

ExL[®] Control Valve

Body Sub-assembly

16



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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 E $\overline{\text{X}}$ L eccentric plug 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.

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 E $\overline{\text{X}}$ 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 E $\overline{\text{X}}$ L valves have a stainless steel name plate (see Fig. 1). The name plate provides the following data:

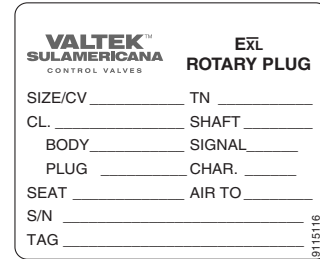


Figure 1 - Name Plate

- Size/CV: Valve size in inches/Rated Cv
- TN: Trim size
- CL: Body rating (ANSI)
- SHAFT: Shaft material
- BODY: Body material
- SIGNAL: Instrument signal range
- PLUG: Plug 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

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of toxic, caustic or hazardous fluid services, the valve must be decontaminated to avoid accidents.



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.



CAUTION

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

- 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.

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

Table I: Piping Flange Bolting Specifications

Valve Size (in.)	ANSI Class	Studs Qty	Size (in./mm)	Torque* ft-lbs (Nm)	
				Low Strength	Intermed. Strength
1	150 300	4 4	1/2 M14 5/8 M16	23 (30)	61 (82)
				46 (62)	122 (165)
1.5	150 300	4 4	1/2 M14 3/4 M20	23 (30)	61 (82)
				82 (110)	218 (295)
2	150 300	4 8	5/8 M16 5/8 M16	46 (62)	122 (165)
				46 (62)	122 (165)
3	150 300	4 8	5/8 M16 3/4 M20	46 (62)	122 (165)
				82 (110)	218 (295)
4	150 300	8 8	5/8 M16 3/4 M20	46 (62)	122 (165)
				82 (110)	218 (295)
6	150 300	8 12	3/4 M20 3/4 M20	82 (110)	218 (295)
				82 (110)	218 (295)
8	150 300	8 12	3/4 M20 7/8 M22	82 (110)	218 (295)
				132 (180)	353 (480)

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

1.6 - QUICK CHECK

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



WARNING

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

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- Check the full stroke making appropriate instrument signal change. Observe the valve position indicator located on the actuator transfer case. The valve plug 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.

Note: in case of high temperature application, check and re-tighten bonnet, stationary post and packing fasteners 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 plug position indicator to confirm that the plug 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 gaskets and in the piping flanges. Inspect the stationary post and bonnet 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 plug position indicator, check if the valve travels its full stroke in a smooth and uniform way. An unsteady movement of the plug 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 plug 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 plug position indicator if the specified failsafe position is reached
- 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

1.8 - DISASSEMBLING THE BODY

For disassembling the EXL valve, refer to Figures 2, 3

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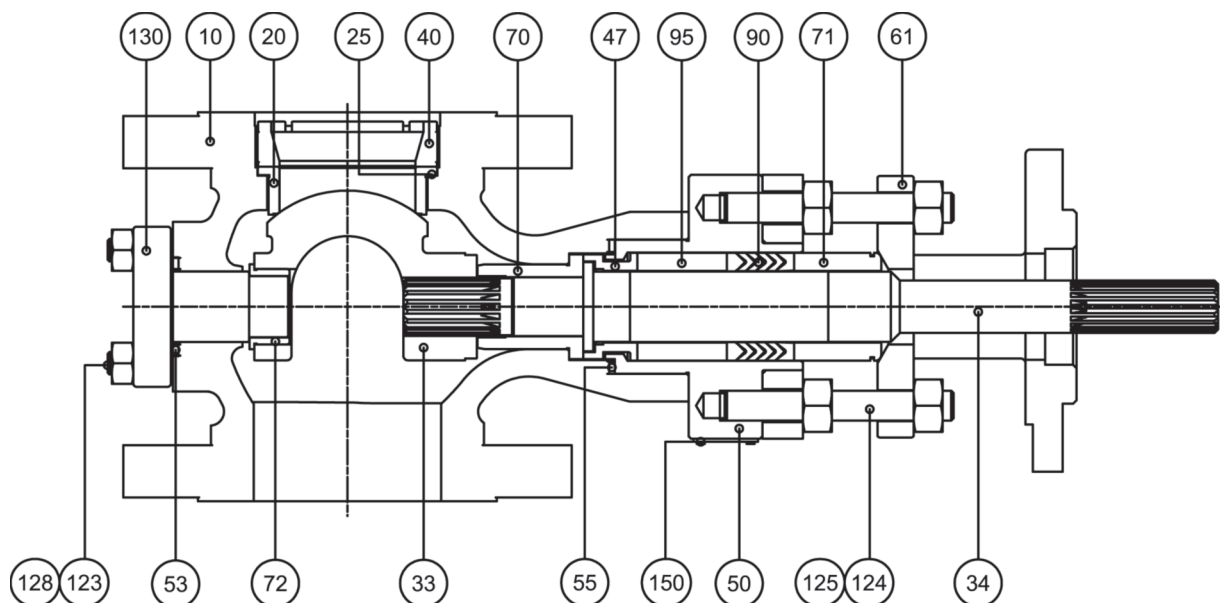


Figure 2: EXL Valve Body Sub-Assembly

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 the yoke legs) before removing it from the valve assembly.
- With the valve over a workbench and keeping the actuator securely supported, loosen 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 complete actuator off the valve shaft (Fig. 4). It is not necessary to remove the studs that secure the yoke.
- Remove the bonnet bolting.
- At this stage it is already possible to remove the bonnet, bonnet gasket, shaft and the components inside the packing box. These items will slide out from the bonnet bore as a single assembly, which will come apart as the shaft is removed.
- At this point of disassembly, the plug, supported only by the stationary post, still remains inside the valve. Special care must be taken to

