

INTRODUCTION:

The uncomplicated design of these high vacuum gate valves makes servicing easier than on any other gate valve. The valves are welded from machined plates of stainless steel. Dismantling requires no training or practice, and reassembly errors are almost impossible. There is only one way to put any part or assembly in place and there are no critical adjustments. With one motion the entire internal mechanism is lifted from the valve while the flanged port section stays bolted in the system. The short body sections make cleaning easier and faster. The centerline body flange makes this possible and reduces maintenance and servicing time to a minimum.

The diagram inside shows the rotary seal principle and the no-contact-gate action. The gate (disc) O-ring seals in a motion perpendicular to its seat, without O-ring scuffing. The gate carriage assembly stays securely locked in position at the open or closed position because of the dead centers at the extremes of the 180° arc. The half circle swing of the cam is rapid at mid-way point, slowing to stop at top or bottom. This makes very fast action possible without the hammer effect of a plunger type operator. It is built-in cushioning for the stroke which means negligible wear and a long operating life without maintenance.

These valves will work equally well in any orientation. It should be determined that the valve and/or adjacent piping of the vacuum system will be adequately supported when assembled. Make certain the mating flanges are in-line, parallel and the correct distance apart to minimize the strain on the valve body. It is important to remember that the gate seal is on the operator or hub side of the valve on sizes 2" to 8". On sizes 10" and larger the operator is on the opposite, or open side.

These valves will hold vacuum in either direction. However, no gate valve will open easily in a vacuum-to-atmosphere condition with the pressure of atmosphere on the open side, or against the back of the gate. If opening is necessary with a vacuum to atmosphere differential, make sure the gate faces upstream (toward atmosphere or higher pressures) or install a means of equalizing pressure prior to actuation. Gate valves will not close easily against atmosphere if the vacuum side is a very large chamber where the inrush of atmosphere may approach very high velocity.

MAINTENANCE:

These valves do not require any routine maintenance. However, it is necessary to prevent the accumulation of dirt and debris inside the valve and if your vacuum system is extremely dusty or dirty, cleaning the interior of the valve will be required from time to time. When the valve is disassembled for cleaning, it is recommended that the O-rings be replaced. Note that cleaning O-rings with solvents is never recommended, because the solvent will be absorbed by the O-ring and will produce high outgassing for hours or even weeks after such cleaning. If vacuum grease is used on O-rings, it can also cause outgassing and 'burps' of gas. Only a thin, almost invisible, coating of grease should be used on O-rings in vacuum systems. Flange O-rings shipped with new valves and O-rings shipped as spare or replacement parts have not been greased prior to shipment.

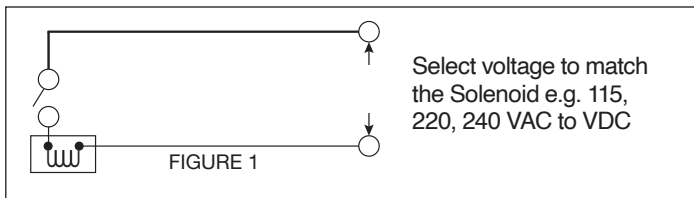
ELECTRO PNEUMATIC (EP) ACTUATORS:

The 'EP' actuators include a 4-way solenoid valve actuator with 24" leads and are mounted, ready for wiring when valves are ordered for pneumatic operation. The one side of the solenoid bracket (stamped "C") is normally closed. The other side (stamped "D") is normally open. The "C" side Opens the gate valve; the "D" side closes it. Recommended minimum air pressure is 65 psi (4.6 kg/cm²) for valves with 2 inch and 3 inch ANSI flanges (NW-50 to ISO 80). Recommended minimum air pressure for valves with 6 inch to 16 inch ANSI flanges (ISO 100 to ISO 400) is 85 psi. (6 kg/cm²). Recommended maximum air pressure for all sizes is 100 psi. (7 kg/cm²).

WARNING

The air supplied to these valves must be free of oil, water and dirt for proper operation. If the air at your facility is not clean and dry you must install filters and traps upstream of the valve.

WIRING: The preferred method to preclude human error, employs SPST switches as in Fig. 1. Connect two wire leads to source with a SPST toggle switch in either line. When solenoid is energized, valve opens; when solenoid is de-energized, valve closes. Pressure remains in cylinder.

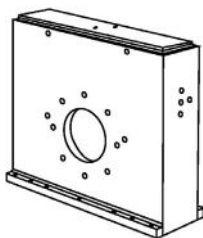


FAIL-SAFE: When connected this way, the valve will automatically close if power fails. To provide for manual operation during failure, a shut-off and a vent valve must be put in the air line to bleed off high pressure air in the cylinder. You can then operate the valve manually by turning the hex nut on stem with a wrench. With on/off switches, valves will open when power returns unless switched to "off" before power comes on.

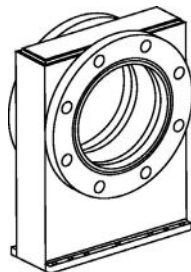
VALVE PARTS

LPSS 2 & 3
ISO 80 & ISO 100

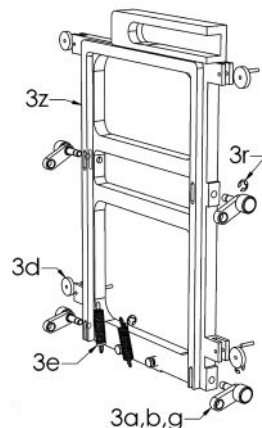
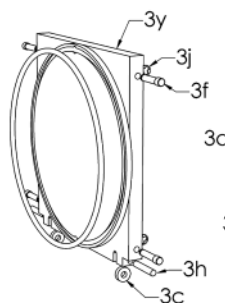
1. Body, Bonnet Section



