and during its installation in the process piping.



CAUTION

When operating the valve, keep your hands, hair, clothes, etc. away from the disc and the seat. Failure to follow this warning may result in serious injury.



WARNING

Due to the self-centering seat design, the BXL valve must not be open during installation. Keep the valve closed until the installation is completed.

- Connect air supply and instrument signal (throttling control valves are generally equipped with positioners). The air ports are identified indicating the air supply and instrument signal. The actuator can operate with air supply pressure up to 150 psi (10.3 Bar). Air filter is recommended, unless the supply air is clean and dry.

Note: Under special circumstances, the maximum air supply pressure must be limited to 80 or 100 psi depending on the actuator size and the positioner installed.



WARNING

For transport reasons, the air filter may be installed out of the vertical position. Before operating the valve, position the air filter pointing down.

- Make sure that piping internal dimensions and the valve positioning during installation will allow the disc rotation.

Table I: Piping Flange Bolting Specifications

Valve Size (in.)	ANSI Class	Studs Qty.	Size (in./mm)	Torque* ft-lbs (Nm)	
				Low Strength	Intermed. Strength
2	150 300	4 8	5/8 M16	46 (62)	122 (165)
			5/8 M16	46 (62)	122 (165)
3	150 300	4 8	5/8 M16	46 (62)	122 (165)
			3/4 M20	82 (110)	218 (295)
4	150 300	8 8	5/8 M16	46 (62)	122 (165)
			3/4 M20	82 (110)	218 (295)
6	150 300	8 12	3/4 M20	82 (110)	218 (295)
			3/4 M20	82 (110)	218 (295)
8	150 300	8 12	3/4 M20	82 (110)	218 (295)
			7/8 M22	132 (180)	353 (480)
10	150 300	12 16	7/8 M22	132 (180)	353 (480)
			1 M27	199 (270)	531 (720)
12	150 300	12 16	7/8 M22	132 (180)	353 (480)
			1.1/8 M30	296 (400)	789 (1070)

*Torque values are recommended for low and intermediate strength bolting according to ANSI B16.5 (paragraph 5.3.2). Higher torque can be applied to high strength bolting according to ANSI B16.5 (paragraph 5.3.1). In all cases, the user must certify that the selected bolting have capacity to seat the gaskets under the specified operating conditions.

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- In order to obtain the proper sealing, apply the recommended torque values to the bolting that secures the valve to the piping flanges (see Table I).

1.6 - QUICK CHECK

Prior to start-up, check the control valve according to the following steps:

- Check the full stroke making appropriate instrument signal change. Observe the valve position indicator located on the actuator transfer case. The valve disc must move smoothly from its position.
- Check all air connections for leaks. Tighten the packing nuts evenly with a torque slightly higher than the torque applied by fingers, adding 1/4 turn (only for PTFE).

After the valve is operating for a short period of time, check the packing nuts making sure they are just over finger-tight (retighten if necessary). If there is a leakage through the packing box, tighten the packing nuts just enough to avoid leakage through the valve shaft.



WARNING

Do not overtighten packing. This may cause excessive packing wear and increase the friction on the valve shaft, blocking its rotation.

Note: in case of high temperature application, check and re-tighten shaft flange and packing nuts after the temperature increment.

- Check the failsafe position in case of air supply lack. Position the valve in the middle of its stroke and shut off the air supply to the actuator or cut-off the instrument signal sent to positioner. Observe the disc position indicator to confirm that the disc reaches the specified failsafe position. If specified failsafe position is not reached, refer to section "Reversing the Air Action".

1.7 - PREVENTIVE MAINTENANCE

Check if the valve is working properly at least every six months following the preventive maintenance steps indicated below.

This sequence can be performed with the valve

installed in the line and, in some cases, without disturbing operation. In case there is a potential problem inside the valve, refer to the section "Disassembly and Reassembly":

- Inspect signs of leakage in the body gasket and in the piping flanges. Inspect shaft flange or shaft plug checking if there is any leakage. Tighten flange bolting, if necessary.
- Observe if corrosive vapors or process fluid dripping is damaging the valve.
- Clean valve and repaint areas of severe oxidation.
- Check tightness of the packing box nuts. Packing nuts must be tightened with a torque slightly over finger-tight; however, tighten just enough to avoid leakage through the valve shaft.
- If the valve is supplied with a lubricator, check the lubricant reservoir and add new lubricant, if necessary.
- If possible stroke the valve and, observing the disc position indicator, check if the valve travels its full stroke in a smooth and uniform way. An unsteady movement of the disc may indicate an internal problem of the valve (jerky motion is normal when graphite packing is used).
- Verify valve calibration, comparing the pressure indicated in the positioner gauges against the disc position indicator in the actuator. Make sure that the positioner is calibrated within the correct range. Refer to the positioner instructions for information about preventive maintenance.
- If possible, depressurize the actuator, remove actuator transfer case cover and make sure that the mechanical linkage with the positioner is connected in a safe way.



CAUTION

Never pressurize the actuator with the transfer case cover uninstalled. If this happens, unsupported shaft may cause damages.

- Make sure all accessories, brackets and bolts are properly tightened.
- If possible, shutoff air supply and observe on the disc position indicator if the specified failsafe position is reached.