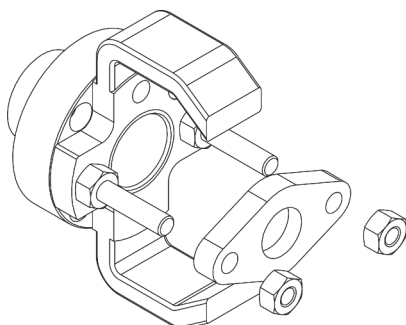


Figure 3

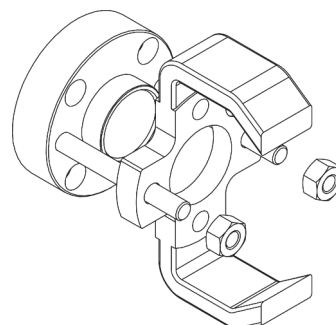
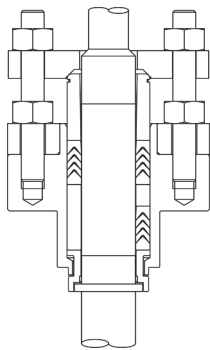
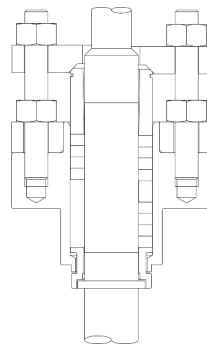


Figure 4

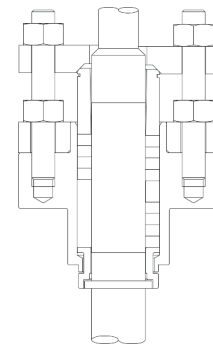
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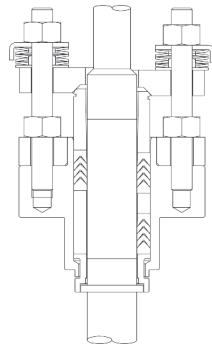
PTFE V-Rings
Standard - Twin



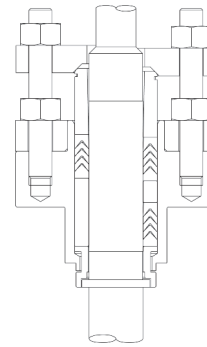
Braided PTFE
Standard - Twin



Graphite
Standard - Twin



PT
Standard - Twin



PTG
Standard - Twin

Figure 5 – E_XL Typical Packing Configurations

avoid the plug drop in the bottom of valve body and be damaged.

- Remove stationary post nuts and carefully pull the assembly out of the body bore. It is not necessary to remove the post studs that are secured to the body.

1.9 - REASSEMBLING THE BODY

To reassemble the E_XL valve body (except the seat) refer to figures 2, 3, 4 and 5 and proceed as follows:

- Position the valve in a vise securing it in the vertical position.
- When reassembling the valve, use new gaskets and packing set.
- Clean completely the shaft, the bonnet bore and the body gasket surfaces (before reassembling it is important to remove any contamination from these sealing surfaces).
- Make sure that all bearing surfaces have been cleaned.
- The stationary post bearing is pressed into the plug; lubricating these components will make the assembly easier.
- Place the plug into the body.
- Position the stationary post gasket and introduce the stationary post into the body flanged orifice. As the stationary post is being inserted into the body, position the plug so that the smaller diameter tip of the stationary post fits into the bearing pressed into the plug.
- Install the stationary post studs (if applicable) and nuts. Tighten the nuts evenly to finger-tight.
- Install the shaft bearing, positioning it on the limiting shoulder of the body (See Figure 2).

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- Slide the thrust bearing through the shaft until it touches the shaft shoulder.
- Gently insert the shaft into the body, positioning it on the plug splines.
- Position the spacers, the packing set and the packing follower in the bonnet as illustrated in Figures 2 and 5.
- Position the bonnet gasket. Then, push the bonnet carefully into its place on the body.
- Install the bonnet bolts and the yoke/packing studs. Tighten these bolts/studs evenly to finger-tight.
- Apply torque to the bonnet bolts and to the stationary post nuts, according to the values indicated in Table II.
- 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 packing follower and gland flange are correctly positioned. Then, tighten the packing nuts uniformly to slightly over finger-tight.
- Install the seat as indicated in the section "Seat Replacement".
- Install the valve in the piping as indicated in the section "Installation".

1.10 - SEAT REPLACEMENT

To reinstall the EXL valve seat, see Figures 2, 6 and 7 and proceed as follows:

- Use the appropriate tool (see figure 6) to remove the seat retainer. If necessary, these tools may be purchased from Valtek Sulamericana.
- Remove the seat and spacers that may be installed under the seat (maximum 4).
- Check the seat and the plug surfaces for wear and galling. Replace these parts if necessary.
- Clean the retainer and body threads, removing the silicone sealant residues.
- To reinstall the seat, place it into the valve body without the spacers and, with the plug in the fully open position, measure dimension "A" (not including the spacers) as indicated in the Figure

7. Then, measure the dimension "B", which is basically the dimension "A", but measured with the plug on the closed position. The difference between the dimensions "A" and "B" is the thickness of the seat spacers to be installed between the body and the seat (See table IV for spacers selection). When two or more spacers are required, the thinner spacer must be placed close to the body. As a minimum condition, at least one 0.004 in. (0.10 mm) spacer must be installed in the valve.

- Remove the seat again and install the necessary spacer/spacers. For operating temperatures from -100 to 400°F (-70 to 200°C), apply some drops of Dow Corning RTV 736 silicone sealant around the outside diameter of the seat retainer.
- When the sealant is applied in the seat retainer threads (compatible with the fluid and operating temperature), replace the retainer and tighten it, then loosen it a 1/4 turn. Open and close the valve several times; close the valve and tighten the seat retainer firmly. Finally, open the valve and tighten the seat retainer according to the values indicated on Table III (this procedure allows the seat to remain correctly centered into the valve body and correctly positioned by the retainer).

