EOM

ENGINEERING OPERATION
& MAINTENANCE MANUAL

XSD Advanced™ Metal Surge Dampener

PSG a DOVER company

Where Innovation Flows

WILDEN®

WIL-19011-E-08

Warranty
Each and every product manufactured by Wilden is built to meet the highest standards of quality. Every pump is functionally tested to ensure integrity of operation. Wilden warrants that pumps, accessories and parts manufactured or supplied by it to be free from defects in material and workmanship for a period of five (5) years from date of installation or six (6) years from date of manufacture, whichever comes first.

For more information, and to register your Wilden pump for warranty, please visit https://www.psgdover.com/wilden/support/warranty-registration.

Certifications

CONTENTS

SECTION 1

PRECAUTIONS – READ FIRST!

WARNING: Always wear safety glasses when operating a pump to avoid eye injury. If diaphragm rupture occurs, material being pumped may be forced out of the air exhaust.

CAUTION: Do not over-lubricate air supply– excess lubrication will reduce pump performance. Pump is pre-lubed.

TEMPERATURE LIMITS:

Acetal	-29°C to 82°C	-20°F to 180°F
Buna-N	-12°C to 82°C	10°F to 180°F
Bunalast™	-40°C to 130°C	-40°F to 266°F
Geolast®	-40°C to 82°C	-40°F to 180°F
Neoprene	-18°C to 93°C	0°F to 200°F
Nordel™ EPDM	-51°C to 138°C	-60°F to 280°F
Nylon	-18°C to 93°C	0°F to 200°F
PFA	-7°C to 107°C	45°F to 225°F
Polypropylene	0°C to 79°C	32°F to 175°F
Polyurethane	-12°C to 66°C	10°F to 150°F
PVDF	-12°C to 107°C	10°F to 225°F
Saniflex	-29°C to 104°C	-20°F to 220°F
SIPD PTFE with EPDM-backed	4°C to 137°C	40°F to 280°F
SIPD PTFE with Neoprene-backed	4°C to 93°C	40°F to 200°F
PTFE*	4°C to 104°C	40°F to 220°F
FKM	-40°C to 177°C	-40°F to 350°F
Wil-Flex®	-40°C to 107°C	-40°F to 225°F

*4°C to 149°C (40°F to 300°F) - 13 mm (1/2") and 25 mm (1") models only.

NOTE: Not all materials are available for all models. See "Wilden Pump Designation System" for material options for your pump.

CAUTION: When choosing dampener materials, be sure to check the temperature limits for all wetted components. Example: FKM has a maximum limit of 177°C (350°F), but polypropylene has a maximum limit of only 79°C (175°F).

CAUTION: Maximum temperature limits are based on mechanical stress only. Certain chemicals will reduce maximum safe operating temperatures significantly. Consult the Chemical Resistance Guide for chemical compatibility and temperature limits.

WARNING: Prevent sparking — If static sparking occurs, fire or explosion could result. Pump, valves and containers must be grounded to a proper grounding point when handling flammable fluids and whenever discharge of static electricity is a hazard.

CAUTION: Do not exceed 8.6 bar (125 psig) air supply pressure.

CAUTION: Do not exceed 82°C (180°F) air inlet temperature for all models.

CAUTION: The process fluid and cleaning fluids must be compatible chemically with all wetted pump components.

CAUTION: Before attempting any maintenance or repair, disconnect the compressed air line to the dampener and allow all air pressure to bleed from the pump. Disconnect all intake, discharge, and air lines. Drain the dampener by allowing any fluid to flow into a suitable container. Be aware of any hazardous effects of contact with your process fluid.

CAUTION: Thoroughly flush dampeners before installing them into process lines. Clean and/or sanitize FDA- and USDA- approved pumps before using them.

CAUTION: Before attaching the air line to the dampener, blow out the air line for 10 to 20 seconds to make sure all pipeline debris is clear. Use an in-line air filter. A 5µ (micron) air filter is recommended.

CAUTION: Dampeners cannot be used in submersible applications.

CAUTION: Before installation, tighten all hardware.

WARNING: This product can expose you to chemicals including Nickel, Chromium, Cadmium, or Cobalt, which are known to the State of California to cause cancer and/or birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

SECTION 2

WILDEN PUMP DESIGNATION SYSTEM

XSD® Equalizer

LEGEND XSD X / X XX X / XXX / XX / XXXX

- XSD: EQUALIZER® SURE DAMPENER
- X: INLET SIZE
- X: WETTED PATH/OUTER PISTON
- XX: AIR CHAMBERS
- X: REGULATOR BODY
- XXX: DIAPHRAGM
- XX: O-RINGS
- XXXX: SPECIALITY CODE (if applicable)

MATERIAL CODES

MODEL
XSD = ATEX EQUALIZER® SURGE DAMPENER

INLET SIZE
1 = 25 MM (1")
2 = 51 MM (2")
3 = 76 MM (3")

WETTED PATH / OUTER PISTON
AA = ALUMINUM / ALUMINUM
SS = STAINLESS STEEL / STAINLESS STEEL
SZ = STAINLESS STEEL / NO OUTER PISTON

AIR CHAMBERS
A = ALUMINUM
S = STAINLESS STEEL

REGULATOR BODY
A = ALUMINUM
SS = STAINLESS STEEL

DIAPHRAGMS
BNS = BUNA-N (RED DOT)
EPS = EPDM (BLUE DOT)
LEL = PTFE EPDM BACK-UP, IPD[1]
FSS = SANIFLEX™ [HYTREL® (CREAM)]
NES = NEOPRENE (GREEN DOT)
TEU = PTFE W/EPDM BACK-UP (WHITE)
TNU = PTFE W/NEOPRENE BACK-UP (WHITE)
TSU = PTFE W/SANIFLEX™ BACK-UP (WHITE)[3]
VTS = FKM (WHITE DOT)
WFS = WIL-FLEX® (ORANGE DOT)]

ULTRA-FLEX™ DIAPHRAGMS
BNU = BUNA-N (RED DOT)
EPU = EPDM (BLUE DOT)
NEU = NEOPRENE (GREEN DOT)
VTU = FKM (WHITE DOT)

O-RING
BN = BUNA-N
TF = PTFE (WHITE)[1]
TV = PTFE ENCAPSULATED FKM[2]

NOTES:
[1]XSD1 and XSD2 Only
[2]XSD3 Only
[3]XSD2 and XSD3 Only

SPECIALTY CODES

0014 BSPT
0040 ANSI Flange Connection (Advanced™)
0041 DIN Flanged Connection (Advanced™)

! **NOTE:** Most elastomeric materials use colored dots for identification

! **NOTE:** Not all models are available with all material options

Hytrel® is a registered trademark of DuPont Dow Elastomers.

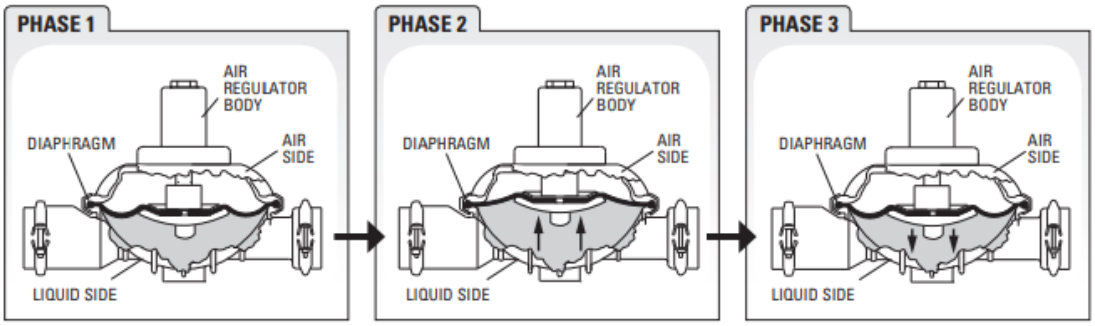
SECTION 3

HOW IT WORKS – DAMPENER

All reciprocating pumps generate discharge pressure fluctuation. The Equalizer® minimizes unwanted pressure fluctuation by providing a supplementary pumping action. This is accomplished by using a diaphragm as a separation membrane within the Equalizer® to trap a given volume of liquid on one side and pressurized air on the other.

When the fluid pressure falls in the system, the Equalizer® supplies additional pressure to the discharge line between pump strokes by displacing fluid via diaphragm movement. This movement provides the supplementary pumping action needed to reduce pressure variation and pulsation.