Installation, Operation and Maintenance Instructions

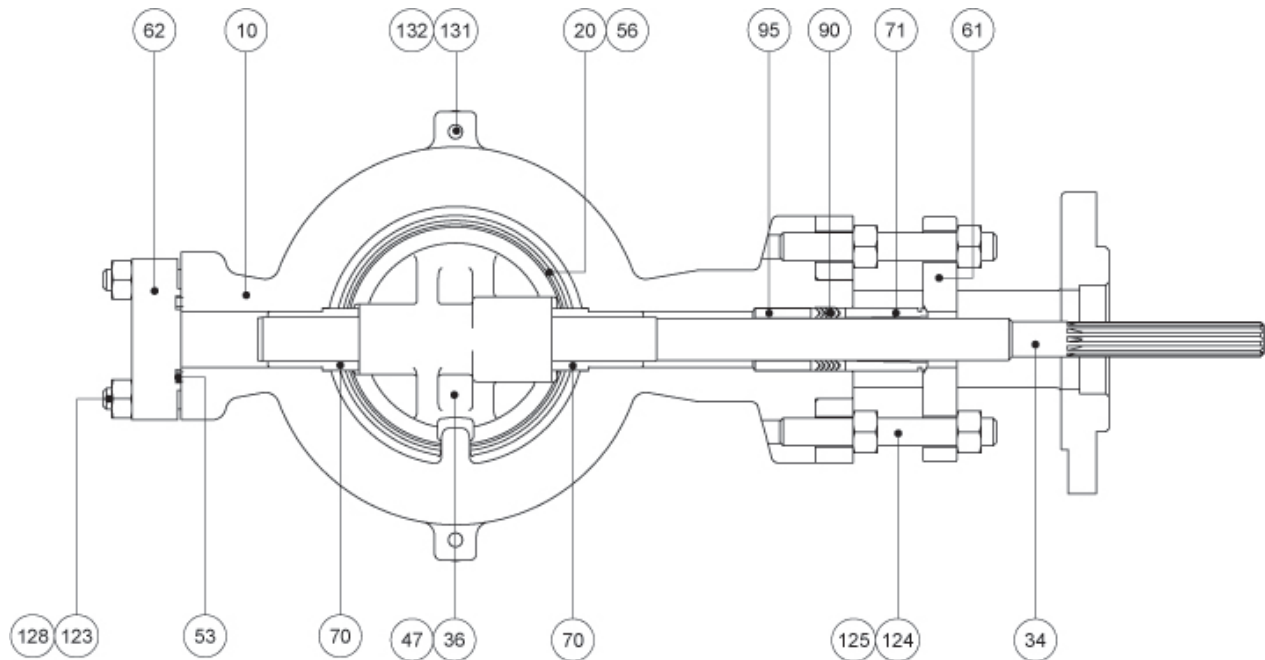


Figure 2: BXL Valve Body Sub-Assembly

- Apply a soap solution around the cylinder retaining ring and the adjusting screw to check if there are air leaks through the O-rings and gasket.
- Remove any contaminant or other foreign material from the exposed areas of the valve shaft.
- If an air filter is supplied, check and replace cartridge if necessary.

DISASSEMBLY AND REASSEMBLY

Removing valve from piping

In case any internal problem is suspected with the valve requiring its disassembly, remove the valve from piping observing the safety warning as follows:



CAUTION

Removing the valve for maintenance: Piping must be completely depressurized and process fluid drained. In case of toxic, caustic or hazardous fluid services, the valve must be decontaminated to avoid accidents.

- Make sure the valve is fully closed prior its removal.

Note: on fail-open valves the actuator's lower chamber must be pressurized to close the valve. If the valve is equipped with a handwheel, it can be used to close the valve.

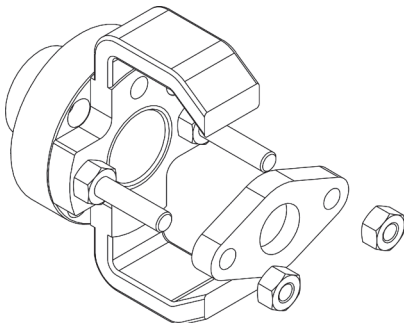


Figure 3

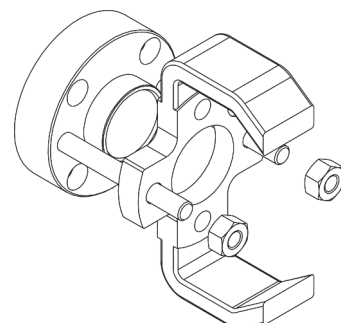
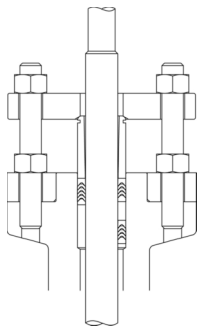
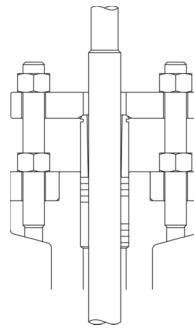


Figure 4

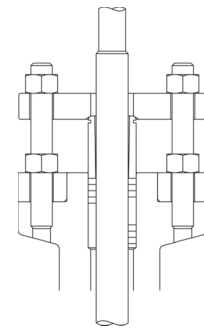
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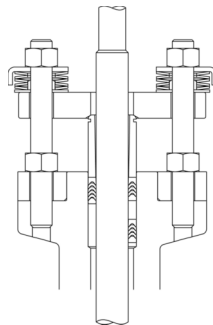
PTFE V-Rings
Standard – Twin



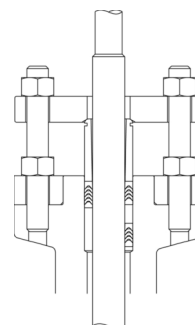
Braided PTFE
Standard – Twin



Graphite
Standard – Twin



PT
Standard – Twin



PTG
Standard – Twin

Figure 5 - BXL Typical Packing Configurations

1.8 - DISASSEMBLING THE BODY

For disassembling the BXL valve, refer to Figures 2, 3 and 4 and proceed as follows:

- Once the valve is removed from piping, hold the actuator by the lifting ring (or by the cylinder and yoke legs) before removing it from the valve assembly.
With the valve over a workbench and keeping the actuator securely supported, loose the actuator adjusting screw to release spring pressure.
- Remove the transfer case cover bolts. Gently slide the cover from the end of the shaft.
- Loose the locking device of the actuator splined lever arm (if applicable).
- Remove the gland flange (Fig. 3).
- Remove the actuator from the valve body. This is done removing the yoke nuts and sliding the com-

plete actuator off the valve shaft (Fig. 4). It is not necessary to remove the studs that secure the yoke.

- Remove the seat retainer screws and retainer clips. Remove the seat retainer of the valve body (see Figures 2 and 6).
- Remove the taper pins that connect the disc to the valve shaft, gently tapping on the small end of the pins using a hammer and a punch.
- Remove shaft flange nuts and shaft flange (or shaft plug depending on valve size).
- With a hammer and a dowel of appropriate size (made from nylon or similar material), gently tap the splined tip of the valve shaft, making it slide out of the body via the shaft flange side.

Note: On size 2 inches, the shaft must be removed via the packing box side.



WARNING

Special care must be taken during the disassembly to avoid damaging the shaft splines.

- To avoid damaging the sealing surfaces, place soft supports below or around the disc. This also prevents the shaft misalignment as the shaft comes off the first bearing surface.
- Remove the disc of the valve, taking the necessary care to avoid damaging the sealing surfaces.
- Remove the packing follower and, using an appropriate tool, remove the packing set and the packing spacers.
- Using a brass or nylon dowel of appropriate size, push the bearings out of the body.

1.9 - REASSEMBLING THE BODY

To reassemble the B \times L valve body, refer to figures 2, 3, 4, 5 and 6 and proceed as follows:

- Make sure the disc and the seat surfaces are smooth, free of scratches or marks that may affect the valve sealing.
- Inspect the shaft to check if there are scratches or marks that may cause leakage or reduce the bearings and packing life.
- Position the valve in a vise.
- When reassembling the valve, use new gaskets and packing set.
- Clean completely the shaft, the packing box bore and the body gasket surfaces (before reassembling it is important to remove any contamination from these sealing surfaces).
- Assemble the bearing into the body.
- Position the disc in the body, making sure that it will rotate in the correct direction regarding the disc stop existing in the valve body. Slide the shaft through the body, bearings and disc.



WARNING

While sliding the shaft through the bearings, take care to avoid damaging these parts.