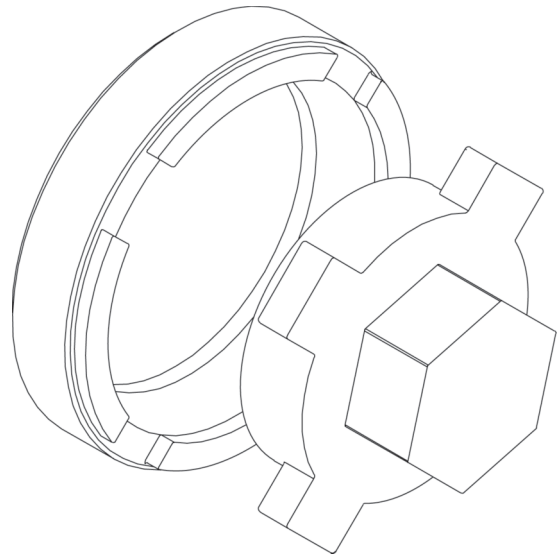


Figure 6: Seat Retainer Tool

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Table II: Stud Torque Values

Valve Size (in.)	Bolting Material					
	ASTM 193 - B8		ASTM 193 - B8 Class 2		ASTM A 453-Gr 660 NACE	
	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
1	10	13.5	7.5	10	10	13.5
1.5 - 2	10	13.5	7.5	10	10	13.5
3 - 4	35	47	27	36.5	30	41
6 - 8	46	62	35.5	47.8	39	49

Table III: Retainer Tools/ Torque Values

Valve Size (in.)	Retainer tool (Part Number)	Retainer torque values		
		Ft-lbs	Nm	Kgfm
1	9044010	40	54	5.5
1.5	9044012	101	137	14.0
2	9044014	152	206	21.0
3	9044016	398	540	55.1
4	9044018	420	570	58.1
6	9044020	940	1275	130
8	9044022	687	931	95

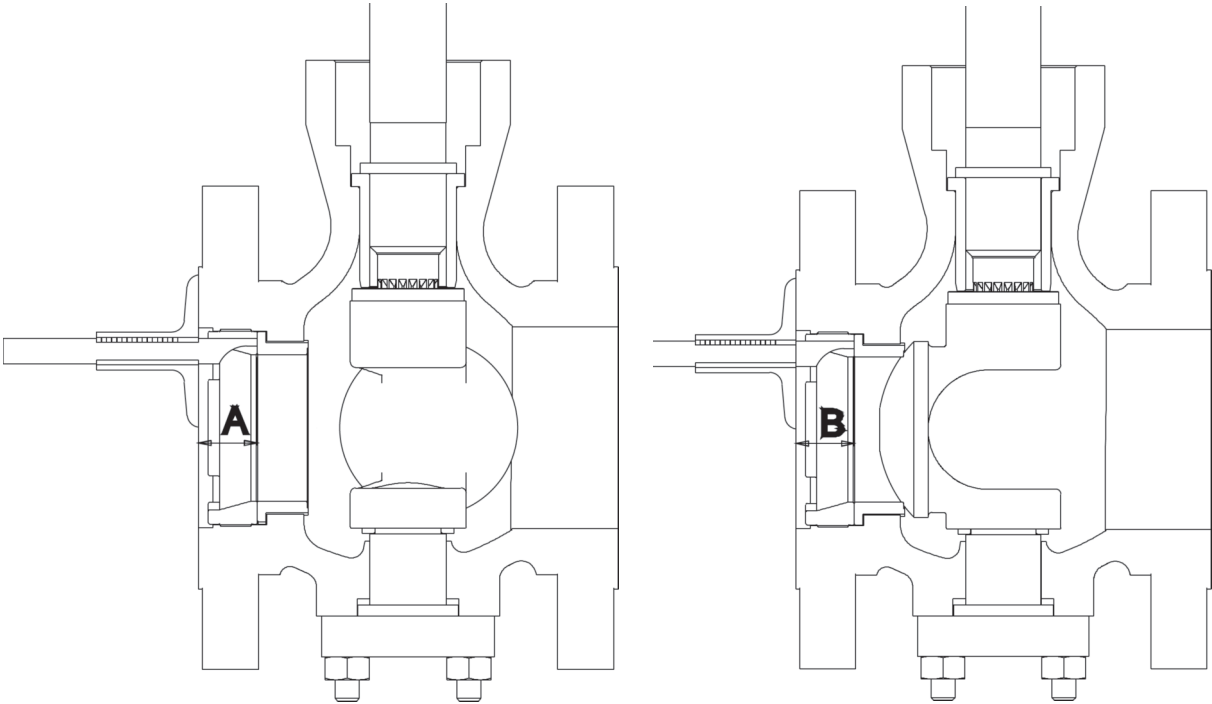


Figure 7: Procedure for Seat Spacer Selection

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- A practical method to check if the seat spacers were correctly adjusted is placing a light source inside the body and verifying if the light disappears completely when the valve is closed. After checking if the correct closing of the valve is achieved, adjust the actuator stroke stop bolts properly.

Table IV: Spacers Selection – in./(mm)

Valve Size (in.)	Example	Spacer Selection	
		Thickness	Qty.
1	A-B= 0.011 (0.28)	0.004 (0.1)	1
	Round to A-B=0.010 (0.25)	0.006 (0.15)	1
1.5 to 8	A-B= 0.012 (0.31)	0.004 (0.1)	1
	Round to A-B= 0.012 (0.30)	0.008 (0.20)	1

1.11 - REASSEMBLING THE ACTUATOR

Before coupling an EXL valve to a rotary actuator, verify if the plug rotation is compatible with the actuator rotation and if the plug 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 bonnet. To assure a complete rotation of the plug, the mark existing in the shaft end must be aligned as illustrated in Figure 8.
- Bolt the yoke to the valve bonnet.
- 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 plug is barely seated in the seat surface.
- The actuator stroke stop bolts must be properly adjusted to prevent the plug from overstroking. If incorrectly adjusted, the seat, the plug and/or the valve shaft may 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 the cartridge if necessary. Check also if the air filter is pointing down.