The Equalizer® automatically sets and maintains the correct air pressure matching the variations in liquid flow or discharge pressure generated by the pump. A shaft attached to the Equalizer® diaphragm triggers the addition or removal of the air within the non-wetted side of the Equalizer®. The Equalizer® automatically adjusts to any pressure and/or flow setting of the pump with no need for manual adjustment of the unit and/or system. The Equalizer® has proven to be the cost effective choice for protecting your liquid process system from unwanted pulsation or pressure fluctuation. Contact your local Wilden distributor for further information on the Equalizer® and other pumping solutions.

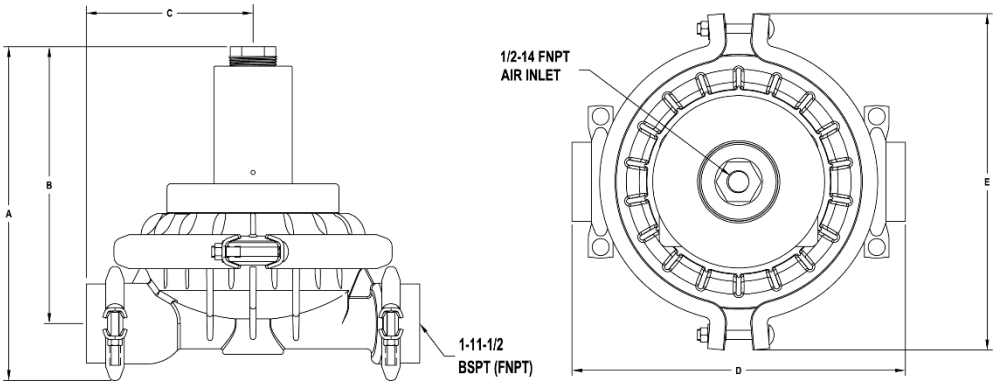


A compressed air line attached to the air regulator body sets and maintains pressure on the air side of the diaphragm. As the reciprocating pump begins its stroke, liquid discharge pressure increases which flexes the Equalizer® diaphragm inward. This action accumulates fluid in the liquid chamber (see Phase 2) and the air regulator allows compressed air to enter the air side.

When the pump redirects its motion upon stroke completion, the liquid discharge pressure decreases and compressed air in the air side forces the Equalizer® diaphragm to flex outward displacing the fluid into the discharge line (see Phase 3). This motion provides the supplementary pumping action needed to minimize pressure fluctuation.

DIMENSIONAL DRAWING

XSD1

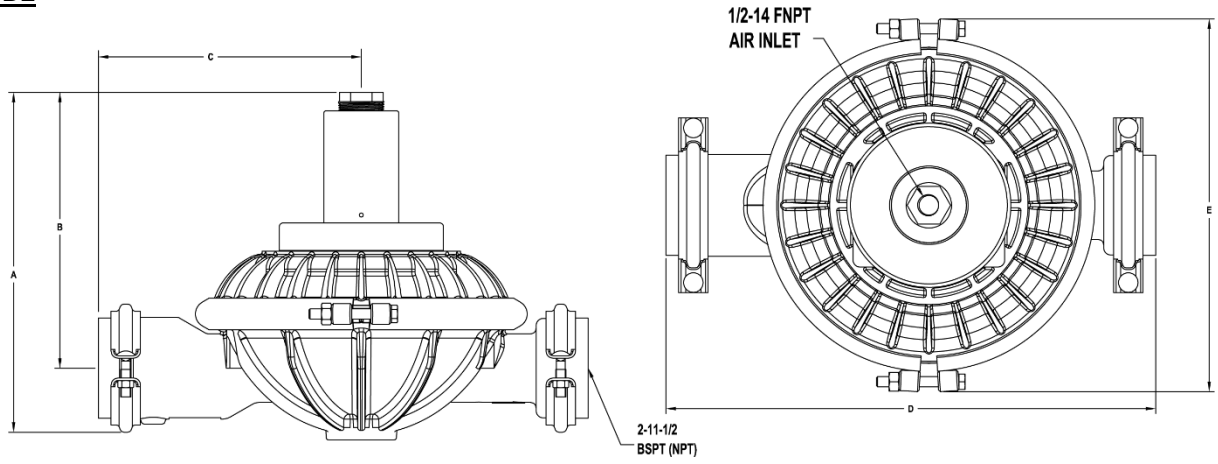


DIMENSIONS

ITEM	METIRC (mm)	STANDARD (inch)
A	295	11.6
B	244	9.6
C	147	5.8
D	295	11.6
E	297	11.7

LW0548 REV.A

XSD2



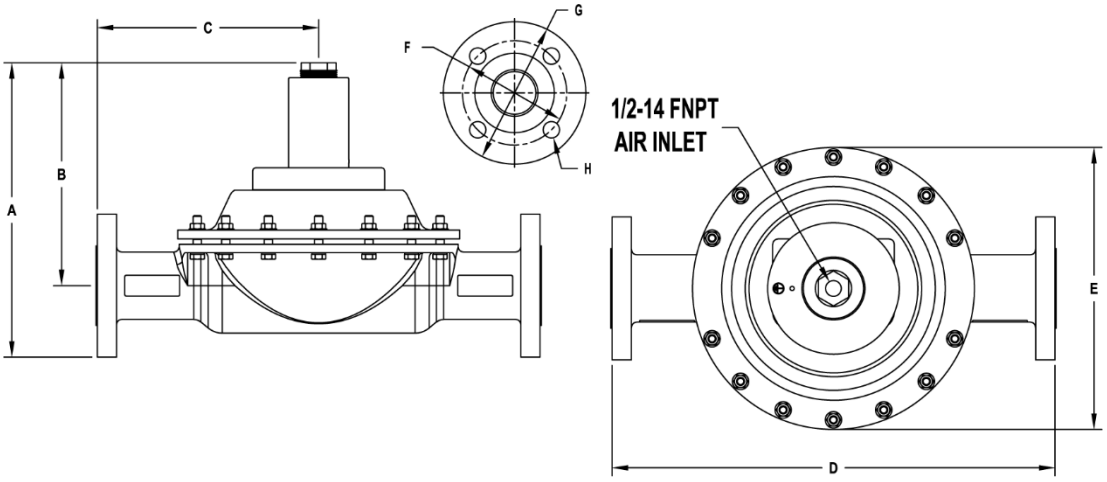
DIMENSIONS

ITEM	METIRC (mm)	STANDARD (inch)
A	315	12.4
B	257	10.1
C	244	9.6
D	455	17.9
E	345	13.6

LW0549 REV.A

DIMENSIONAL DRAWING

XSD2 Advanced™

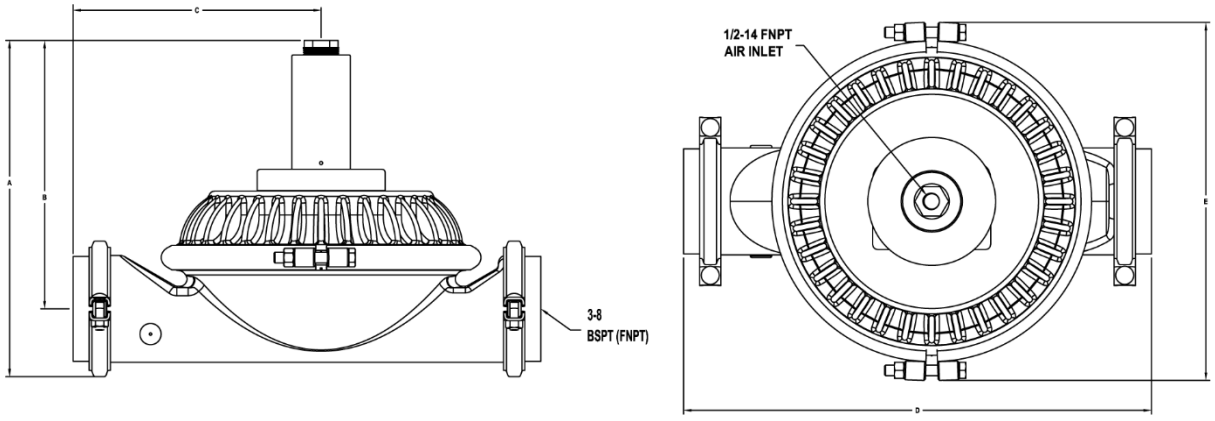


DIMENSIONS

ITEM	METIRC (mm)	STANDARD (inch)
A	340	13.4
B	257	10.1
C	256	10.1
D	513	20.2
E	325	12.8
	DIN (mm)	**ANSI (inch)**
	125 DIA	4.9 DIA
	165 DIA	6.5 DIA
	18 DIA	0.8 DIA