2. Body, Port Section



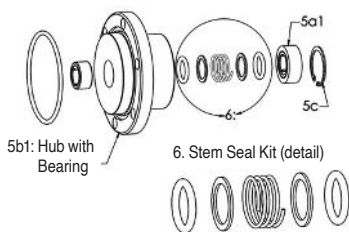
3. Gate Carriage Assembly with O-Ring



4. Stem Crank Assembly



5. Hub Assembly

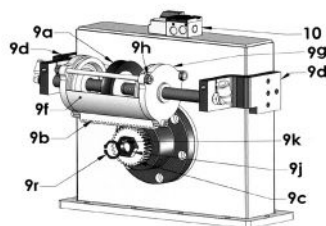


6. Stem Seal Kit

7. Manual Lever Kit



9. Pneumatic Actuator

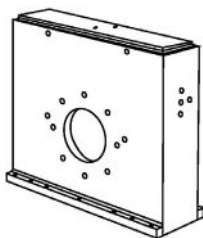


Description	P/N	PRICE
Clean & Test Valves (Freight pre-paid) to Pittsburgh, PA		\$195.00
O-Rings		
Kit BUNA-N , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS100BB	18.00
Kit VITON , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS100V	76.00
Kit SILICONE , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS100S	76.00
BUNA-N Flange O-Ring (one each)	2 inch: X701239B 3 inch: X701242B	500 5.00
Viton Flange O-Ring (one each)	2 inch: X701329V 3 inch: X701242V	8.00 8.00
Silicone Flange O-Ring (one each)	2 inch: X701239S 3 inch: X701242S	8.00 8.00
Piston & Seal Kit for 'EP' Actuators		
Piston Cup, 2 Shaft & 2 End Cap O-Rings	X701204B	68.00
1. Contact VRC for bonnet and port body sections. Rail to rail dimension of 98 mm or 104 mm must be verified on current valve.		
2. Port section styles available are N1, no neck; N6, neck on seal side; N8, neck on open side; and N5, neck on both sides. If roughing ports are required specify as R1-NW-16 etc. Roughing port locations are described in Valve Catalog.		
3. Gate-Carriage Assembly with O-Ring	X810869	2,220.00
3 Kit of 4 ea. Carriage Shaft, Roller & Link a,b,g Assembly with Bushings & Retaining Ring	X811061	250.00
3c. Gate Rollers - Set of 2	X810820	54.00
3d. Carriage Side Rollers - Set of 4	X706108	37.00
3e. Sprint (set)	X706106	14.00
3f. Gate Link Shafts - Set of 4	X706110rev1	66.00
3h. Roll Pin-Set of 6 (2 Gate, 4 Carriage)	X810890	7.00
3j., r Retaining Ring (Gate Shafts) Set/4	X706119	4.00
3y. Gate w/o Shafts, Links, Rollers	X700410	895.00
3z. Carriage w/o Shafts, Links, Rollers	X700411	912.00
4. Stem-Crank Assembly with Key, Retaining Ring & Nut	X810657	241.00
5. Hub Assembly (spacer design) w/o seal kit	X706SS117	356.00
5-a1. Gland spacer with bearing	X02LP108A-WB	60.00
5-b1. Hub for LPSS 2,3 & ISO-100	X700506	275.00
5-c. Hub retaining Ring (internal type)	X702176	4.00
6. Steam Seal Kit: 2 O-Rings, (BUNA-N)	X706118	18.00
Stem Seal Kit: 2 washers, 1 spring (VITON)	X706118V	30.00
7. Manual Lever Kit Includes Handle, Washer, Key Retaining Ring	X706112rev1	114.00
8. Body Bolts, S.S. Complete set with nuts	1/4-20X1 (8)	18.00
9. Pneumatic Operator (without solenoid)	X810089SS	584.00
Actuator Cylinder Assy. - 9a,b,f,g,h, seals,p-cup	X706004	422.00
9a. Piston Assembly (w/o O-Rings & Piston Cup)	X02LP200	227.00
9b. Rack Assembly	X706114	88.00
9c. Pinion Gear Assembly	X706126	100.00
9d. Mounting Brackets (2)	X706131	152.00
9e. Cylinder Air Lines (2)	X701101	25.00
9f. Cylinder	X02LP150	70.00
9g. Cylinder End Caps (2)	X706132	77.00
9h. Cylinder Studs & Nuts	X706130	65.00
9i. Guard OSHA Style	X703042SS	205.00
9j. Hex Nut	X02LP202	31.00
9k. Key	X02LP203	7.00
9r. Retaining ring (ext. fits stem crank)	X702170	4.00
10. Solenoid Valve only (specify voltage)		
24 VDC Solenoid	X703031	150.00
115 VAC Solenoid	X703005	150.00
220 VAC Solenoid	X134010	150.00
Mounting Hardware, Hose & Fittings (solenoid)	X810866	24.00

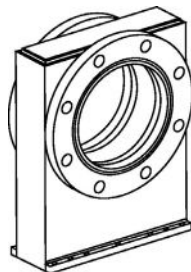
VALVE PARTS

LPSS-4,
ISO-160, CF-8

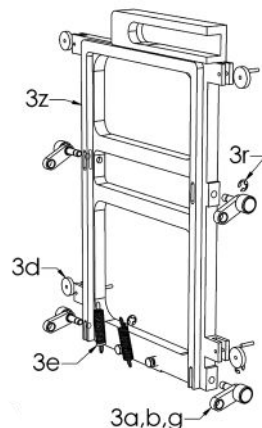
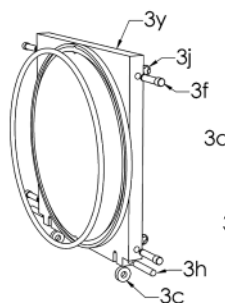
1. Body, Bonnet Section