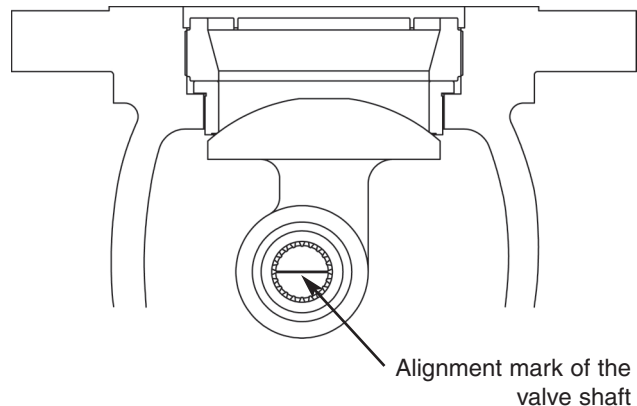


Figure 8: Shaft Alignment

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1.12 - ExL 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, thrust bearings, shaft/post 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 plug seating surface • Incorrect adjustment of the manual hand-wheel, which actuates as limit stop 	<ul style="list-style-type: none"> • Refer to "Reassembling the Actuator" section • Refer to the "Seat Replacement" section • Replace seat • Replace Plug • Adjust handwheel until plug 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 the 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 packing nuts to slightly over finger-tight for V-ring packings. For braided PTFE, the usual torque is 14 ft-lbs (19 Nm) • Replace packing • Clean bonnet bore. If necessary, replace packing
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 plug remains in the same position	<ul style="list-style-type: none"> • Shaft broken 	<ul style="list-style-type: none"> • Replace shaft. Make sure the plug does not exceed the stroke and touches the stop
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 bonnet or stationary post gaskets	<ul style="list-style-type: none"> • Loose bolting or damaged gaskets 	<ul style="list-style-type: none"> • Clean gasket seating surfaces, replace gaskets and tighten the bolting as indicated in Table II

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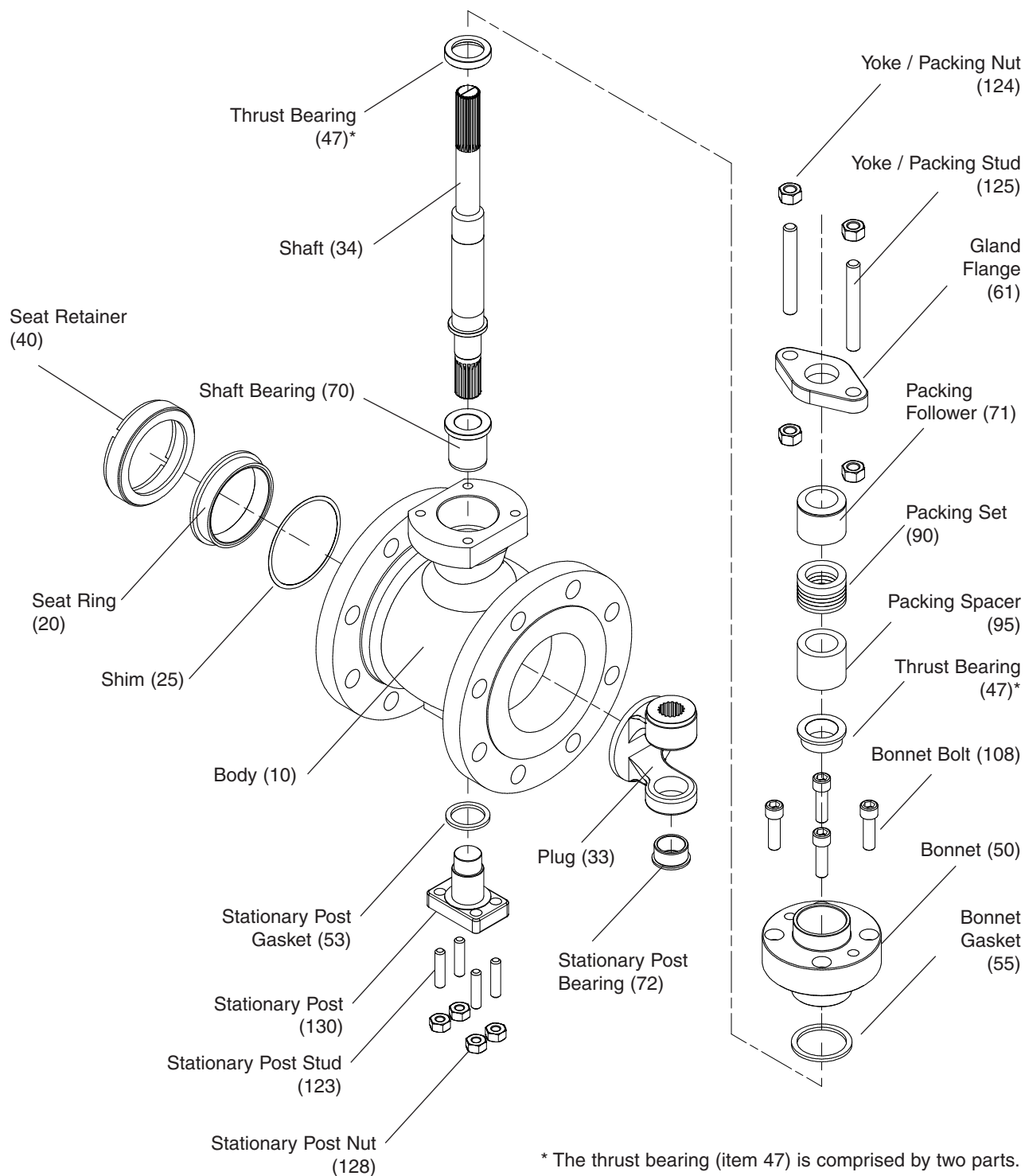
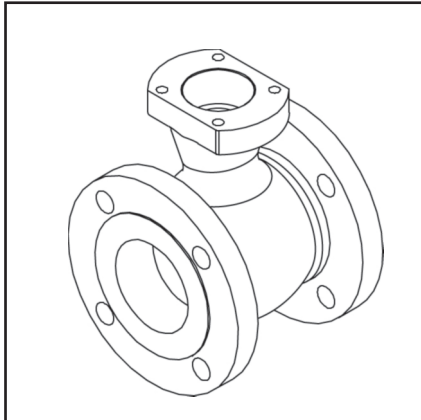