LW0148 REV.B

XSD3

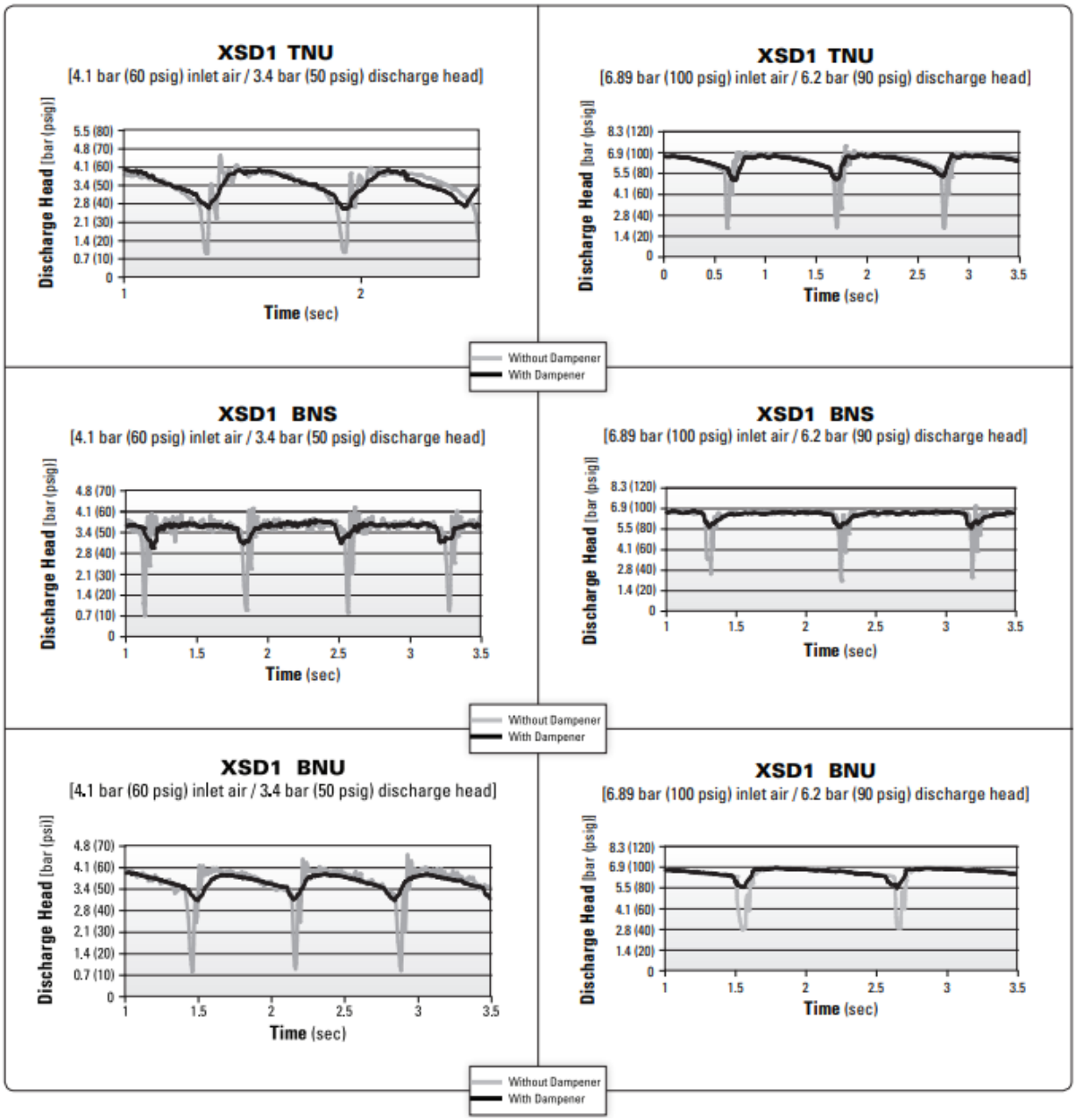


DIMENSIONS

ITEM	METIRC (mm)	STANDARD (inch)
A	399	15.7
B	320	12.6
C	295	11.6
D	556	21.9
E	424	16.7