- Insert new taper pins and drive them firmly in place, gently tapping on the big end of the pins.
- Slide the spacer, packing set and packing follower over splined end of the shaft and into the body. The B \times L typical packing configurations are illustrated in Figure 5.
- Position the shaft flange gasket or shaft plug O-ring/gasket in place and assemble these items on valve body.
- All versions equipped with screw/clip retainers require a gasket (item 56) that must be installed in the appropriate groove.
- If the valve is equipped with a soft or a dual seat, press the soft seat into the seat retainer or into the metal seat, as required (there should be an interference between the retainer and the soft seat). With the valve in the closed position, position the seat retainer or the metal seat and tighten the clip screws which secure these items in place.
- If the valve is equipped with a metal seat, a gasket must be installed in the metal seat before it is fixed in the valve body by means of the clips and screws.
- Apply torque to the shaft flange nuts (see Table II) or tighten the shaft plug.
- Install the actuator as indicated in "Reassembling the Actuator". Do not forget to position the gland flange properly once the actuator yoke starts to pass through the shaft tip.
- Check if the packing follower and gland flange are correctly positioned. Then, tighten the packing nuts uniformly to slightly over finger-tight.
- Install the valve in the piping as indicated in the section "Installation".

1.10 - REASSEMBLING THE ACTUATOR

Before coupling a B \times L valve to a rotary actuator, verify if the disc rotation is compatible with the actuator rotation and if the disc position complies with the required failsafe position. To assemble the actuator, follow the procedure below:

- Pass the actuator yoke through the shaft tip, position the gland flange properly and align the yoke holes with the yoke studs assembled on valve

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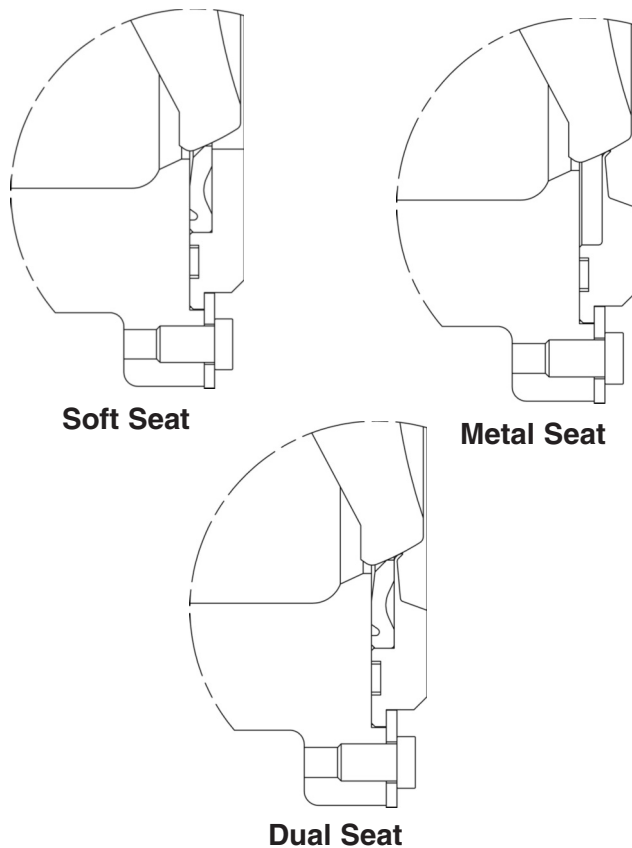


Figure 6: Seat and Seat Retainer Configurations

Table II: Stud Torque Values

Valve Size (in.)	Bolting Material			
	ASTM 193 - B8		ASTM 193 - B8 Class 2	
	Ft-lbs	Nm	Ft-lbs	Nm
2	10	13.5	7.5	10
3 - 4	35	47	27	36.5
6 - 8	46	62	35.5	47.8
10 - 12	82	110	62	83

body. To assure a complete rotation of the disc, the mark existing in the shaft end must be aligned as illustrated in Figure 7.

- Bolt the yoke to the valve body.
- Position the actuator lever arm on the shaft so the actuator stem remains centered in the transfer case. For those versions equipped with locking device, firmly tighten the locking device bolt.
- Assemble the transfer case cover, making sure that the position indicator is correctly positioned in order to precisely indicate the valve rotation.



CAUTION

Never pressurize the actuator with the transfer case cover uninstalled. If this happens, unsupported shaft may cause damages.

- Adjust the actuator stroke stop bolts until the disc is parallel to the seat surface, but not resting on body disc stop.
- The actuator stroke stop bolts must be properly adjusted to prevent the disc from overstroking. If incorrectly adjusted the valve shaft must be damaged.
- Certify that the packing follower is in the correct position. Then, assemble the gland flange and tighten the packing nuts uniformly to slightly over finger-tight.
- If the valve is supplied with positioners and/or accessories as limit switches and solenoids, verify if these items are connected to the actuator in a safe and secure way. Check if it is required to adjust or to calibrate the accessories assembled in the valve prior to release the valve for operation.
- If an air filter is supplied, check and replace cartridge if necessary. Check also if the air filter is pointing down.
- Install the valve in the piping as indicated in the section "Installation".

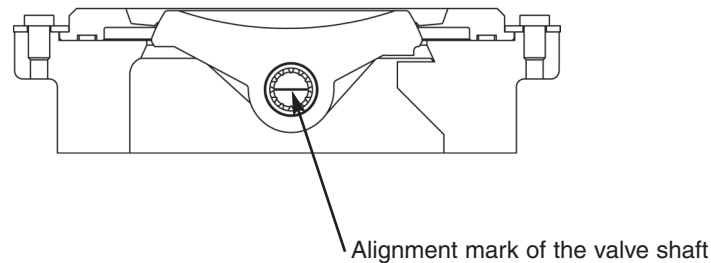
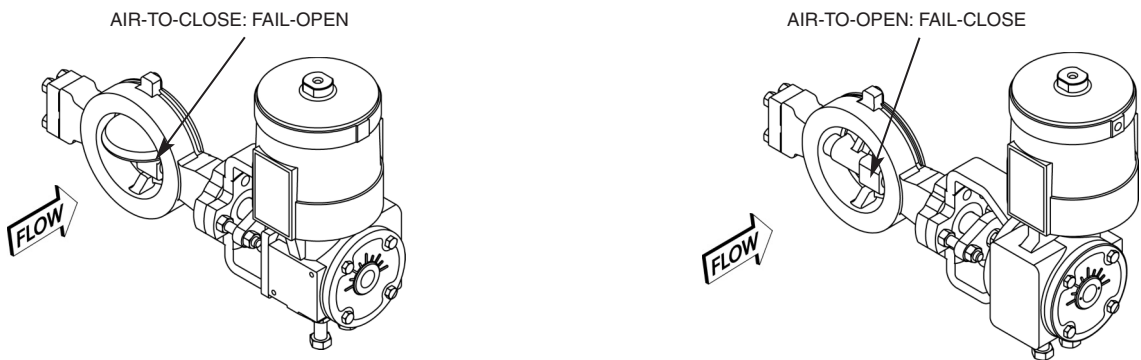