Figure 9 – EXL Exploded Body Sub-Assembly

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

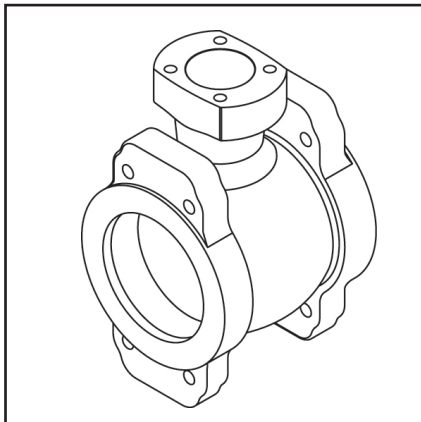
1.13 - SPARE PARTS LIST

ITEM 10 - BODY, FLANGED ENDS, 125-250 Ra SPIRAL GROOVES



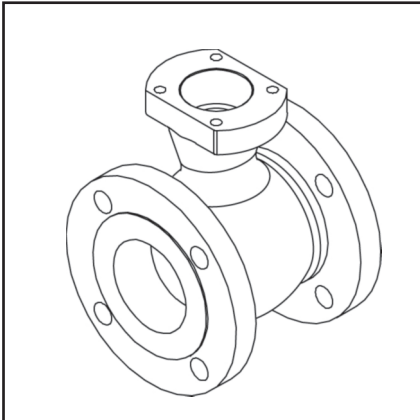
Valve Size (in.)	ANSI Class	Part Number
1	150	9110010
	300	9110011
1.5	150	9110020
	300	9110021
2	150	9110030
	300	9110031
3	150	9110040
	300	9110041
4	150	9110050
	300	9110051
6	150	9110060
	300	9110061
8	150	9110070
	300	9110071

ITEM 10 - BODY, FLANGELESS, 125-250 Ra SPIRAL GROOVES



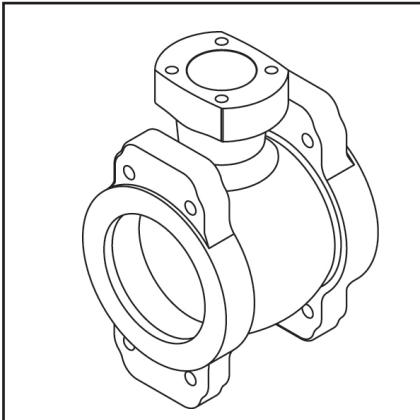
Valve Size (in.)	ANSI Class	Part Number
1	150	9110012
	300	9110012
1.5	150	9110022
	300	9110022
2	150	9110032
	300	9110033
3	150	9110042
	300	9110043
4	150	9110052
	300	9110053
6	150	9110062
	300	9110063
8	150	9110072
	300	9110073

ITEM 10 - BODY, FLANGED ENDS, 250-500 Ra SPIRAL GROOVES



Valve Size (in.)	ANSI Class	Part Number
1	150	9110110
	300	9110111
1.5	150	9110120
	300	9110121
2	150	9110130
	300	9110131
3	150	9110140
	300	9110141
4	150	9110150
	300	9110151
6	150	9110160
	300	9110161
8	150	9110170
	300	9110171

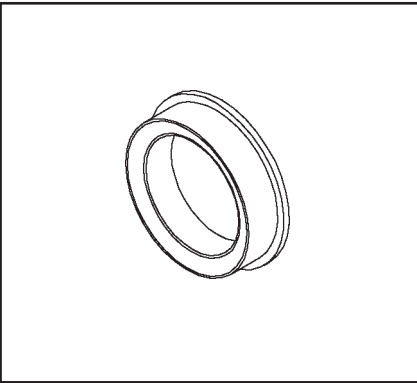
ITEM 10 - BODY, FLANGELESS, 250-500 Ra SPIRAL GROOVES



Valve Size (in.)	ANSI Class	Part Number
1	150	9110112
	300	9110112
1.5	150	9110122
	300	9110122
2	150	9110132
	300	9110133
3	150	9110142
	300	9110143
4	150	9110152
	300	9110153
6	150	9110162
	300	9110163
8	150	9110172
	300	9110173

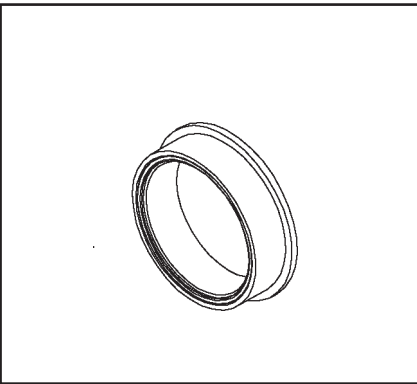
Installation, Operation and Maintenance Instructions

ITEM 20 - METAL SEAT

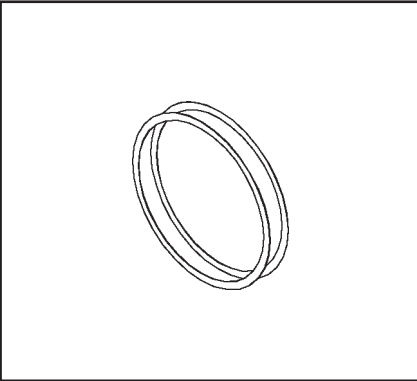


Valve Size (in.)	Area %	Metal Seat	Soft Seat (Kit)
		Part Number	Part Number
1	100	9020010	9021010
	70	9020011	9021011
	40	9020012	9021012
1.5	100	9020020	9021020
	70	9020021	9021021
	40	9020022	9021022
2	100	9020030	9021030
	70	9020031	9021031
	40	9020032	9021032
3	100	9020040	9021040
	70	9020041	9021041
	40	9020042	9021042
4	100	9020050	9021050
	70	9020051	9021051
	40	9020052	9021052
6	100	9020060	9021060
	70	9020061	9021061
	40	9020062	9021062
8	100	9020070	9021070
	75	9020071	9021071