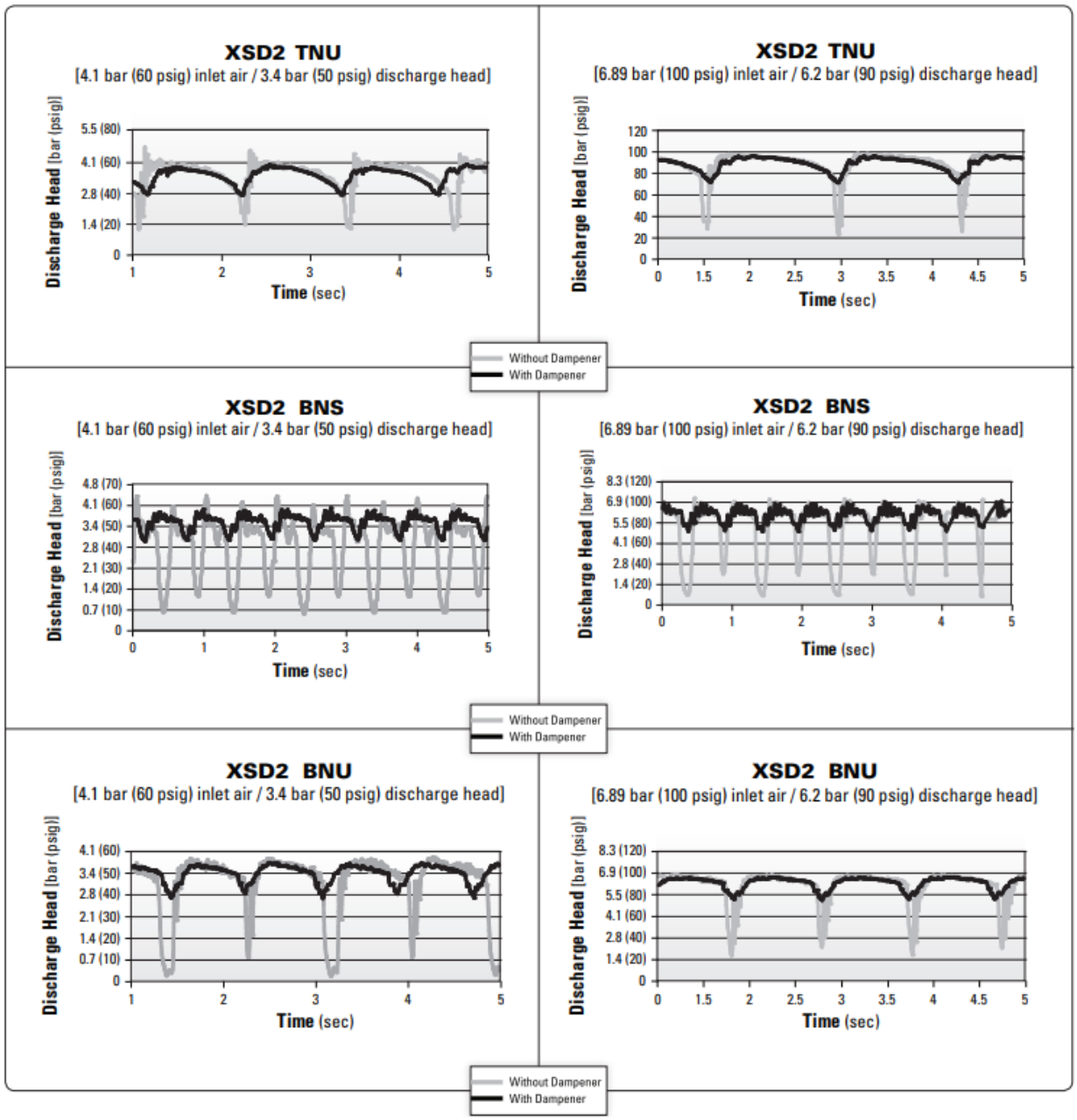
LW0550 REV.A

PERFORMANCE – XSD1



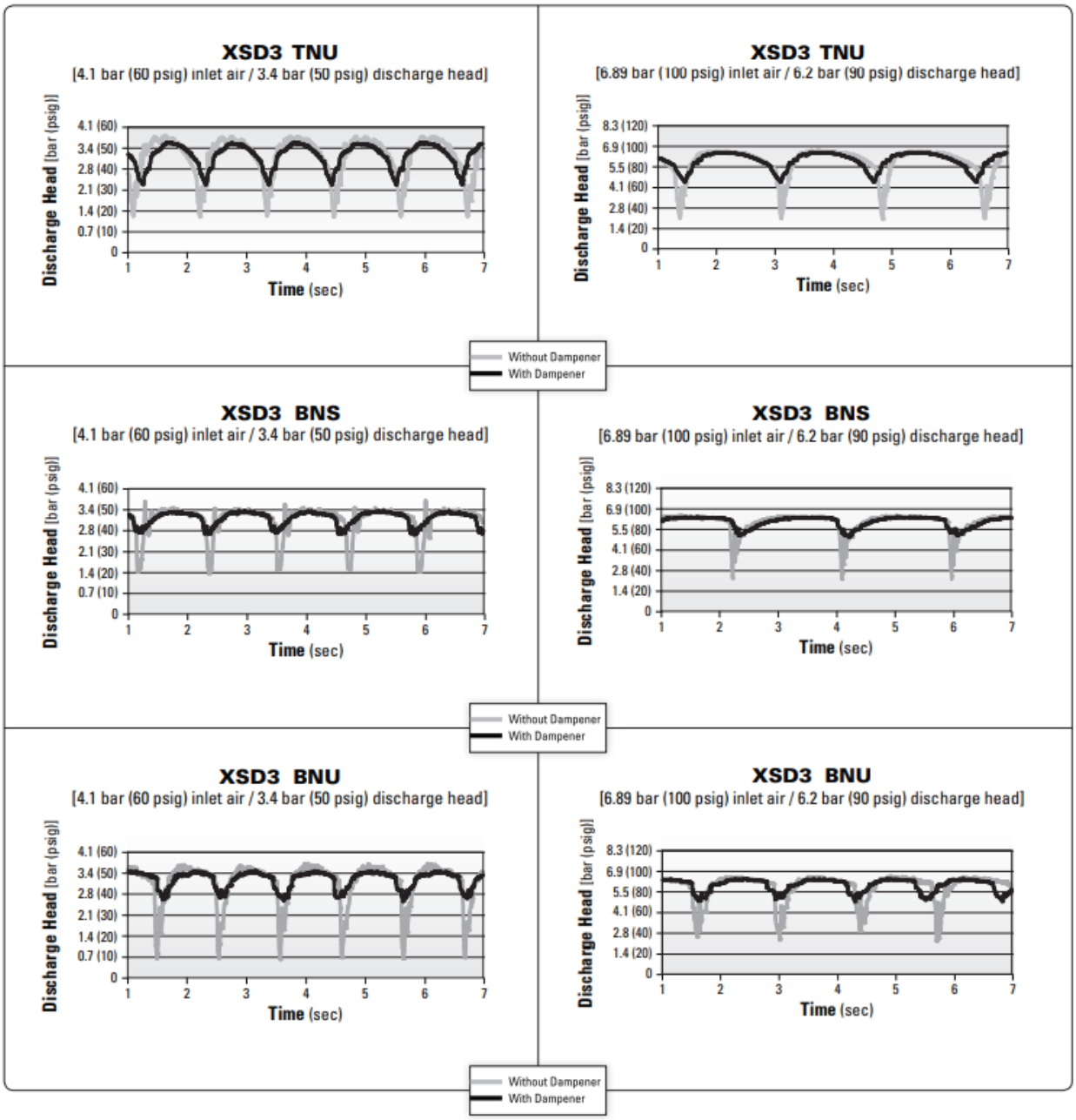
These charts show discharge head fluctuations for a diaphragm pump with and without a dampener. By reviewing the variation in pressure, the level of dampening can be estimated for an application. For example, the head pressure generated by a 25 mm (1") pump operating at 6.89 bar (100 psig) air inlet pressure and 6.2 bar (90 psig) head pressure varies between 1.7 bar (25 psig) and 7.2 bar (104 psig) resulting in a total pressure fluctuation of 5.5 bar (79 psig) for each stroke. When an XSD1/AAAA/ TNU/TF dampener is installed in the application, the head pressure varies between 4.8 bar (69 psig) and 6.6 bar (96 psig) resulting in a pressure fluctuation of only 1.9 bar (27 psig). This results in a 67% reduction in head pressure fluctuation.

PERFORMANCE – XSD2



These charts show discharge head fluctuations for a diaphragm pump with and without a dampener. By reviewing the variation in pressure, the level of dampening can be estimated for an application. For example in reference to XSD2 BNS 100/90, the head pressure generated by a 51 mm (2") pump operating at 6.89 bar (100 psig) air inlet pressure and 6.2 bar (90 psig) head pressure varies between 0.4 bar (6 psig) and 7 bar (102 psig) resulting in a total pressure fluctuation of 6.6 bar (96 psig) for each stroke. When an XSD2/AAAA/BNS/BN dampener is installed in the application, the head pressure varies between 4.7 bar (68 psig) and 6.8 bar (99 psig) resulting in a pressure fluctuation of only 2.1 bar (31 psig). This results in a 68% reduction in head pressure fluctuation.

PERFORMANCE – XSD3



These charts show discharge head fluctuations for a diaphragm pump with and without a dampener. By reviewing the variation in pressure, the level of dampening can be estimated for an application. For example (XSD3 BNU 100/90), the head pressure generated by a 76 mm (3") pump operating at 6.89 bar (100 psig) air inlet pressure and 6.2 bar (90 psig) head pressure varies between 2.1 bar (30 psig) and 6.5 bar (94 psig) resulting in a total pressure fluctuation of 4.4 bar (64 psig) for each stroke. When an XSD3/AAAA/BNU/BN dampener is installed in the application, the head pressure varies between 4.8 bar (69 psig) and 6.3 bar (91 psig) resulting of a pressure fluctuation of only 1.5 bar (22 psig). This results in a 66% reduction in head pressure fluctuation.

SECTION 6

SUGGESTED INSTALLATION, OPERATION, MAINTENANCE AND TROUBLESHOOTING

Suggested Installation

The model XSD1 has a 25 mm (1") inlet/discharge. The model XSD2 has a 51 mm (2") inlet/discharge and the XSD3 has a 76 mm (3") inlet/discharge. The Equalizer® can be installed in either horizontal or vertical orientations. A variety of materials are available to satisfy temperature, chemical compatibility, abrasion and flex concerns.

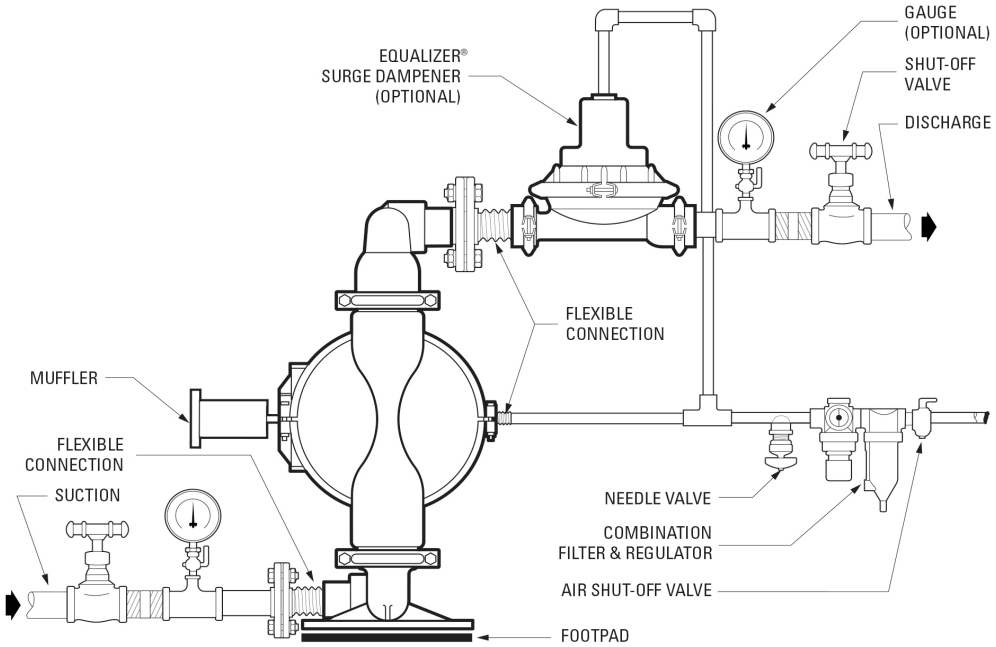
The Equalizer® installed on the discharge side of the pump minimizes pulsation and protects in-line equipment. It can also be connected on the suction side to prevent water hammer associated with a positive inlet condition.