2. Body, Port Section



3. Gate Carriage Assembly with O-Ring

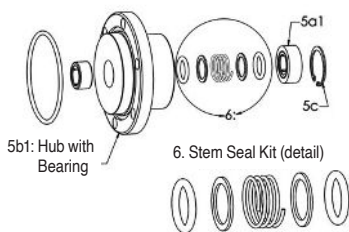
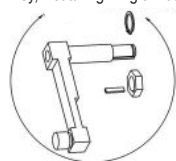


4. Stem Crank Assembly

5. Hub Assembly

6. Stem Seal Kit

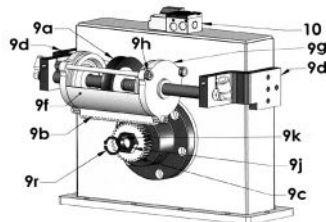
4. Stem Crank Assembly with Key, Retaining Ring & Nut



7. Manual Lever Kit



9. Pneumatic Actuator

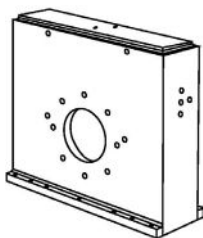


Description	P/N	PRICE
Clean & Test Valves (Freight pre-paid) to Pittsburgh, PA		\$230.00
O-Rings		
Kit BUNA-N , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS160B	31.00
Kit VITON , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS160V	113.00
Kit SILICONE , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS160S	113.00
BUNA-N Flange O-Ring (one each)	4 inch ANSI:X701256B	6.00
Viton Flange O-Ring (one each)	4 inch ANSI:X701256V	8.00
Silicone Flange O-Ring (one each)	4 inch ANSI:X701256S	8.00
Piston & Seal Kit for 'EP' Actuators		
Piston Cup, 2 Shaft & 2 End Cap O-Rings	X701404B	68.00
1. Contact VRC for bonnet and port body sections. Rail to rail dimension of 98 mm or 104 mm must be verified on current valve.		
2. Port section styles available are N1, no neck; N6, neck on seal side; N8, neck on open side; and N5, neck on both sides. If roughing ports are required specify as R1-NW-16 etc. Roughing port locations are described in Valve Catalog.		
3. Gate-Carriage Assembly with O-Ring	X810057SS	3959.00
3. Reverse gate-Carriage Assembly with O-Ring	X810057RCSS	4289.00
3 Kit of 4 ea. Carriage Shaft, Roller & Link a,b,g Assembly with Bushings & Retaining Ring	X806500	149.00
3c. Gate Rollers - Set of 2	X706202	54.00
3d. Carriage Side Rollers - Set of 4	X706108	37.00
3e. Sprint (set)	X706206	14.00
3f. Gate Link Shafts - Set of 4	X706110rev1	66.00
3h. Roll Pin-Set of 6 (2 Gate, 4 Carriage)	X810890	7.00
3j, r Retaining Ring (Gate Shafts) Set/4	X706119	4.00
3y. Gate w/o Shafts, Links, Rollers	X700467	3426.00
3z. Carriage w/o Shafts, Links, Rollers	X04LP11Rev1	198.00
3z. Reverse Carriage w/o Shafts, Lins, Rollers	X04LP5K446	528.00
4. Stem-Crank Assembly with Key, Retaining Ring & Nut	X706216Rev2	275.00
5. Hub Assembly (spacer design) w/o seal kit	X706WA210SS	352.00
5-a1. Gland spacer with bearing	X810891	61.00
5-b1. Hub for LPSS 2,3 & ISO-100	X700510	355.00
5-c. Hub retaining Ring (internal type)	X702177	4.00
6. Steam Seal Kit: 2 O-Rings, (BUNA-N)	X706318	18.00
Stem Seal Kit: 2 washers, 1 spring (VITON)	X706318V	35.00
7. Manual Lever Kit Includes Handle, Washer, Key Retaining Ring	X706312rev1	121.00
8. Body Bolts, S.S. Complete set with nuts	702708	18.00
9. Pneumatic Operator (without solenoid)	X806204Rev1	816.00
Actuator Cylinder Assy. - 9a,b,f,g,h, seals,p-cup	X706005	526.00
9a. Piston Assembly (w/o O-Rings & Piston Cup)	X04LP200	272.00
9b. Rack Assembly	X706214	126.00
9c. Pinion Gear Assembly	X706226	158.00
9d. Mounting Brackets (2)	X706231	301.00
9e. Cylinder Air Lines (2)	X701101	25.00
9f. Cylinder	X04LP150	78.00
9g. Cylinder End Caps (2)	X706232	100.00
9h. Cylinder Studs & Nuts	X706230	79.00
9i. Guard OSHA Style	X04LP152	182.00
9j. Hex Nut	X04LP202	31.00
9k. Key	X04LP203	9.00
9r. Retaining ring (ext. fits stem crank)	X702171	4.00
10. Solenoid Valve only (specify voltage)		
24 VDC Solenoid	X703031	150.00
115 VAC Solenoid	X703005	150.00
220 VAC Solenoid	X134010	150.00
Mounting Hardware, Hose & Fittings (solenoid)	X810866	24.00

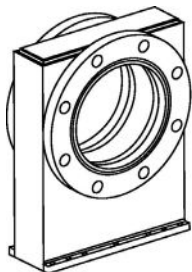
VALVE PARTS

LPSS-6, & LPSS-8
ISO-200, CF-10

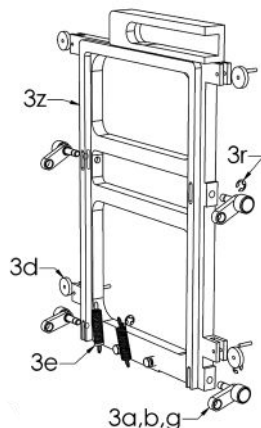
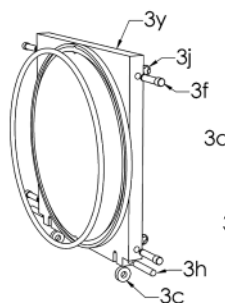
1. Body, Bonnet Section