ITEM 21 – KIT, SOFT SEAT

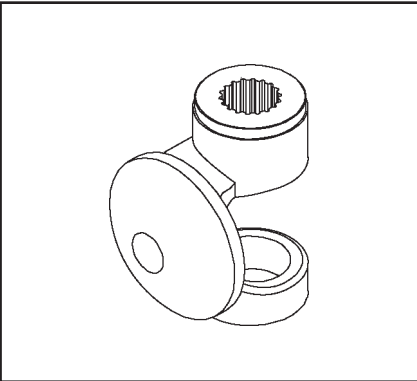


ITEM 25 – KIT, SHIM



Valve Size (in.)	Part Number	Max. Qty.
1	9025010	4
1.5	9025020	4
2	9025030	4
3	9025040	4
4	9025050	4
6	9025060	4
8	9025070	4

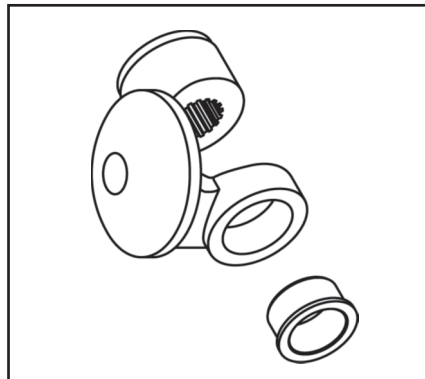
ITEM 33 - PLUG



Valve Size (in.)	Part Number
1	9033010
1.5	9033020
2	9033030
3	9033041
4	9033051
6	9033060
8	9033070

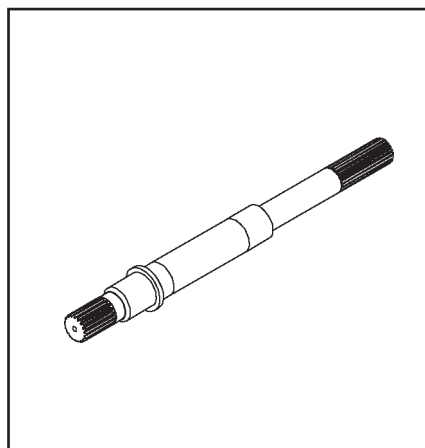
Installation, Operation and Maintenance Instructions

ITEM 33/72 - KIT, PLUG & STATIONARY POST BEARING



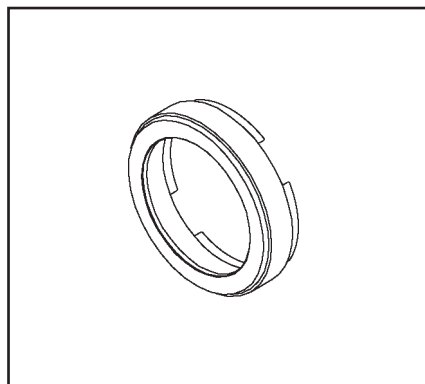
Valve Size (in.)	Part Number		
	Materials		
	17-4Ph/440C	17-4Ph/Ultimet	Alloy #6/Ultimet
1	9033511	9033512	9033513
1.5	9033521	9033522	9033523
2	9033531	9033532	9033533
3	9033541	9033542	9033543
4	9033551	9033552	9033553
6	9033561	9033562	9033563
8	9033571	9033572	9033573

ITEM 34 – SHAFT



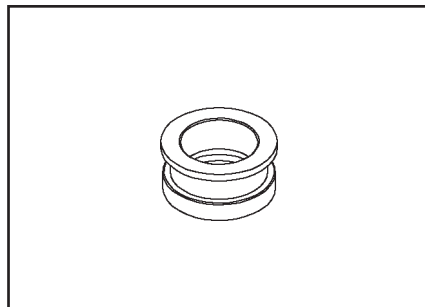
Valve Size (in.)	Actuator Size	Part Number
1	25	9134010
1.5 & 2	25	9134020
3	25	9134032
	50	9134032
4	25	9134032
	50	9134032
6	50	9134040
	100	9134040
8	50	9134040
	100	9134040

ITEM 40 – SEAT RETAINER



Valve Size (in.)	Part Number
1	9040010
1.5	9040020
2	9040030
3	9040040
4	9040050
6	9040060
8	9040070

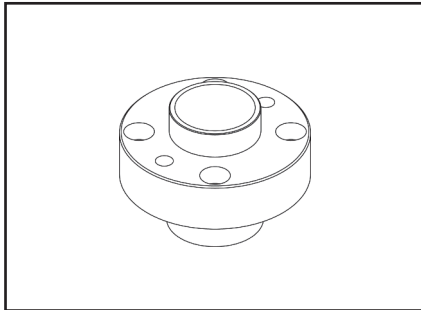
ITEM 47 – KIT, THRUST BEARING



Valve Size (in.)	Carbon steel body	Stainless steel body
	Part Number	Part Number
1	9147010	9147011
1.5 & 2	9147020	9147021
3 & 4	9147030	9147031
6 & 8	9147040	9147041

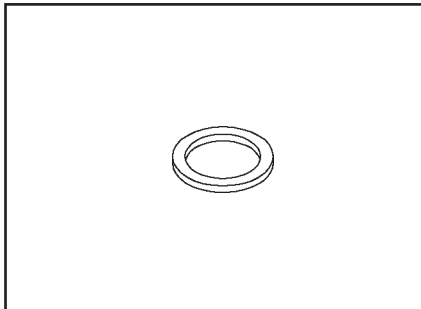
Installation, Operation and Maintenance Instructions