Install the Equalizer® as shown below. The use of flexible connections and a Filter, Regulator, Lubricator (FRL) will extend parts life. Shut-off valves on the suction side of pump and the discharge side of Equalizer® will enable maintenance personnel to safely service the equipment. To maximize effectiveness, install the Equalizer® as close as possible to the discharge of the pump.

It is important to support the pipe immediately downstream from the Equalizer®. Use a tee connector on the pump air supply line and connect the line to the Equalizer® regulator body. This tee connector should be installed after the FRL. The Equalizer® consumes very little air, therefore, a 1/4" hose is more than adequate to supply enough air volume. When the air supply to the pump is shut down, the air to the Equalizer® will be shut off as well.

NOTE: In the event of a power failure, the shut-off valve should be closed if the restarting of the pump is not desirable once power is regained.

AIR-OPERATED PUMPS: To stop the pump from operating in an emergency situation, simply close the shut-off valve (user supplied) installed in the air supply line. A properly functioning valve will stop the air supply to the pump, therefore stopping output. This shut-off valve should be located far enough away from the pumping equipment such that it can be reached safely in an emergency situation.



Troubleshooting

1) When there is a significant drop in the fluid discharge pressure, there will be a noticeable release of air through the small bleed hole in the air regulator body. This is how the Equalizer® automatically adjusts itself for optimal suppression. This is a good way of verifying proper operation of the unit. If there is a continuous discharge of air out of this hole during steady fluid discharge pressure, the Equalizer® is not functioning properly and should be inspected. The air regulator body houses three (3) Glyd rings.

2) Fluid leakage around the clamp band area is normally stopped by tightening the clamp band bolts. If leakage continues, unit should be disassembled and inspected.

3) Air leakage between the adapter plate and air chamber requires tightening of four

SECTION 7

DISASSEMBLY / REASSEMBLY

DAMPENER DISASSEMBLY

Tools Required:

- Deep well sockets and ratchet (7/16", 1/2", 3/4")
- Hex (Allen®) wrenches (3/16" and 1/4")
- Large adjustable wrench or channel lock pliers
- Large pipe wrench
- Vise equipped with soft jaws (such as plywood, plastic or other suitable material)

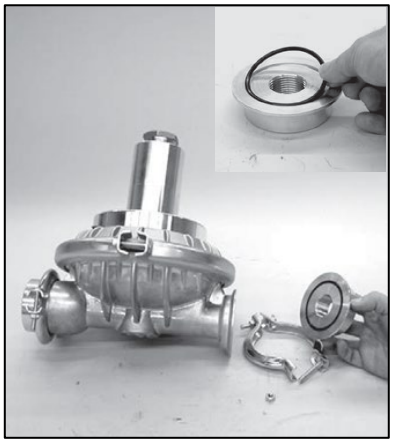
⚠ **CAUTION:** Before attempting any maintenance or repair, disconnect the compressed air line to the Equalizer® and the pump and allow all air pressure to bleed from the pump. Disconnect all intake, discharge, and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Be aware of any hazardous effects of contact with your process fluid.

! **NOTE:** Your specific pump model may vary from the configuration shown; however, pump disassembly procedure will be the same.

! **NOTE:** Replace worn parts with genuine Wilden parts for reliable performance.

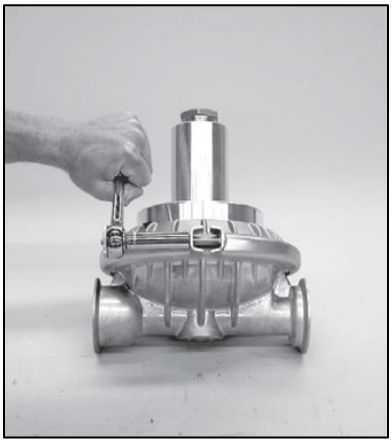
Step 1

Disassembly of the surge ends/ small clamp band is needed only in the event of leakage. Leakage is usually stopped by tightening the small band bolts using a 7/16” deep well socket.



Step 2

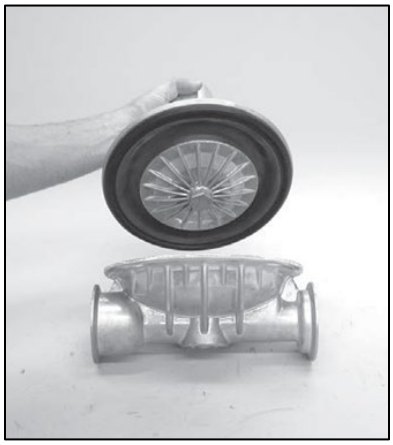
If leakage persists, remove surge ends and replace O-rings.



Step 3

Remove large clamp band using a 1/2” deep well socket.

DISASSEMBLY / REASSEMBLY

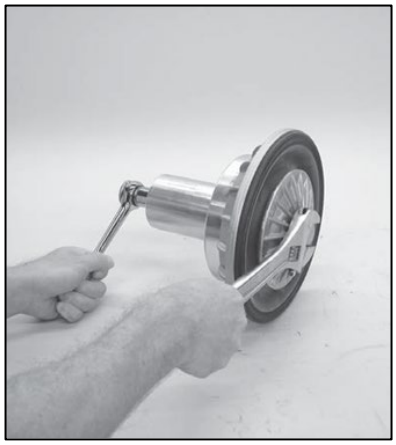


Step 4

Set liquid chamber aside.

Step 5

Remove reducer bushing at top of regulator.



Step 6

Loosen shaft assembly by using adjustable wrench on outer piston and 3/4" socket on shaft bolt inside air regulator body. Turn counterclockwise. One of two scenarios will occur: outer piston will loosen from shaft, or the shaft bolt will loosen from shaft.

Step 7

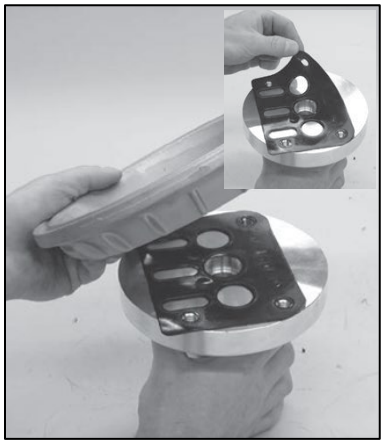
In either case, this will allow the removal of the inner and outer pistons, diaphragm, shaft stop, shaft, shaft stop washer and bolt.

Step 8

Inspect shaft for nicks or abrasion. Small nicks can usually be dressed out. If shaft is chemically attacked or nicks are hindering operation, shaft should be replaced.

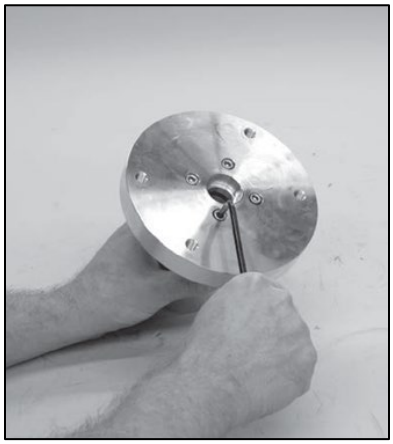
Step 9

Disassembly of the air chamber from the regulator adaptor plate is needed only in the event of air leakage.



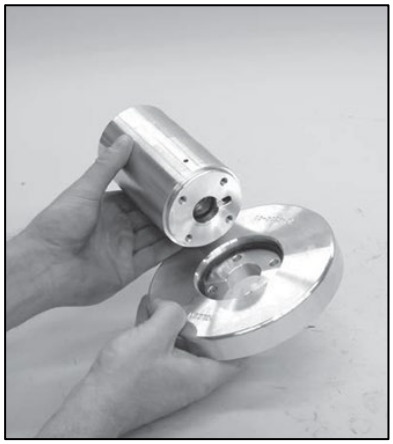
Step 10

In the event of an air leak, remove the air chamber and replace the gasket.