2. Body, Port Section



3. Gate Carriage Assembly with O-Ring

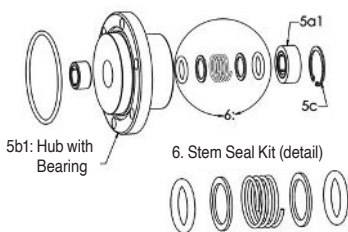


4. Stem Crank Assembly

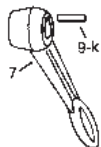
5. Hub Assembly

6. Stem Seal Kit

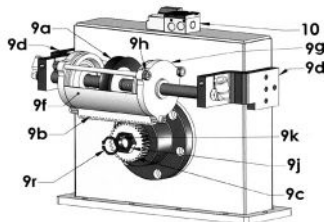
4. Stem Crank Assembly with Key, Retaining Ring & Nut



7. Manual Lever Kit



9. Pneumatic Actuator

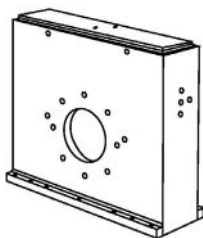


Description	P/N	PRICE
Clean & Test Valves (Freight pre-paid) to Pittsburgh, PA		\$270.00
O-Rings		
Kit BUNA-N , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS200B	66.00
Kit VITON , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS200V	188.00
Kit SILICONE , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS200S	188.00
BUNA-N Flange O-Ring (one each)	6 inch ANSI: X701264B 8 inch ANSI: X701447B	6.00 7.00
Viton Flange O-Ring (one each)	6 inch ANSI: X701264V 8 inch ANSI: X701447V	12.00 29.00
Silicone Flange O-Ring (one each)	6 inch ANSI: X701264S 8 inch ANSI: X701447S	12.00 29.00
Piston & Seal Kit for 'EP' Actuators		
Piston Cup, 2 Shaft & 2 End Cap O-Rings	X701404B	68.00
1. Contact VRC for bonnet and port body sections. Rail to rail dimension of 98 mm or 104 mm must be verified on current valve.		
2. Port section styles available are N1, no neck; N6, neck on seal side; N8, neck on open side; and N5, neck on both sides. If roughing ports are required specify as R1-NW-16 etc. Roughing port locations are described in Valve Catalog.		
3. Gate-Carriage Assembly with O-Ring	X810340	2122.00
3 Kit of 4 ea. Carriage Shaft, Roller & Link a,b,g Assembly with Bushings & Retaining Ring	X806500	149.00
3c. Gate Rollers - Set of 2	X706302	47.00
3d. Carriage Side Rollers - Set of 4	X706108	37.00
3e. Sprint (set)	X706306	28.00
3f. Gate Link Shafts - Set of 4	X706110rev1	66.00
3h. Roll Pin-Set of 6 (2 Gate, 4 Carriage)	X706205Rev1	9.00
3j., r Retaining Ring (Gate Shafts) Set/4	X706119	4.00
3y. Gate w/o Shafts, Links, Rollers	X700240	1728.00
3z. Carriage w/o Shafts, Links, Rollers	X06LP117REV1S	384.00
4. Stem-Crank Assembly with Key, Retaining Ring & Nut	X706316Rev2	272.00
5. Hub Assembly (spacer design) w/o seal kit	X810815	528.00
5-a1. Gland spacer with bearing	X810891	61.00
5-b1. Hub for LPSS 6	X700238	486.00
5-c. Hub retaining Ring (internal type)	X702177	4.00
6. Steam Seal Kit: 2 O-Rings, (BUNA-N)	X706318	18.00
Stem Seal Kit: 2 washers, 1 spring (VITON)	X706318V	35.00
7. Manual Lever Kit Includes Handle, Washer, Key Retaining Ring	X810678	126.00
8. Body Bolts, S.S. Complete set with nuts	X702710	30.00
9. Pneumatic Operator (without solenoid)	X806304REV2	912.00
Actuator Cylinder Assy. - 9a,b,f,g,h, seals,p-cup	X706006	534.00
9a. Piston Assembly (w/o O-Rings & Piston Cup)	X06LP200	256.00
9b. Rack Assembly	X706314	127.00
9c. Pinion Gear Assembly	X706326	168.00
9d. Mounting Brackets (2)	X706231	301.00
9e. Cylinder Air Lines (2)	X701101	25.00
9f. Cylinder	X06LP150	84.00
9g. Cylinder End Caps (2)	X706232	100.00
9h. Cylinder Studs & Nuts	X706330	86.00
9i. Guard OSHA Style	X06WA152	205.00
9j. Hex Nut	X04LP202	31.00
9k. Key	X04LP203	9.00
9r. Retaining ring (ext. fits stem crank)	X702171	4.00
10. Solenoid Valve only (specify voltage)		
24 VDC Solenoid	X703031	150.00
115 VAC Solenoid	X703005	150.00
220 VAC Solenoid	X134010	150.00
Mounting Hardware, Hose & Fittings (solenoid)	X810866	24.00

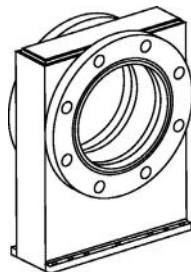
VALVE PARTS

PCSS-6 & PCSS-8
ISO-200

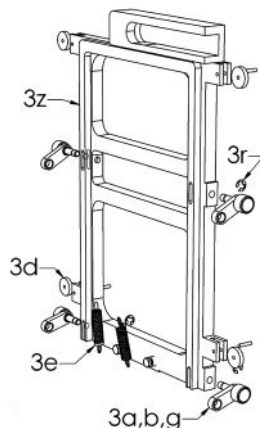
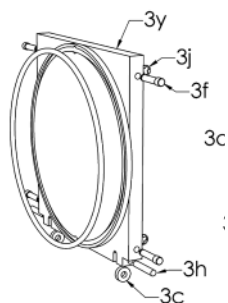
1. Body, Bonnet Section