ITEM 50 – BONNET



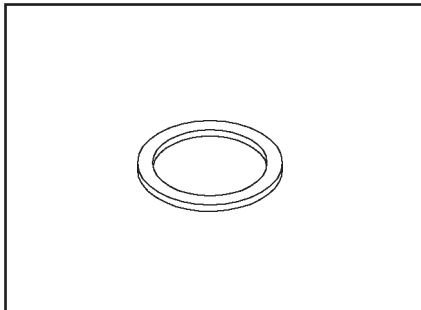
Valve Size (in.)	Part Number
1	9150010
1.5 & 2	9150020
3 & 4	9150030
6 & 8	9150040

ITEM 53 – STATIONARY POST GASKET



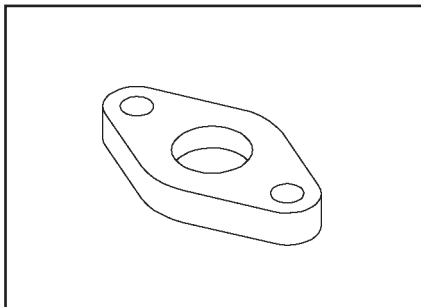
Valve Size (in.)	Part Number	
	Materials	
	PTFE	316 SS / Graphite
1	9153010	9153011
1.5 & 2	9153020	9153021
3 & 4	9153030	9153031
6 & 8	9153040	9153041

ITEM 55 – BONNET GASKET



Valve Size (in.)	Part Number	
	Materials	
	PTFE	316 SS / Graphite
1	9155020	9155021
1.5 & 2	9155020	9155021
3 & 4	9155030	9155031
6 & 8	9155040	9155041

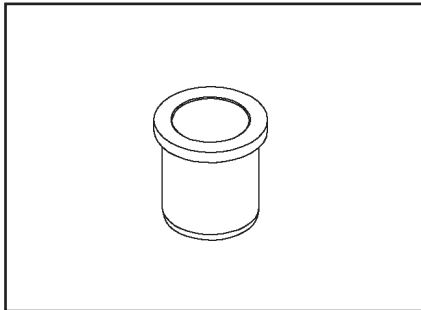
ITEM 61 – GLAND FLANGE



Valve Size (in.)	Part Number
1	9161010
1.5 & 2	9161020
3 & 4	9161030
6 & 8	9161040

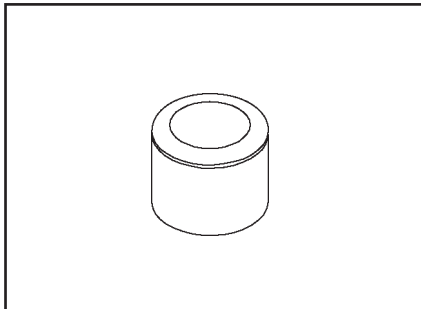
Installation, Operation and Maintenance Instructions

ITEM 70 – SHAFT BEARING



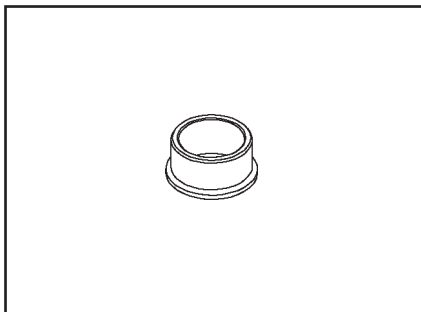
Valve Size (in.)	Part Number
1	9070010
1.5 & 2	9070020
3 & 4	9070030
6 & 8	9070040

ITEM 71 – PACKING FOLLOWER



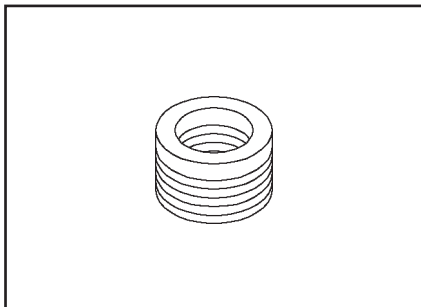
Valve Size (in.)	Part Number
1	9171010
1.5 & 2	9171020
3 & 4	9171030
6 & 8	9171040

ITEM 72 – STATIONARY POST BEARING



Valve Size (in.)	Part Number
1	9072010
1.5 & 2	9072020
3 & 4	9072030
6 & 8	9072040

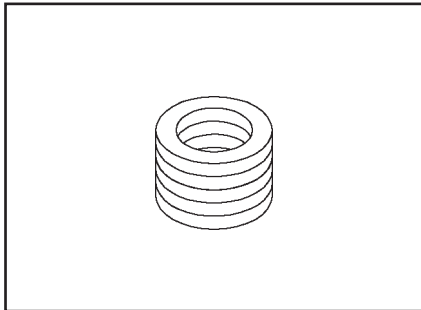
ITEM 90 – PACKING SET



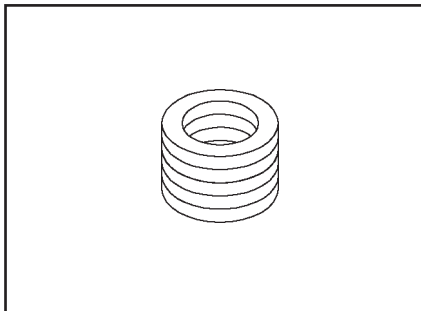
Valve Size (in.)	Part Number			
	PTFE V-Rings Standard	PTFE V-Rings Twin	Braided PTFE Standard	Braided PTFE Twin
1	9190010	9190011	9191010	9191011
1.5 & 2	9190020	9190021	9191020	9191021
3 & 4	9090030	9090031	9091030	9091031
6 & 8	9090040	9090041	9091040	9091041