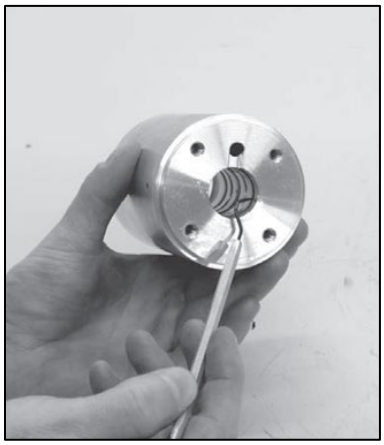
Step 11

Disassembly of the regulator body from the regulator adaptor plate is needed only in the event of air leakage.



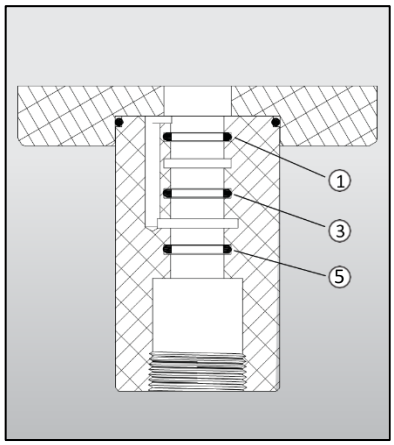
Step 12

In the event of an air leak, remove the regulator adaptor plate and replace the O-ring.



Step 13

Using an O-ring pick, remove the Glyd rings from air regulator body.



Step 14

The air regulator body has five (5) grooves cut into the inside diameter. There are three Glyd rings installed in the 1, 3 and 5 positions. It is important that these Glyd rings be installed in the correct grooves so that the Equalizer® functions properly. Please refer to the drawing for the correct location of the Glyd rings.

DISASSEMBLY / REASSEMBLY

Assembly

Upon performing applicable maintenance to the air distribution system, the Equalizer® can now be reassembled. Please refer to the disassembly instructions for photos and parts placement. To reassemble the Equalizer®, follow the disassembly instructions in reverse order. The air regulator body needs to be assembled first, then the diaphragm and finally the wetted path. Please find the applicable torque specifications on this page. The following tips will assist in the assembly process.

- Lubricate air regulator body, Glyd rings and shaft bore center with NLGI grade 2 white EP bearing grease or equivalent.
- Clean the inside of the air regulator body bore to ensure no damage is done to new shaft seals.
- Stainless bolts should be lubed to reduce the possibility of seizing during tightening.

MAXIMUM TORQUE SPECIFICATIONS

Model	Description of Part	Torque
XSD1	Air chamber/adapter plate	24.4 N·m (18 ft-lb)
	Air regulator body/adapter plate	7.9 N·m (70 in-lb)
	Outer piston/shaft bolt assembly (all diaphragms)	54.2 N·m (40 ft-lb)
XSD2	Air chamber/adapter plate	24.4 N·m (18 ft-lb)
	Air regulator body/adapter plate	7.9 N·m (70 in-lb)
	Outer piston/shaft bolt assembly (rubber & PTFE diaphragms)	109 N·m (80 ft-lb)
	Outer piston/shaft bolt assembly (Untra-Flex™ & SIPD diaphragms)	74.6 N·m (55 ft-lb)
XSD3	Air chamber/adapter plate	44.7 N·m (33 ft-lb)
	Air regulator body/adapter plate	7.9 N·m (70 in-lb)
	Outer piston/shaft bolt assembly (all diaphragms)	136 N·m (100 ft-lb)

Shaft Seal Installation

Pre-installation
Once all of the old seals have been removed, the inside of the air regulator body should be cleaned to ensure no debris is left that may cause premature damage to the new seals.

Installation
The following tools can be used to aid in the installation of the new seals:
Needle Nose Pliers
Phillips Screwdriver
Electrical Tape

- Wrap electrical tape around each leg of the needle nose pliers (heat shrink tubing may also be used). This is done to prevent damaging the inside surface of the new seal.
- With a new seal in hand, place the two legs of the needle nose pliers inside the seal ring. (See Figure A.)
- Open the pliers as wide as the seal diameter will allow, then with two fingers pull down on the top portion of the seal to form kidney bean shape. (See Figure B.)
- Lightly clamp the pliers together to hold the seal into the kidney shape. Be sure to pull the seal into as tight of a kidney shape as possible, this will allow the seal to travel down the bushing bore easier.
- With the seal clamped in the pliers, insert the seal into the bushing bore and position the bottom of the seal into the correct groove. Once the bottom of the seal is seated in the groove, release the clamp pressure on the pliers. This will allow the seal to partially snap back to its original shape.
- After the pliers are removed, you will notice a slight bump in the seal shape. Before the seal can be properly resized, the bump in the seal should be removed as much as possible. This can be done with either the Phillips screwdriver or your finger. With either the side of the screwdriver or your finger, apply light pressure to the peak of the bump. This pressure will cause the bump to be almost completely eliminated.
- Lubricate the edge of the shaft with NLGI grade 2 white EP bearing grease.
- Slowly insert the center shaft with a rotating motion. This will complete the resizing of the seal.
- Perform these steps for the remaining seal.

Figure A

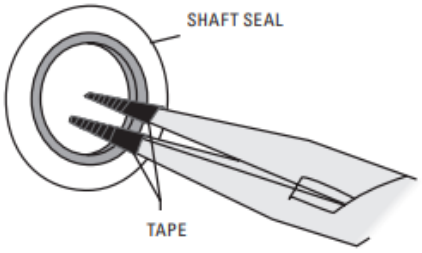
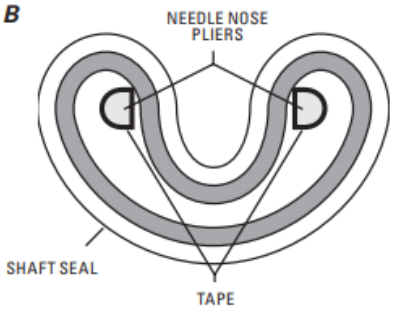