Figure 7 - Shaft Alignment

ACTUATOR MOUNTING ORIENTATIONS

Standard Right Hand Mounting – Shaft Upstream



Standard Left Hand Mounting – Shaft Downstream

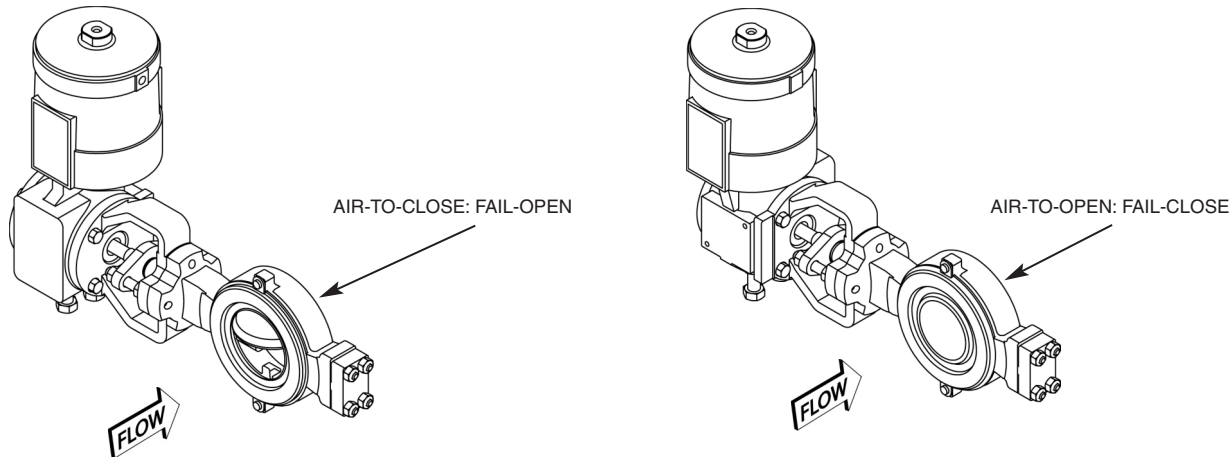


Figure 8 – Actuator Mounting Orientations Regarding Pipeline

Installation, Operation and Maintenance Instructions

1.11 - B_XL Valve Troubleshooting Chart

Problem	Probable Cause	Corrective Action
Valve moves to failsafe position, there is excessive air bleeding from transfer case	<ul style="list-style-type: none"> • Failure of actuator O-ring • Failure of actuator sliding seal assembly 	<ul style="list-style-type: none"> • Replace actuator stem O-ring • Repair or replace sliding seal assembly
Jerky shaft rotation movement	<ul style="list-style-type: none"> • Overtightened Packing • Lever arm improperly adjusted • Cylinder wall with no lubricant • Worn piston O-ring, allowing piston rub against the cylinder wall • Worn actuator stem O-ring, making the actuator stem rub against the sliding collar • Packing follower or shaft bearings worn (or damaged) 	<ul style="list-style-type: none"> • Tighten the packing nuts to slightly over finger-tight for V-ring packings. For braided PTFE, the usual torque is 14 ft-lbs (19 Nm) • Refer to "Reassembling the Actuator" section • Lubricate cylinder inner wall with the proper grease • Replace O-ring; If galling has occurred, replace the damaged parts • Replace O-ring; if actuator stem is galled, replace it • Disassemble the valve and check these parts. Replace all worn or damaged parts
Excessive leakage through the valve seat	<ul style="list-style-type: none"> • Incorrect adjustment of the stroke stop bolts • Seat incorrectly adjusted • Worn or damaged seat • Damaged disc seating surface • Incorrect adjustment of the manual handwheel, which actuates as a limit stop 	<ul style="list-style-type: none"> • Refer to "Reassembling the Actuator" section • Refer to "Reassembling the Body" section • Replace seat • Replace disc • Adjust handwheel until the disc seats correctly
Leakage through piping flanges	<ul style="list-style-type: none"> • Gasket seating surfaces are dirty • Incorrect tightening of flange bolting • Misalignment of flanges or piping 	<ul style="list-style-type: none"> • Clean gasket surfaces and reinstall the valve • Tighten flange bolting in a uniform way, using the proper torque (Refer to Table I) • Verify flanges and piping and correct misalignment
Leakage through packing box	<ul style="list-style-type: none"> • Loose packing nuts • Worn or damaged packing • Packing dirty or corroded 	<ul style="list-style-type: none"> • Tighten the packing nuts slightly over finger-tight for V-ring packings. For braided PTFE, the usual torque is 14 ft-lbs (19 Nm) • Replace packing • Clean packing box bore. If necessary, replace packing
Disc interferes with valve body	<ul style="list-style-type: none"> • Disc assembled upside down • Worn shaft bearings 	<ul style="list-style-type: none"> • Reinstall disc • Replace shaft bearings
Disc interferes with piping	<ul style="list-style-type: none"> • Cement lining or heavy schedule piping 	<ul style="list-style-type: none"> • Change piping to assure proper disc clearance
Valve slams, does not open or causes severe water hammer	<ul style="list-style-type: none"> • Valve installed incorrectly 	<ul style="list-style-type: none"> • Refer to the step 2 in "Installation" section and correct flow direction
Shaft rotates, but disc remains in the same position	<ul style="list-style-type: none"> • Shaft broken • Broken or missing taper pins 	<ul style="list-style-type: none"> • Replace shaft. Make sure the disc does not exceed the stroke and touches the stop • Replace taper pins
Actuator operates, but the shaft does not rotate	<ul style="list-style-type: none"> • Internal parts of the actuator broken 	<ul style="list-style-type: none"> • Refer to actuator IOM
Leakage through the shaft flange gasket/shaft plug O-ring	<ul style="list-style-type: none"> • Loosen nuts/shaft plug or damaged gasket/O-ring 	<ul style="list-style-type: none"> • Clean seating surfaces, replace gasket/O-ring and tighten nuts/plug