2. Body, Port Section



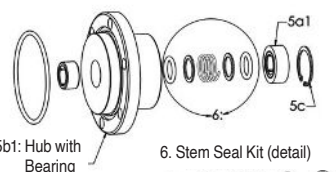
3. Gate Carriage Assembly with O-Ring



4. Stem Crank Assembly



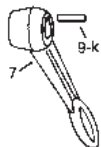
5. Hub Assembly



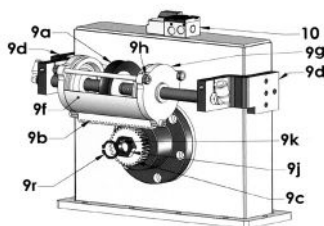
6. Stem Seal Kit (detail)



7. Manual Lever Kit



9. Pneumatic Actuator

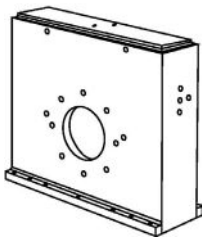


Description	P/N	PRICE
Clean & Test Valves (Freight pre-paid) to Pittsburgh, PA		\$342.00
O-Rings		
Kit BUNA-N , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS200B	66.00
Kit VITON , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS200V	188.00
Kit SILICONE , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS200S	188.00
Buna-N Sump Pump O-Ring	X701265B	6.00
Viton Sump Pump O-Ring	X701265V	12.00
Silicone Sump Pump O-Ring	X701265S	12.00
BUNA-N Flange O-Ring (one each)	6 inch ANSI:X701264B 8 inch ANSI: X701447B	6.00 7.00
Viton Flange O-Ring (one each)	6 inch ANSI:X701264V 8 inch ANSI: X701447V	12.00 29.00
Silicone Flange O-Ring (one each)	6 inch ANSI:X701264S 8 inch ANSI: X701447S	12.00 29.00
Piston & Seal Kit for 'EP' Actuators		
Piston Cup, 2 Shaft & 2 End Cap O-Rings	X701404B	68.00
1. Contact VRC for bonnet and port body sections. Rail to rail dimension of 98 mm or 104 mm must be verified on current valve.		
2. Port section styles available are N1, no neck; N6, neck on seal side; N8, neck on open side; and N5, neck on both sides. If roughing ports are required specify as R1-NW-16 etc. Roughing port locations are described in Valve Catalog.		
3. Gate-Carriage Assembly with O-Ring	X810924	11566.00
3 Kit of 4 ea. Carriage Shaft, Roller & Link a,b,g Assembly with Bushings & Retaining Ring	X806500	149.00
Carriage Rollers Set (6) CAM FOLLOWERS	X811651	564.00
3c. Gate Rollers - Set of 2	X706302	47.00
3d. Carriage Side Rollers - Set of 6	X811652	40.00
3e. Sprint (set)	X706306	28.00
3f. Gate Link Shafts - Set of 4	X811653	161.00
3h. Roll Pin-Set of 6 (2 Gate, 4 Carriage)	X811655	64.00
3j,, r Retaining Ring (Gate Shafts) Set/4	X811654	4.00
3y. Gate w/o Shafts, Links, Rollers	X708611	3348.00
3z. Carriage w/o Shafts, Links, Rollers	X740377	3528.00
4. Stem-Crank Assembly with Key, Retaining Ring & Nut	X706316Rev2	272.00
5. Hub Assembly (spacer design) w/o seal kit	X810815	528.00
5-a1. Gland spacer with bearing	X810891	61.00
5-b1. Hub for LPSS 2,3 & ISO-100	X700238	486.00
5-c. Hub retaining Ring (internal type)	X702177	4.00
6. Steam Seal Kit: 2 O-Rings, (BUNA-N)	X706318	18.00
Stem Seal Kit: 2 washers, 1 spring (VITON)	X706318V	35.00
7. Manual Lever Kit Includes Handle, Washer, Key Retaining Ring	X810678	126.00
8. Body Bolts, S.S. Complete set with nuts	X702710	30.00
9. Pneumatic Operator (without solenoid)	X806304REV2	912.00
Actuator Cylinder Assy. - 9a,b,f,g,h, seals,p-cup	X706006	534.00
9a. Piston Assembly (w/o O-Rings & Piston Cup)	X06LP200	256.00
9b. Rack Assembly	X706314	127.00
9c. Pinion Gear Assembly	X706326	168.00
9d. Mounting Brackets (2)	X706231	301.00
9e. Cylinder Air Lines (2)	X701101	25.00
9f. Cylinder	X06LP150	84.00
9g. Cylinder End Caps (2)	X706232	100.00
9h. Cylinder Studs & Nuts	X706330	86.00
9i. Guard OSHA Style	X06WA152	205.00
9j. Hex Nut	X04LP202	31.00
9k. Key	X04LP203	9.00
9r. Retaining ring (ext. fits stem crank)	X702171	4.00
10. Solenoid Valve only (specify voltage)		
24 VDC Solenoid	X703031	150.00
115 VAC Solenoid	X703005	150.00
220 VAC Solenoid	X134010	150.00
Mounting Hardware, Hose & Fittings (solenoid)	X810866	24.00