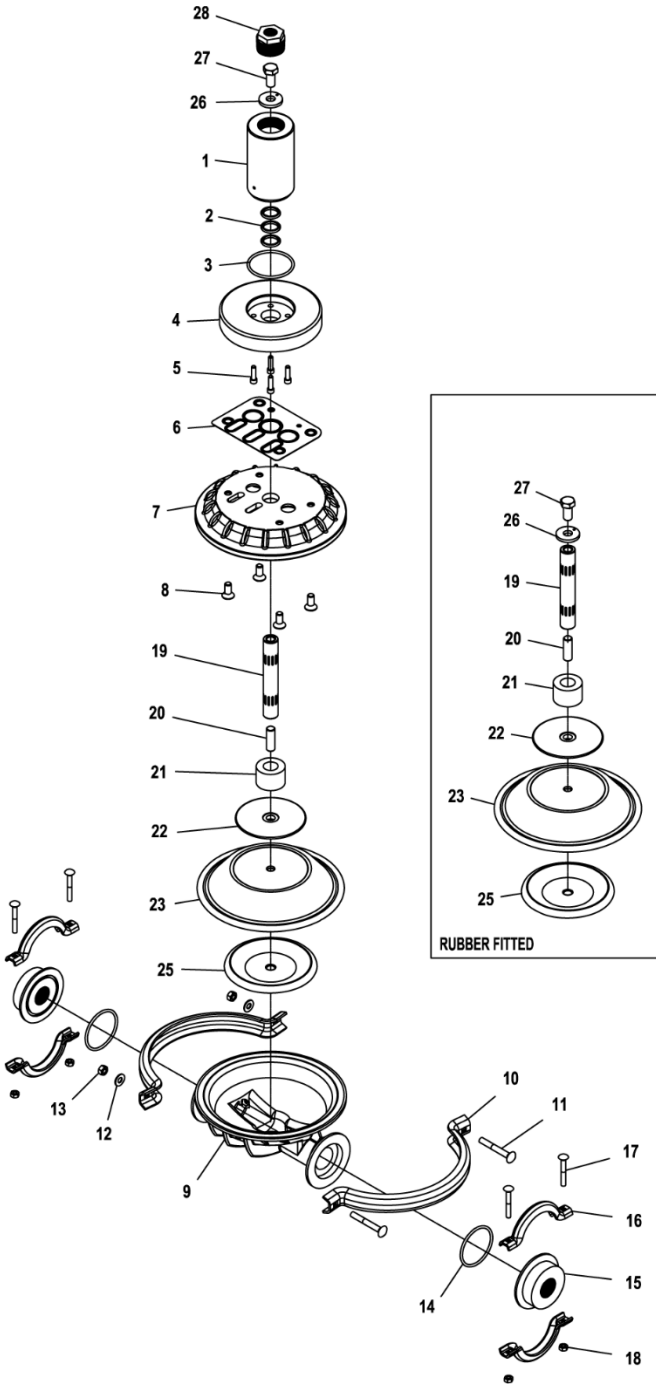
Figure B

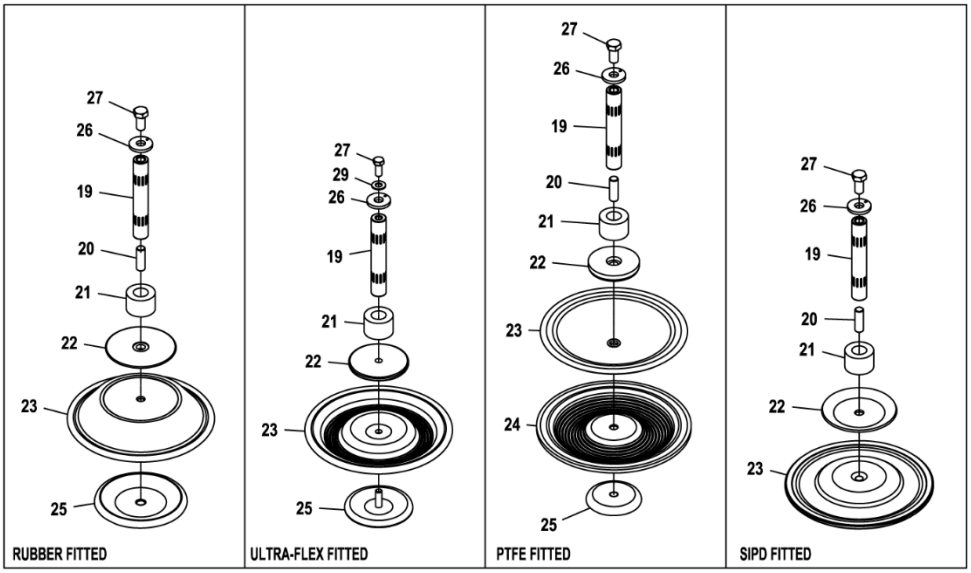


SECTION 8

EXPLODED VIEW AND PARTS LIST

XSD1 Original™ Metal





LW0551 REV.A

EXPLODED VIEW AND PARTS LIST

Item	Part Description	Qty.	XSD1/AAAA/… P/N	XSD1/SSSS/… P/N
1	Body, Regulator[1]	1	76-8515-01	76-8515-03
2	**Ring II, Glyd**	**3**	**08-3210-55-225**	
3	**O-Ring -230 (Ø2.484 x Ø.139)**	**1**	**76-1285-52**	
4	Plate, Regulator Adapter	1	76-8510-01	76-8510-03
5	Screw, 1/4-20 x .75 Soc Hd Cap	4	76-6250-03	
6	Gasket, Center Block	1	04-3529-56	
7	Chamber, Air	1	04-3660-01	04-3660-03
8	Screw, 3/8-16 x 1.00 Soc Flt Csk Hd Cap	4	71-6250-08	
9	Chamber, Liquid	1	04-5000-01	04-5000-03
10	Clamp Band, Half	2	04-7330-08	04-7330-03
11	Bolt, 5/16-18 x 2.50 Rnd Hd Sq Neck	2	04-6070-03	
12	Washer, Plain	2	01-6732-03	
13	Nut, 5/16-18 Hex	2	04-6420-08	08-6400-03
14	**O-Ring -229 (Ø2.359 x Ø.139)**	**2**	*	
15	End, 1" NPT Surge	2	70-8600-01	70-8600-03
	End, 1" BSPT Surge	2	70-8600-01-14	70-8600-03-14
16	Clamp Band Small	4	04-7100-08	04-7100-03
17	Bolt, 1/4-20 x 2.00 Rnd Hd Sq Neck	4	04-6050-08	01-6070-03
18	Nut, 1/4-20 Hex	4	04-6400-08	04-6400-03
19	Shaft, Straight	1	76-3800-03	
	Shaft, Ultra-Flex™	1	04-3830-03-07	
20	Stud, 1/2-20 x 1.88 Threaded	1	08-6150-08	
21	Stop, Shaft	1	76-8800-17	
22	Piston, Rubber & TPE Inner	1	04-3700-01-700	
	Piston, Ultra-Flex™ Inner	1	04-3760-01-700	
	Piston, PTFE Inner	1	04-3755-01	
	Piston, SIPD Inner	1	04-3700-08	
23	**Diaphragm, Primary**	**1**	*	
	Diaphragm, Ultra-Flex™	**1**	*	
	Diaphragm, PTFE	**1**	*	
	Diaphragm, SIPD	**1**	*	
24	**Diaphragm, Back-Up**	**1**	*	
25	Piston, Rubber & TPE Outer	1	04-4552-01	04-4550-03
	Piston, Ultra-Flex™ Outer	1	04-4560-01	02-4550-03
	Piston, PTFE Outer	1	04-4600-01	04-4600-03
26	Washer, Stop	1	70-6790-08	
27	Screw, Hex Cap, 1/2-20 x 1.00	1	04-6090-08	
	Screw, Hex Hd Cap, 3/8-16 x .88, Ultra-Flex™	1	08-6140-08	
28	Reducer Bushing	1	70-6950-08	71-6950-03
29	Washer, (.406 ID x .812 OD x .065 THK) Ultra-Flex™	1	15-6740-08-50	