Installation, Operation and Maintenance Instructions

ITEM 90 – PACKING SET

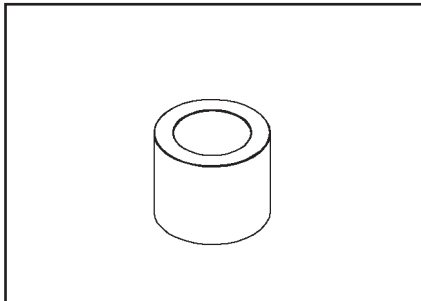


Valve Size (in.)	Part Number			
	Graphite Standard	Graphite Twin	PT Standard	PT Twin
1	9191012	9191013	9192010	9192011
1.5 & 2	9191022	9191023	9192020	9192021
3 & 4	9091032	9091033	9092030	9092031
6 & 8	9091042	9091043	9092040	9092041



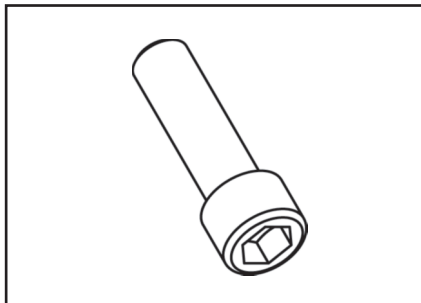
Valve Size (in.)	Part Number			
	PTG Standard	PTG Twin	PTG XT Standard	PTG XT Twin
1	9193010	9193011	9193012	9193013
1.5 & 2	9193020	9193021	9193022	9193023
3 & 4	9093030	9093031	9093032	9093033
6 & 8	9093040	9093041	9093042	9093043

ITEM 95 – PACKING SPACER



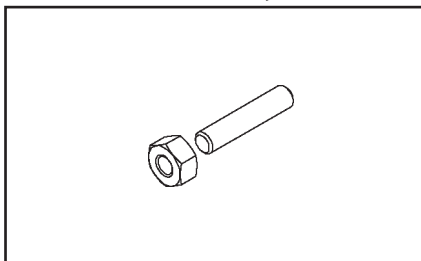
Valve Size (in.)	Part Number			
	Standard V-Rings	Twin V-Rings	Standard Square Rings	Twin Square Rings
1	9195010	9195011	9195010	9195011
1.5 & 2	9195020	9195021	9195020	9195021
3 & 4	9195030	9195031	9195030	9195031
6 & 8	9195040	9195041	9195042	9195043

ITEM 108 - KIT, BONNET BOLTING



Valve Size (in.)	Part Number
1	9110810
1.5 & 2	9110820
3 & 4	9110830
6 & 8	9110840

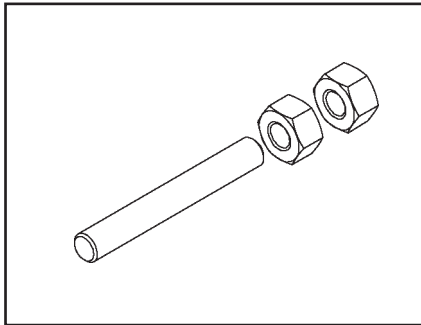
ITEM 123/128 - KIT, STATIONARY POST STUDS & NUTS



Valve Size (in.)	Part Number
1, 1.5 & 2	9012320
3 & 4	9012330
6 & 8	9012340

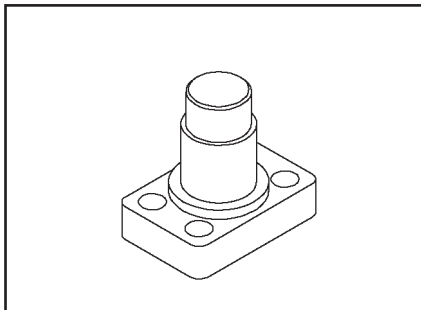
Installation, Operation and Maintenance Instructions

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



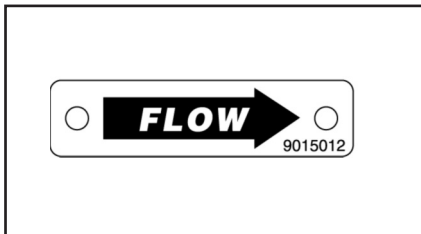
Valve Size (in.)	Part Number
1, 1.5 & 2	9112520
3 & 4	9112530
6 & 8	9112540

ITEM 130 – STATIONARY POST



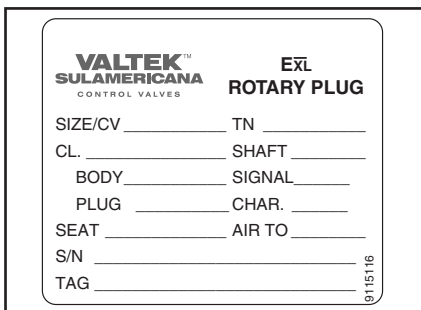
Valve Size (in.)	Part Number
1	9113010
1.5 & 2	9113020
3 & 4	9113030
6 & 8	9013040

ITEM 150 – PLATE, FLOW ARROW



Valve Size (in.)	Part Number
1 - 8	9015012

ITEM 151 - NAME PLATE



Valve Size (in.)	Part Number
1 - 8	9115116

Installation, Operation and Maintenance Instructions

Although Valtek Sulamericana provide precise and detailed installation, operation and maintenance instructions, in accordance with their design reviews, the customer/user shall be responsible for the information provided to generate product specifications, shall understand precisely the operation and maintenance instructions provided with the products and shall provide training for their employees and contracted personnel regarding the safe use of Valtek Sulamericana products, in accordance with the specific applications they were designed for. The information herein shall not be considered as a certificate for assurance of satisfactory results. Valtek Sulamericana products are continuously improved and upgraded and the specification, dimensions and information contained herein are subject to change without notice. For Further information or to confirm these presented here, consult Valtek Sulamericana at Rua Goiás, 345, Diadema, São Paulo, Brasil, CEP 09941-690, Phone: 55-11 4072-8600, Fax: 55-11 4075-2477.

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