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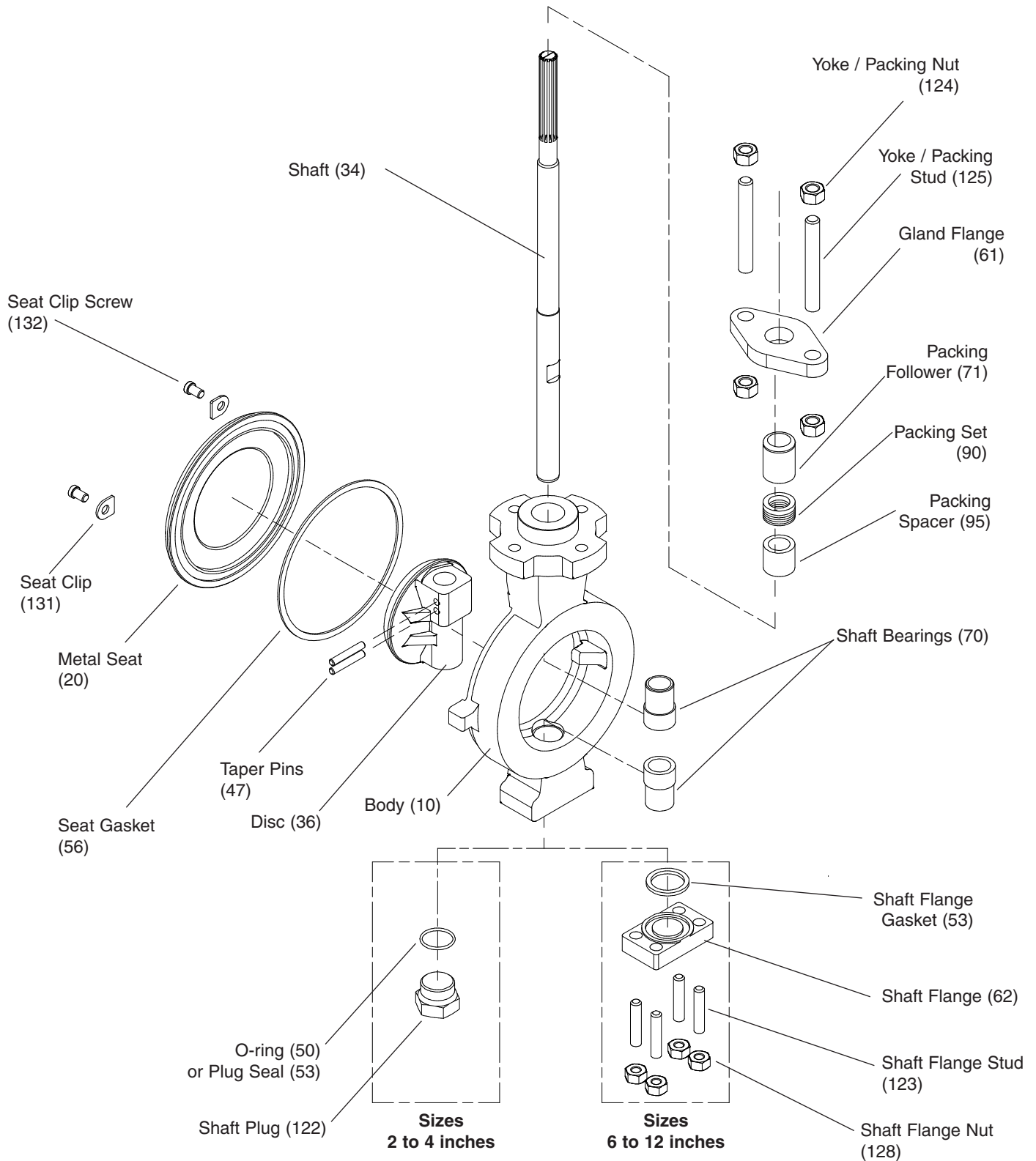


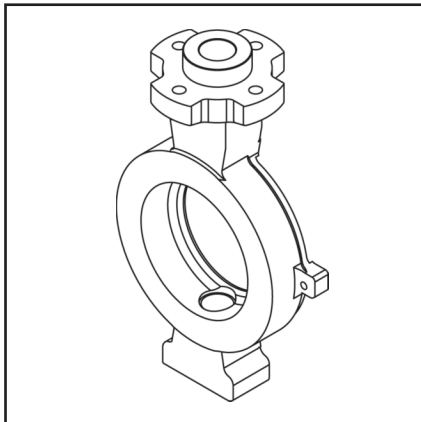
Figure 9 – BxL Exploded Body Sub-Assembly

¹ Item numbers above correspond directly to the valve's bill of material.

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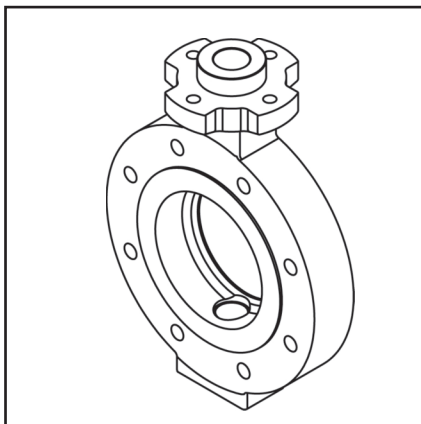
1.12 - SPARE PARTS LIST

ITEM 10 – BODY, WAFER STYLE, SPIRAL GROOVES



Valve Size (in.)	ANSI Class	Part Number	
		125-250 Ra	250-500 Ra
2	150	9710011	9710111
	300	9710011	9710111
3	150	9710021	9710121
	300	9710021	9710121
4	150	9710031	9710131
	300	9710031	9710131
6	150	9710040	9710140
	300	9710040	9710140
8	150	9710050	9710150
	300	9710050	9710150
10	150	9710060	9710160
	300	9710061	9710161
12	150	9710070	9710170
	300	9710071	9710171

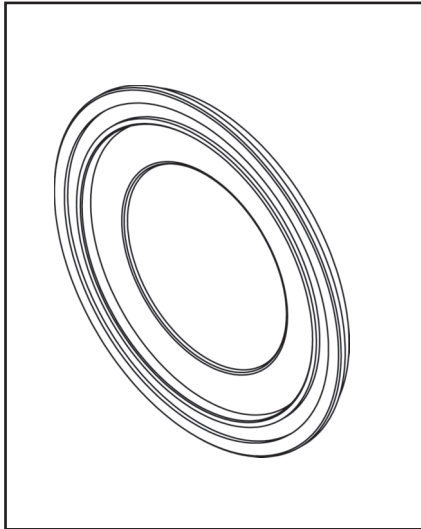
ITEM 10 – BODY, LUG STYLE, SPIRAL GROOVES



Valve Size (in.)	ANSI Class	Part Number	
		125-250 Ra	250-500 Ra
2	150	9710014	9710114
	300	9710015	9710115
3	150	9710024	9710124
	300	9710025	9710125
4	150	9710034	9710134
	300	9710035	9710135
6	150	9710042	9710142
	300	9710043	9710143
8	150	9710052	9710152
	300	9710053	9710153
10	150	9710062	9710162
	300	9710063	9710163
12	150	9710072	9710172
	300	9710073	9710173

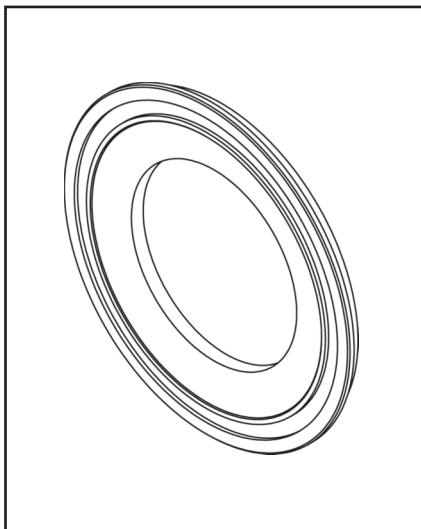
Installation, Operation and Maintenance Instructions