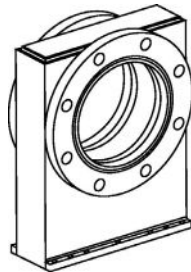
VALVE PARTS

LPSS-10 & LPSS-12
ISO-250 & ISO-320, CF-12

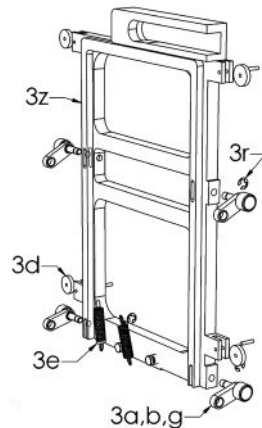
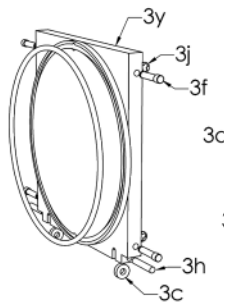
1. Body, Bonnet Section



2. Body, Port Section



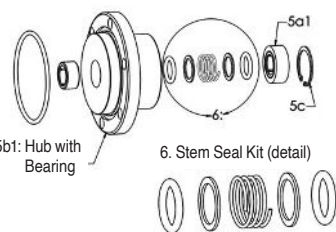
3. Gate Carriage Assembly with O-Ring



4. Stem Crank Assembly

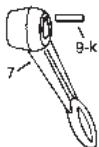


5. Hub Assembly

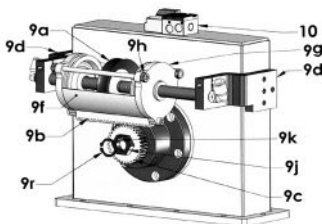


6. Stem Seal Kit

7. Manual Lever Kit

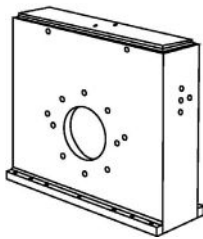


9. Pneumatic Actuator

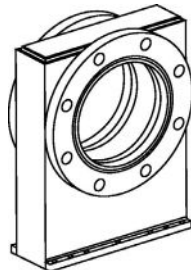


Description	P/N	PRICE
Clean & Test Valves (Freight pre-paid) to Pittsburgh, PA		\$342.00
O-Rings		
Kit BUNA-N , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange). LPSS10/12 ASA, 12/14 CON 250/320 ISO	X701SS250B	92.00
Kit VITON , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange). LPSS10/12 ASA, 12/14 CON 250/320 ISO	X701SS250V	223.00
Kit SILICONE , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange). LPSS10/12 ASA, 12/14 CON 250/320 ISO	X701SS250S	223.00
BUNA-N Flange O-Ring (one each)	10 inch ANSI: X701453B 12 inch ANSI: X701455B	10.00 11.00
Viton Flange O-Ring (one each)	10 inch ANSI: X701453V 12 inch ANSI: X701455V	48.00 48.00
Silicone Flange O-Ring (one each)	10 inch ANSI: X701453S 12 inch ANSI: X701455S	48.00 48.00
Piston & Seal Kit for 'EP' Actuators		
Piston Cup, 2 Shaft & 2 End Cap O-Rings	X7011004B	91.00
1. Contact VRC for bonnet and port body sections. Rail to rail dimension of 98 mm or 104 mm must be verified on current valve.		
2. Port section styles available are N1, no neck; N6, neck on seal side; N8, neck on open side; and N5, neck on both sides. If roughing ports are required specify as R1-NW-16 etc. Roughing port locations are described in Valve Catalog.		
3. Gate-Carriage Assembly with O-Ring	X810439SS	5,982.00
3 Kit of 4 ea. Carriage Shaft, Roller & Link a,b,g Assembly with Bushings & Retaining Ring	X806502	586.00
3c. Gate Rollers - Set of 2	X810536	56.00
3d. Carriage Side Rollers - Set of 4	X706408	86.00
3e. Sprint (set)	X706406	37.00
3f. Gate Link Shafts - Set of 4	X706410Rev1	190.00
3h. Roll Pin-Set of 6 (2 Gate, 4 Carriage)	X706405REV1	9.00
3j., r Retaining Ring (Gate Shafts) Set/4	X8706419	4.00
3y. Gate w/o Shafts, Links, Rollers	X700958	4852.00
3z. Carriage w/o Shafts, Links, Rollers	X700285	1097.00
4. Stem-Crank Assembly with Key, Retaining Ring & Nut	X706WA416	416.00
5. Hub Assembly (spacer design) w/o seal kit	X810814	600.00
5-a1. Gland spacer with bearing	X10LP108A-WB	66.00
5-b1. Hub for LPSS 10	X700759	520.00
5-c. Hub retaining Ring (internal type)	X702177	4.00
6. Stem Seal Kit: 2 O-Rings, (BUNA-N)	X706418B	35.00
Stem Seal Kit: 2 washers, 1 spring (VITON)	X706418V	63.00
7. Manual Lever Kit Includes Handle, Washer, Key Retaining Ring	X706412Rev1	130.00
8. Body Bolts, S.S. Complete set with nuts	X702818	34.00
9. Pneumatic Operator (without solenoid)	X806404Rev3	1235.00
Actuator Cylinder Assy. - 9a,b,f,g,h, seals,p-cup	X706007	792.00
9a. Piston Assembly (w/o O-Rings & Piston Cup)	X10LP200Rev2	378.00
9b. Rack Assembly	X706414Rev1	144.00
9c. Pinion Gear Assembly	X706426Rev1	394.00
9d. Mounting Brackets (2)	X706431Rev1	311.00
9e. Cylinder Air Lines (2)	X701101	25.00
9f. Cylinder	X700337	126.00
9g. Cylinder End Caps (2)	X706432	241.00
9h. Cylinder Studs & Nuts	X706430Rev1	91.00
9i. Guard OSHA Style	X700284	227.00
9j. Hex Nut	X10LP202	38.00
9k. Key	X04LP203	9.00
9r. Retaining ring (ext. fits stem crank)	X702172	4.00
10. Solenoid Valve only (specify voltage)		
24 VDC Solenoid	X703031	150.00
115 VAC Solenoid	X703005	150.00
220 VAC Solenoid	X134010	150.00
Mounting Hardware, Hose & Fittings (solenoid)	X810866	24.00