ITEM 20 - SEAT



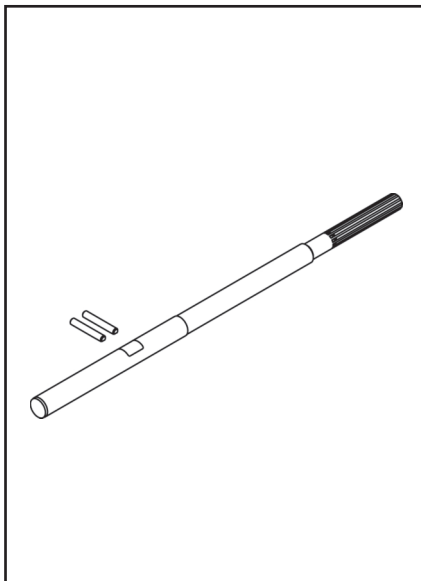
Valve Size (in.)	Part Number		
	Soft seat	Metal seat	Dual seat (Kit)
2	3021010	3020010	3020510
3	3021020	3020020	3020520
4	3021030	3020030	3020530
6	3021040	3020040	3020540
8	3021050	3020050	3020550
10	3021060	3020060	3020560
12	3021070	3020070	3020570

ITEM 23 - SOFT SEAT RETAINER



Valve Size (in.)	Part Number
2	3023010
3	3023020
4	3023030
6	3023040
8	3023050
10	3023060
12	3023070

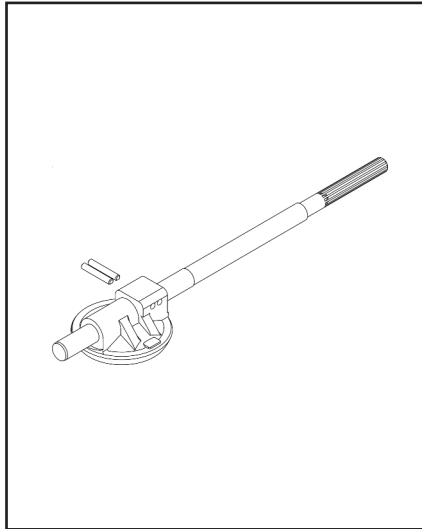
ITEM 34/47 – KIT, SHAFT & PINS



Valve Size (in.)	Part Number
2	9734510
3	9734520
4	9734530
6	9734540
8	9734550
10 (CL. 150)	9734560
10 (CL. 300)	9734570
12	9734580

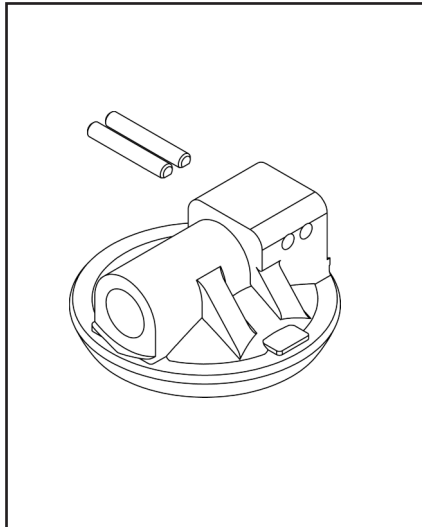
Installation, Operation and Maintenance Instructions

ITEM 34/36/47 KIT, SHAFT, DISC & PINS



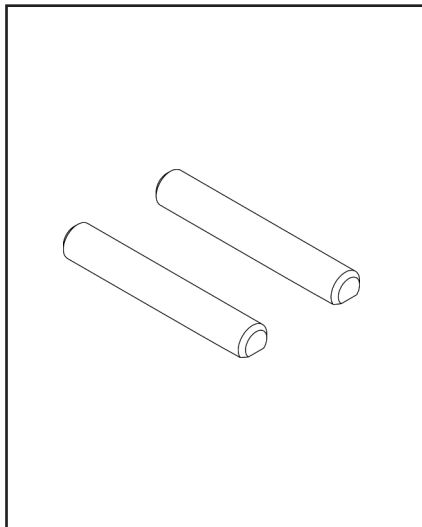
Valve Size (in.)	Part Number
	Materials
	316 SS (CF8M) Chrome Plated Disc 17-4Ph Shaft & Pins
2	9734511
3	9734521
4	9734531
6	9734541
8	9734551
10 (CL. 150)	9734561
10 (CL. 300)	9734571
12	9734581

ITEM 36/47 KIT, DISC & PINS



Valve Size (in.)	Part Number
	Materials
	316 SS (CF8M) Chrome Plated Disc 17-4Ph Pins
2	9734512
3	9734522
4	9734532
6	9734542
8	9734552
10 (CL. 150)	9734562
10 (CL. 300)	9734572
12	9734582

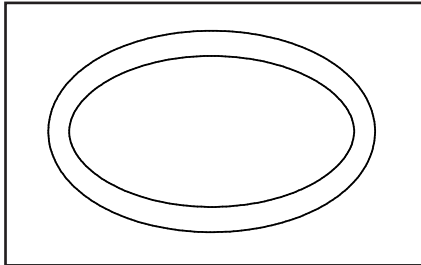
ITEM 47 – KIT, TAPER PINS



Valve Size (in.)	Part Number
2	3047010
3	3047020
4	3047030
6	3047040
8	3047050
10	3047060
12	3047070

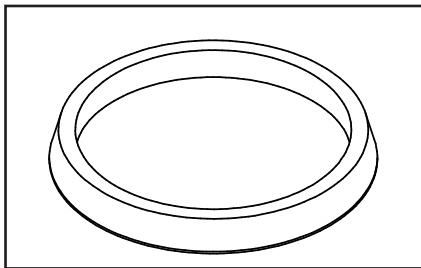
Installation, Operation and Maintenance Instructions

ITEM 50 - SHAFT PLUG O-RING



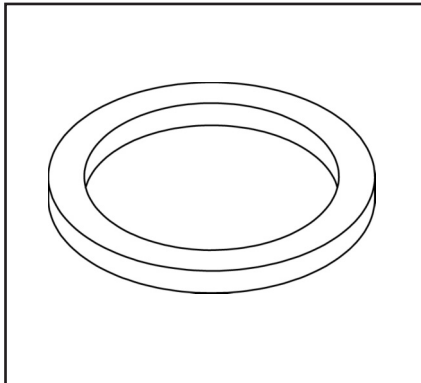
Valve Size (in.)	Part Number	
	Material	
	Viton-A O-Ring	
2	9950347	
3	9950348	
4	9950374	

ITEM 53 - SHAFT PLUG SEAL



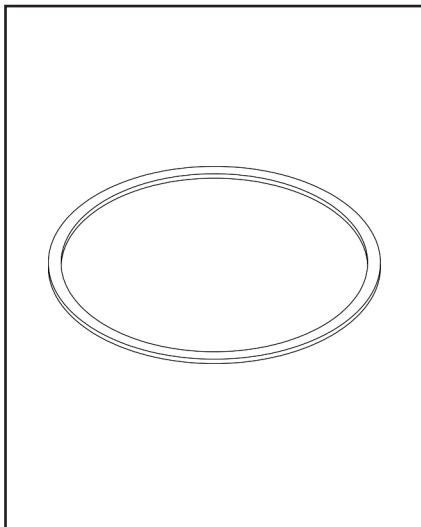
Valve Size (in.)	Part Number	
	Material	
	Molded Graphite	
2	3053110	
3	3053120	
4	3053130	