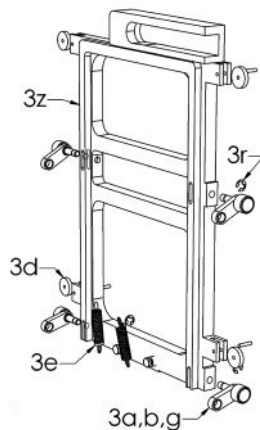
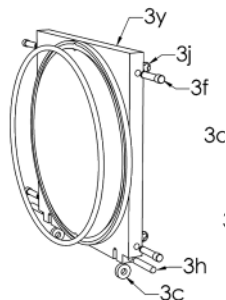
1. Body, Bonnet Section



2. Body, Port Section



3. Gate Carriage Assembly with O-Ring

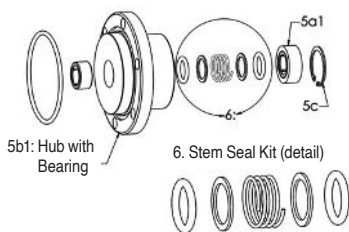
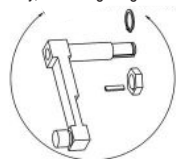


4. Stem Crank Assembly

5. Hub Assembly

6. Stem Seal Kit

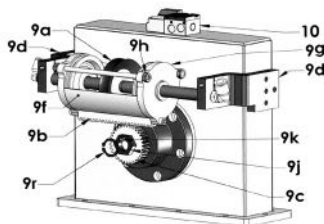
4. Stem Crank Assembly with Key, Retaining Ring & Nut



7. Manual Lever Kit



9. Pneumatic Actuator

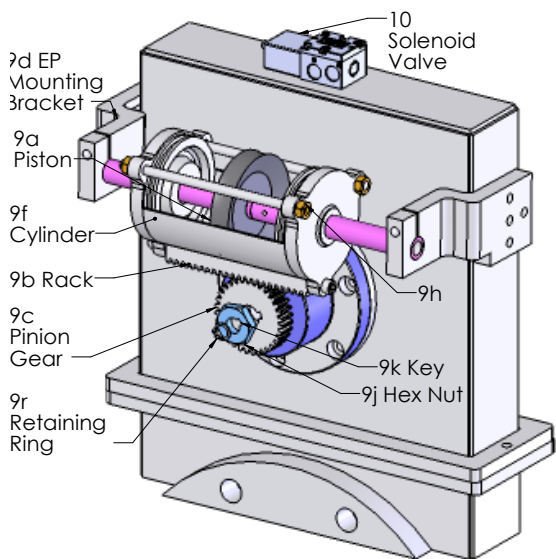


VALVE PARTS

LPSS-14 & LPSS-16
ISO-400

Description	P/N	PRICE
Clean & Test Valves (Freight pre-paid) to Pittsburgh, PA		\$540.00
O-Rings		
Kit BUNA-N , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS1400B	102.00
Kit VITON , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS1400V	229.00
Kit SILICONE , 2 ea. Stem O-Rings, 1 ea. Hub Gate & Body (no flange).	X701SS1400S	229.00
BUNA-N Flange O-Ring (one each)	10 inch ANSI: X701459B 12 inch ANSI: X701464B	11.00 12.00
Viton Flange O-Ring (one each)	10 inch ANSI: X701459V 12 inch ANSI: X701464V	66.00 67.00
Silicone Flange O-Ring (one each)	10 inch ANSI: X701459S 12 inch ANSI: X701464S	66.00 67.00
Piston & Seal Kit for 'EP' Actuators		
Piston Cup, 2 Shaft & 2 End Cap O-Rings	X810396	270.00
1. Contact VRC for bonnet and port body sections. Rail to rail dimension of 98 mm or 104 mm must be verified on current valve.		
2. Port section styles available are N1, no neck; N6, neck on seal side; N8, neck on open side; and N5, neck on both sides. If roughing ports are required specify as R1-NW-16 etc. Roughing port locations are described in Valve Catalog.		
3. Gate-Carriage Assembly with O-Ring	X810624SS304	13247.00
3 Kit of 4 ea. Carriage Shaft, Roller & Link a,b,g Assembly with Bushings & Retaining Ring	X810397R1	894.00
3c. Gate Rollers - Set of 2	X811027	210.00
3d. Carriage Side Rollers - Set of 4	X811660	709.00
3e. Sprint (set)	X810636	82.00
3f. Gate Link Shafts - Set of 4	X810637	210.00
3y. Gate w/o Shafts, Links, Rollers	X811665	7888.00
3z. Carriage w/o Shafts, Links, Rollers	X811670	3254.00
4. Stem-Crank Assembly with Key, Retaining Ring & Nut	X810641	1433.00
5. Hub Assembly (spacer design) w/o seal kit	X810642	554.00
5-a1. Gland spacer with bearing	X810643	102.00
5-b1. Hub for LPSS 10	X810644	410.00
5-c. Hub retaining Ring (internal type)	X702092	9.00
6. Stem Seal Kit: 2 O-Rings, (BUNA-N)	X810645	115.00
Stem Seal Kit: 2 washers, 1 spring (VITON)	X810646	126.00
7. Manual Lever Kit Includes Handle, Washer, Key Retaining Ring	X810647	224.00
8. Body Bolts, S.S. Complete set with nuts	X702818	65.00
9. Pneumatic Operator (without solenoid)	X810648	3400.00
Actuator Cylinder Assy. - 9a,b,f,g,h, seals,p-cup	X810950	2656.00
9a. Piston Assembly (w/o O-Rings & Piston Cup)	X810649	490.00
9b. Rack Assembly	X810650	174.00
9c. Pinion Gear Assembly	X810651	526.00
9d. Mounting Brackets (2)	X810652	456.00
9e. Cylinder Air Lines (2)	X810653	42.00
9f. Cylinder	X700581	310.00
9g. Cylinder End Caps (2)	X810654	1094.00
9h. Cylinder Studs & Nuts	X810655	106.00
9i. Guard OSHA Style	X700545	575.00
9j. Hex Nut	X700569	64.00
9k. Key	X700568	10.00
9r. Retaining ring (ext. fits stem crank)	X702092	7.00
10. Solenoid Valve only (specify voltage)		
24 VDC Solenoid	X134016	197.00
115 VAC Solenoid	X134012	197.00
220 VAC Solenoid	X1340109	197.00
Mounting Hardware, Hose & Fittings (solenoid)	X810656	84.00

PNEUMATIC OPERATOR ADJUSTMENT:



- (1) Be sure that the air and power lines are disconnected.
- (2) This alignment procedure requires the valve to be completely assembled with gate carriage installed and the port and bonnet bolted together.
- (3) If your valve is equipped with position indicator switches remove them by removing the 3 screws that hold the switch bracket to the EP mounting bracket. Remove the protective EP cover so that the actuator cylinder and gears are visible.
- (4) Using a wrench rotate the hex nut clockwise to move the cylinder (9F) to the full closed position. (Far right side, see the label on the air cylinder.) Remove the E clip, hex nut, key, and top guide washer and pull the pinion gear off of the valve stem (Part No. 4).
- (5) After the pinion is removed, move the cylinder back toward the open position by the space of approximately 1/2 or 1 full gear tooth.
- (6) Now replace the pinion on the stem and engage it with the rack without moving the cylinder. Re-install the top guide washer, hex nut, key, and E-clip on the stem.
- (7) To ensure that rack and pinion properly engage without binding or skipping teeth you may tap lightly on the EP brackets to move the rack closer or farther from the pinion.
- (8) Be sure that all bolts on EP bracket are tight (Part No. 9D).
- (9) Reconnect electrical and air supply.
- (10) Operate valve and listen for gate locking in closed position.

DISASSEMBLY: With valve in open position, remove centerline body flange bolts and lift the bonnet section free. The entire internal mechanism comes free with this one motion. Then turn the manual lever, or the hex nut above the pinion gear on pneumatic valves, to release the carriage from its locked position. Pull on carriage and it will come out and slide off the crank roller. The flanged section stays bolted in the system unless the gate seat is damaged and needs polishing or machining.

When the stem seal area is also to be cleaned or needs new seals, the steps are easy: (1) Take off manual lever or pinion gear. (2) Use appropriate snap ring pliers to remove retaining ring 9-r and remove the gland spacer (5-a1) and hub flange screws. (3) Lift out hub by sliding over stem, which will bring stem seal assembly with it, which can then be lifted out with a finger. (4) The stem crank comes out easily through the centerline flange opening.

! WARNING

Disconnect electrical & air supply before making any adjustment or repairs.

ASSEMBLY: Apply a very thin film of vacuum grease to the shaft and: (1) Grasp the stem crank by the roller end, tip the stem to the side, insert in the bonnet flange opening and bring the stem out through the hub opening. (2) Place hub O-ring seal in hub flange and slide hub onto stem while holding stem-crank up to make it easy to insert. (3) Replace and tighten the 1/4-20 hub flange screws evenly. (4) While holding the stem crank up with one hand and pushing to the farthest point through the stem housing in the hub, insert the stem seal assembly and be sure of the proper order. Slide over stem first, one O-ring; next, a washer. Then slide the spring over the stem; next a washer, and last, the second O-ring. Make sure this second O-ring is down over the shoulder on the stem. (5) While still holding up the stem, replace the stem gland spacer (push downward to overcome spring tension). Hold the internal retaining ring 5-C in position and seat it in the modified hub groove using appropriate snap ring pliers. (6) Replace manual lever or pinion gear of pneumatic operator with key in its slot. Retaining ring 9-r fits onto the stem crank. (7) Insert gate seal evenly, and with crank turned to expose its roller, slide carriage slot overroller and retract into bonnet by turning stem counterclockwise (with manual lever or a wrench on pinion head nut). (8) Insert body flange seal evenly and position the bonnet assembly on the flanged section—Gate toward its seat, with locator pins lined up with holes. (9) Replace and evenly tighten body bolts in centerline flanges.

! WARNING

A valve wired to automatically close on power failure will also automatically open when power is restored. This reopening may be unsafe, and it is recommended that a latching relay be installed so that the valve will not just automatically reopen when power is restored, but will remain closed until an operator decides it is safe to reopen.

CONVERTING FROM MANUAL TO ELECTROPNEUMATIC (EP OPERATOR): Operators for conversion of manual valves are factory assembled, aligned and tested before shipment, with piston shafts tight to brackets. Simply tighten brackets to valve body, with “D” bracket on the “closed” side—to the right as you look at the face of the valve, with centerline flange down. If operators are removed from pneumatic valves, it is generally unnecessary to disassemble them. Leave the shaft tightened to brackets for easiest reassembly. With cylinder in place, brackets tightened, replace pinion gear parts on the stem in this order: (1) bronze thrust washer, (2) gear washer without key slot, (3) pinion gear, (4) key, (5) gear washer with key slot, (6) hex nut, (7) retaining ring. When placing pinion gear, engage the nearest rack tooth with it, with cylinder at farthest right, toward the “closed” side, and stem and gear key slots aligned. Slight movement of the cylinder may help to align key slots when inserting key (as in 4). Then proceed with (4) through (7). Secure solenoid actuator to the valve body, with “C” and “D” sides matching “C” and “D” on cylinder. Install air lines and tighten fittings, “C” with “C” and “D” with “D”.