ITEM 53 - SHAFT FLANGE GASKET



Valve Size (in.)	Part Number	
	Materials	
	PTFE	316 SS / Graphite
6	3053041	3053040
8	3053051	3053050
10	3053051	3053050
12	3053071	3053070

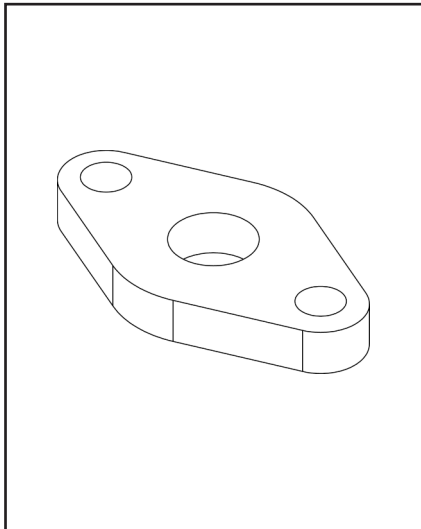
ITEM 56 - SEAT GASKET



Valve Size (in.)	Part Number	
	Materials	
	PTFE	316 SS / Graphite
2	3056011	3056010
3	3056021	3056020
4	3056031	3056030
6	3056041	3056040
8	3056051	3056050
10	3056061	3056060
12	3056071	3056070

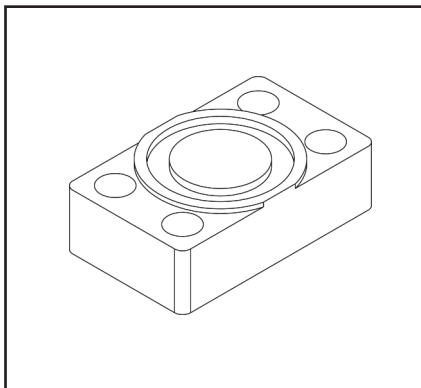
Installation, Operation and Maintenance Instructions

ITEM 61 – GLAND FLANGE



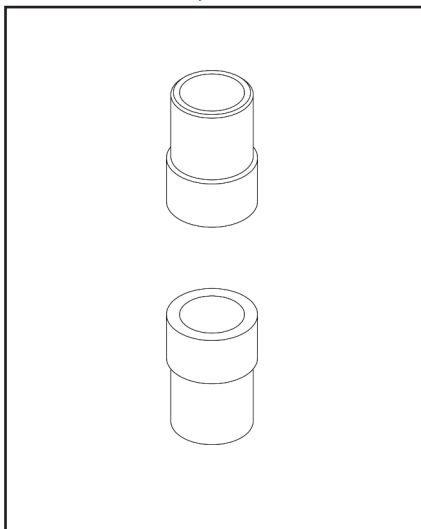
Valve Size (in.)	Part Number
2	9761030
3	9761030
4	9761030
6	9761030
8	9161030
10 (CL. 150)	9761040
10 (CL. 300)	9761050
12	9761060

ITEM 62 – SHAFT FLANGE



Valve Size (in.)	Part Number
6	3062040
8	3062050
10	3062050
12	3062060

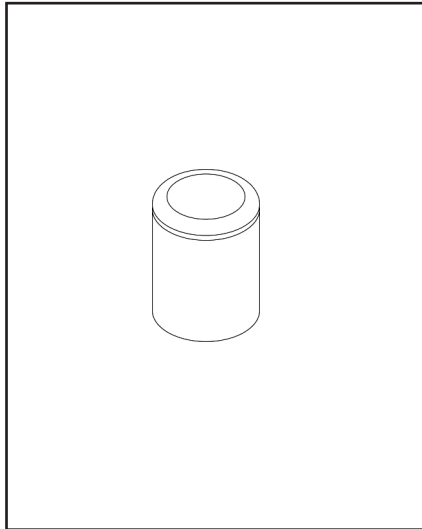
ITEM 70 – KIT, SHAFT BEARINGS



Valve Size (in.)	Part Number	
	Materials	
	MBT	Ultimet
2	3070012	3070010
3	3070022	3070020
4	3070032	3070030
6	3070042	3070040
8	3070052	3070050
10 (CL. 150)	3070052	3070050
10 (CL. 300)	3070062	3070060
12	3070072	3070070

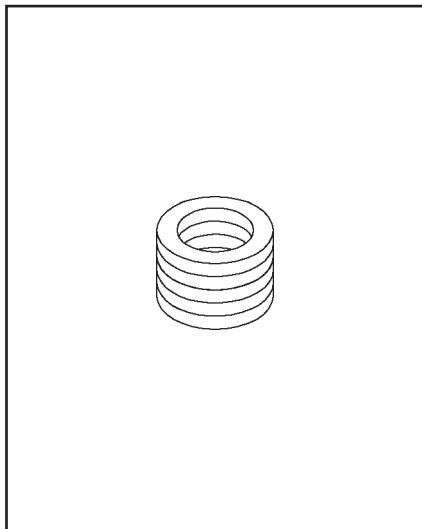
Installation, Operation and Maintenance Instructions

ITEM 71 – PACKING FOLLOWER

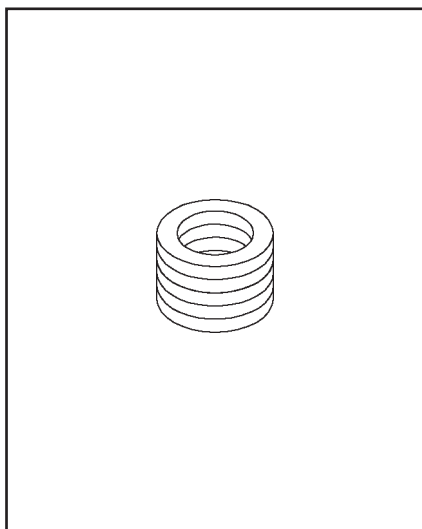


Valve Size (in.)	Part Number
2	9771020
3	9771020
4	9771030
6	9771040
8	9771050
10 (CL. 150)	9771050
10 (CL. 300)	9771060
12	9771070

ITEM 90 – PACKING SET



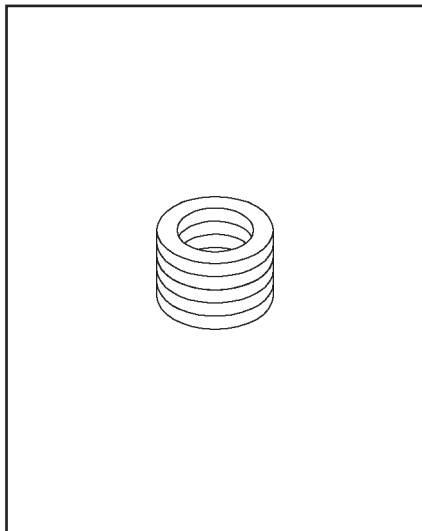
Valve Size (in.)	Part Number			
	PTFE V-Rings Standard	PTFE V-Rings Twin	Braided PTFE Standard	Braided PTFE Twin
2	3090020	3090021	3091020	3091021
3	3090020	3090021	3091020	3091021
4	3090030	3090031	3091030	3091031
6	3090040	3090041	3091040	3091041
8	3090050	3090051	3091050	3091051
10 (CL. 150)	3090050	3090051	3091050	3091051
10 (CL. 300)	3090060	3090061	3091060	3091061
12	3090070	3090071	3091070	3091071



Valve Size (in.)	Part Number			
	Graphite Standard	Graphite Twin	PT Standard	PT Twin
2	3091022	3091023	3092020	3092021
3	3091022	3091023	3092020	3092021
4	3091032	3091033	3092030	3092031
6	3091042	3091043	3092040	3092041
8	3091052	3091053	3092050	3092051
10 (CL. 150)	3091052	3091053	3092050	3092051
10 (CL. 300)	3091062	3091063	3092060	3092061
12	3091072	3091073	3092070	3092071

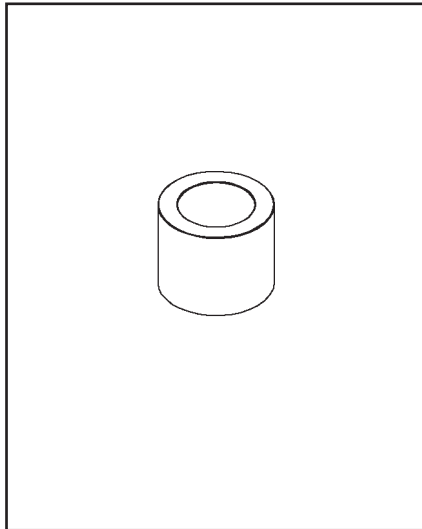
Installation, Operation and Maintenance Instructions

ITEM 90 - PACKING SET



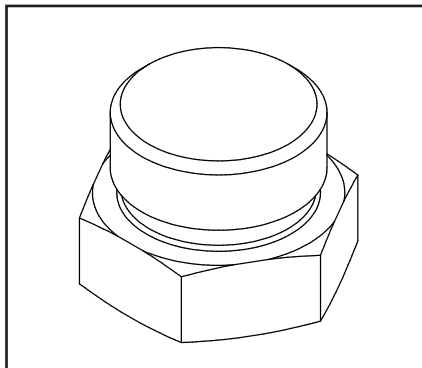
Valve Size (in.)	Part Number			
	PTG Standard	PTG Twin	PTG XT Standard	PTG XT Twin
2	3093020	3093021	3093022	3093023
3	3093020	3093021	3093022	3093023
4	3093030	3093031	3093032	3093033
6	3093040	3093041	3093042	3093043
8	3093050	3093051	3093052	3093053
10 (CL. 150)	3093050	3093051	3093052	3093053
10 (CL. 300)	3093060	3093061	3093062	3093063
12	3093070	3093071	3093072	3093073

ITEM 95 - KIT, PACKING SPACERS



Valve Size (in.)	Part Number			
	Standard V-Rings	Twin V-Rings	Standard Square Rings	Twin Square Rings
2	3095520	3095521	3095522	3095523
3	3095520	3095521	3095522	3095523
4	3095530	3095531	3095532	3095533
6	3095540	3095541	3095542	3095543
8	3095550	3095551	3095552	3095553
10 (CL. 150)	3095560	3095561	3095562	3095563
10 (CL. 300)	3095570	3095571	3095572	3095573
12	3095580	3095581	3095582	3095583

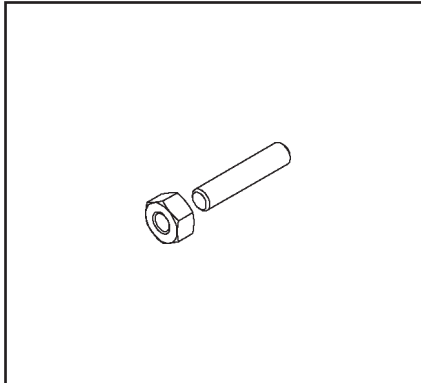
ITEM 122 - SHAFT PLUG



Valve Size (in.)	Part Number
2	4012210
3	4012220
4	4012230

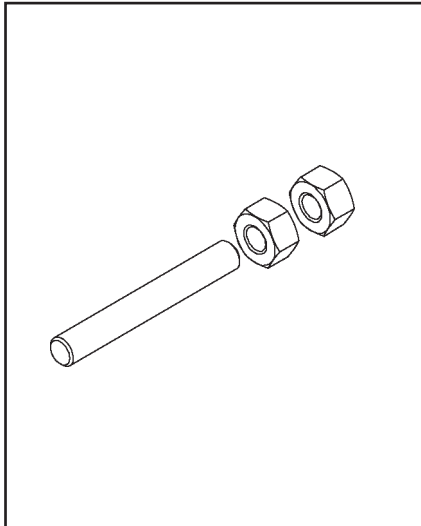
Installation, Operation and Maintenance Instructions

ITEM 123/128 – KIT, SHAFT FLANGE STUDS & NUTS



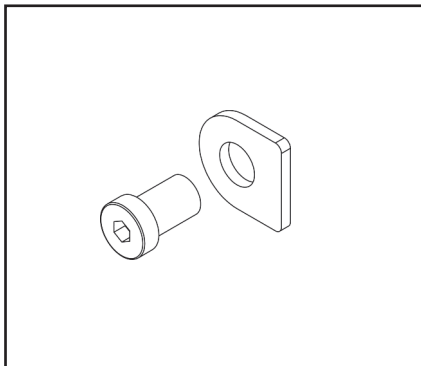
Valve Size (in.)	Part Number
6	9712320
8	9712330
10	9712330
12	9712340

ITEM 125/124 – KIT, YOKE / PACKING STUDS & NUTS



Valve Size (in.)	Part Number
2	3012520
3	3012520
4	3012520
6	3012520
8	3012530
10	3012530
12	3012530

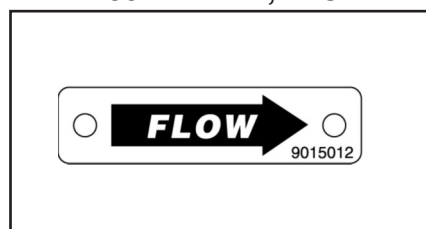
ITEM 131/132 – KIT, SEAT CLIPS & SCREWS



Valve Size (in.)	Part Number
2-4	3013150
6-8	3013160
10-12	3013170

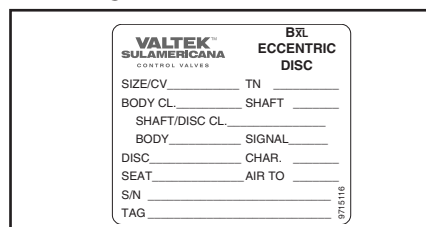
Installation, Operation and Maintenance Instructions

ITEM 150 – PLATE, FLOW ARROW



Valve Size (in.)	Part Number
2-12	9015012

ITEM 151 - NAME PLATE



Valve Size (in.)	Part Number
2-12	9715116

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