[1]Air regulator Body includes qty. 3 Glyd™

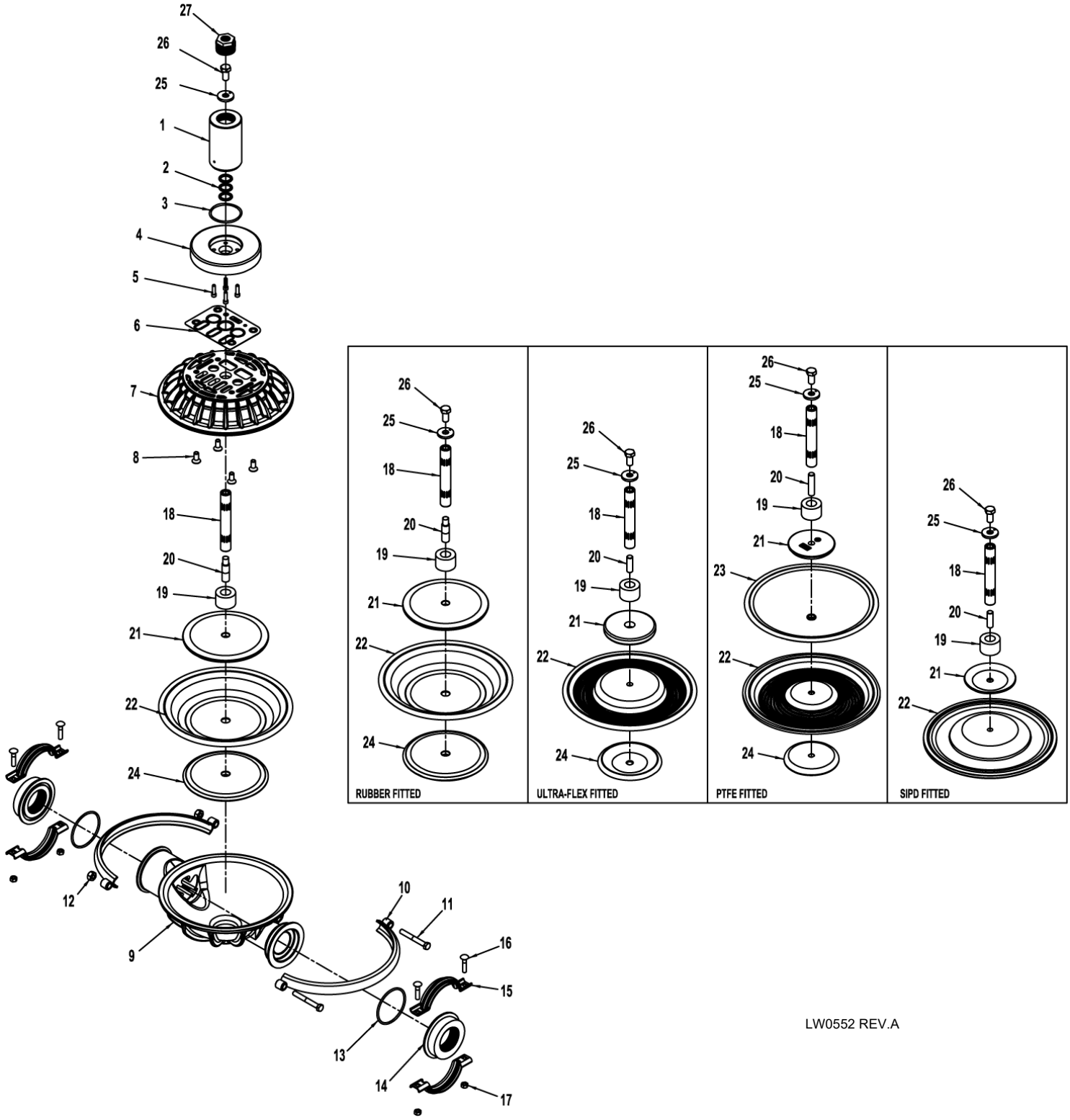
LW0555 REV.A

*Refer to elastomer options in Section 25

All boldface items are primary wear parts.

EXPLODED VIEW AND PARTS LIST

XSD2 Original™ Metal



LW0552 REV.A

EXPLODED VIEW AND PARTS LIST

Item	Part Description	Qty.	XSD2/AAAA/… P/N	XSD2/SSSS/… P/N
1	Body, Regulator[1]	1	76-8515-01	76-8515-03
2	Ring II, Glyd	3	08-3210-55-225	
3	O-Ring -230 (Ø2.484 x Ø.139)	1	76-1285-52	
4	Plate, Regulator Adapter	1	76-8510-01	76-8510-03
5	Screw, 1/4-20 x .75 Soc Hd Cap	4	76-6250-03	
6	Gasket, Center Block	1	04-3529-56	
7	Chamber, Air	1	08-3660-01	08-3660-03
8	Screw, 3/8-16 x 1.00 Soc Flt Csk Hd Cap	4	71-6250-08	
9	Chamber, Liquid	1	08-5000-01	08-5000-03
10	Clamp Band, Half	2	08-7300-08	08-7300-03
11	Screw, 3/8-16 x 3.00 Hex Cap	2	08-6120-08	08-6120-03
12	Nut, 3/8-16 Heavy Hex	2	08-6450-08	08-6450-03
13	O-Ring -235 (Ø3.109 x Ø.139)	2	*	71-1281-55
14	End, 2" NPT Surge	2	71-8601-01	71-8601-03
	End, 2" BSPT Surge	2	71-8601-01-14	71-8601-03-14
15	Band, Small Clamp	4	08-7100-08	
16	Bolt, 5/16-18 x 1.50 Rnd Hd Sq Neck	4	08-6050-08	
17	Nut, 5/16-18 Hex	4	04-6420-08	04-6420-03
18	Shaft, Straight	1	77-3800-03	
19	Stop, Shaft	1	71-8800-17	
20	Adapter, Shaft Stud Rubber Fitted	1	71-6153-08	
	Stud, 1/2- 20 x 1.88 Threaded Ultra-Flex	1	08-6150-08	
	Stud, 1/2- 20 x 2.13 Threaded PTFE	1	08-6152-08	
21	Piston, Rubber & TPE Inner	1	08-3700-01	
	Piston, Ultra-Flex™ Inner	1	04-3700-08	
	Piston, PTFE Inner	1	08-3750-01	
	Piston, SIPD Inner	1	04-3700-08	
22	Diaphragm, Primary	1	*	
	Diaphragm, Ultra-Flex™	1	*	
	Diaphragm, PTFE	1	*	
	Diaphragm, SIPD	1	*	
23	Diaphragm, Backup	1	*	
24	Piston, Rubber & TPE Outer	1	08-4550-01	08-4550-03
	Piston, Ultra-Flex™ Outer	1	04-4552-01	04-4550-03
	Piston, PTFE Outer	1	08-4600-01	08-4600-03
25	Washer, Stop	1	70-6790-08	
26	Screw, 1/2-20 x 1.00 Hex Cap	1	04-6090-08	
27	Reducer Bushing	1	70-6950-08	71-6950-03

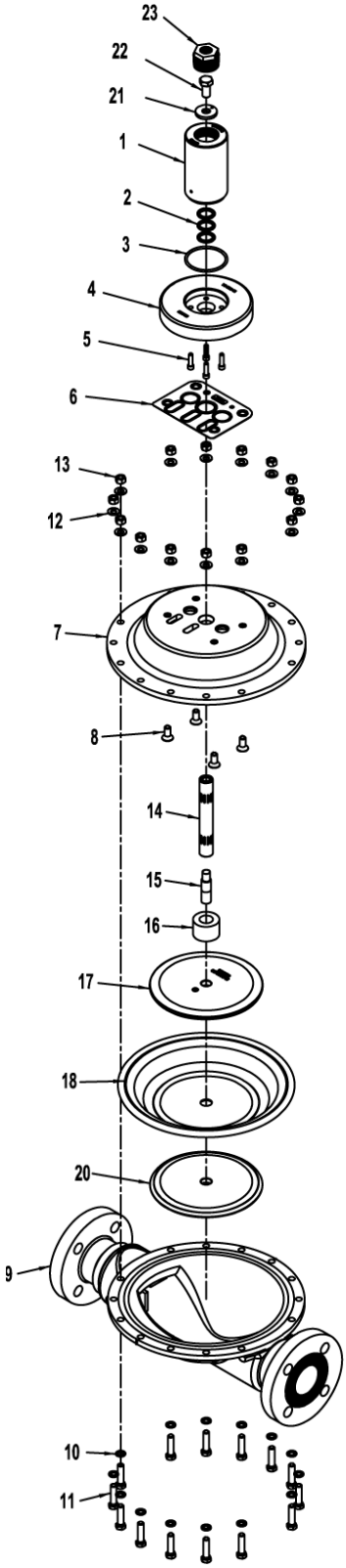
[1]Air Regulator Body includes qty. 3 Glyd™ Rings LW0556 Rev. A

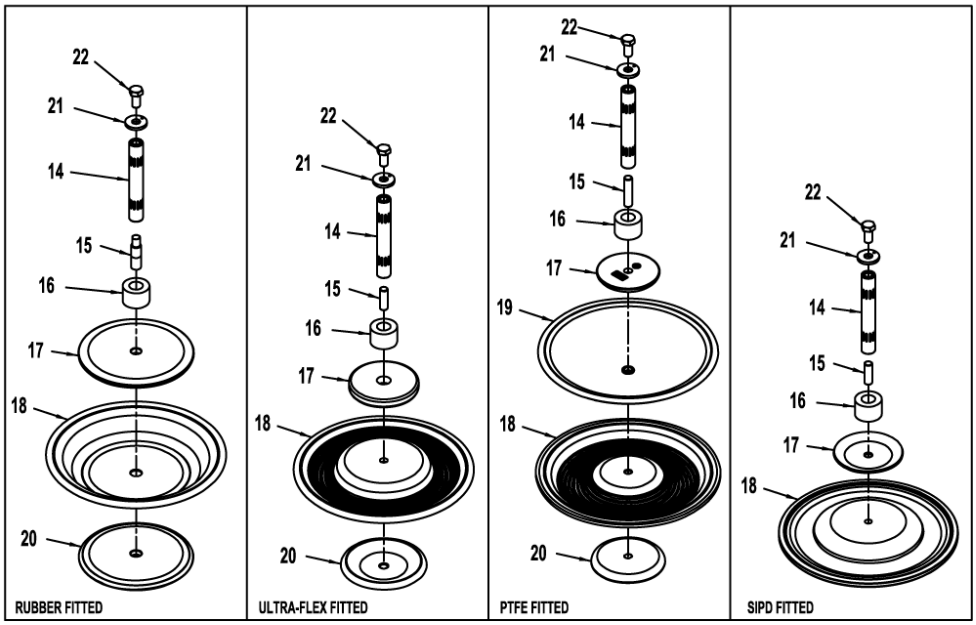
*Elastomer options listed on page 25

All bold face items are primary wear items

EXPLODED VIEW AND PARTS LIST

XSD2 Advanced™ Metal





LW0553 REV.A

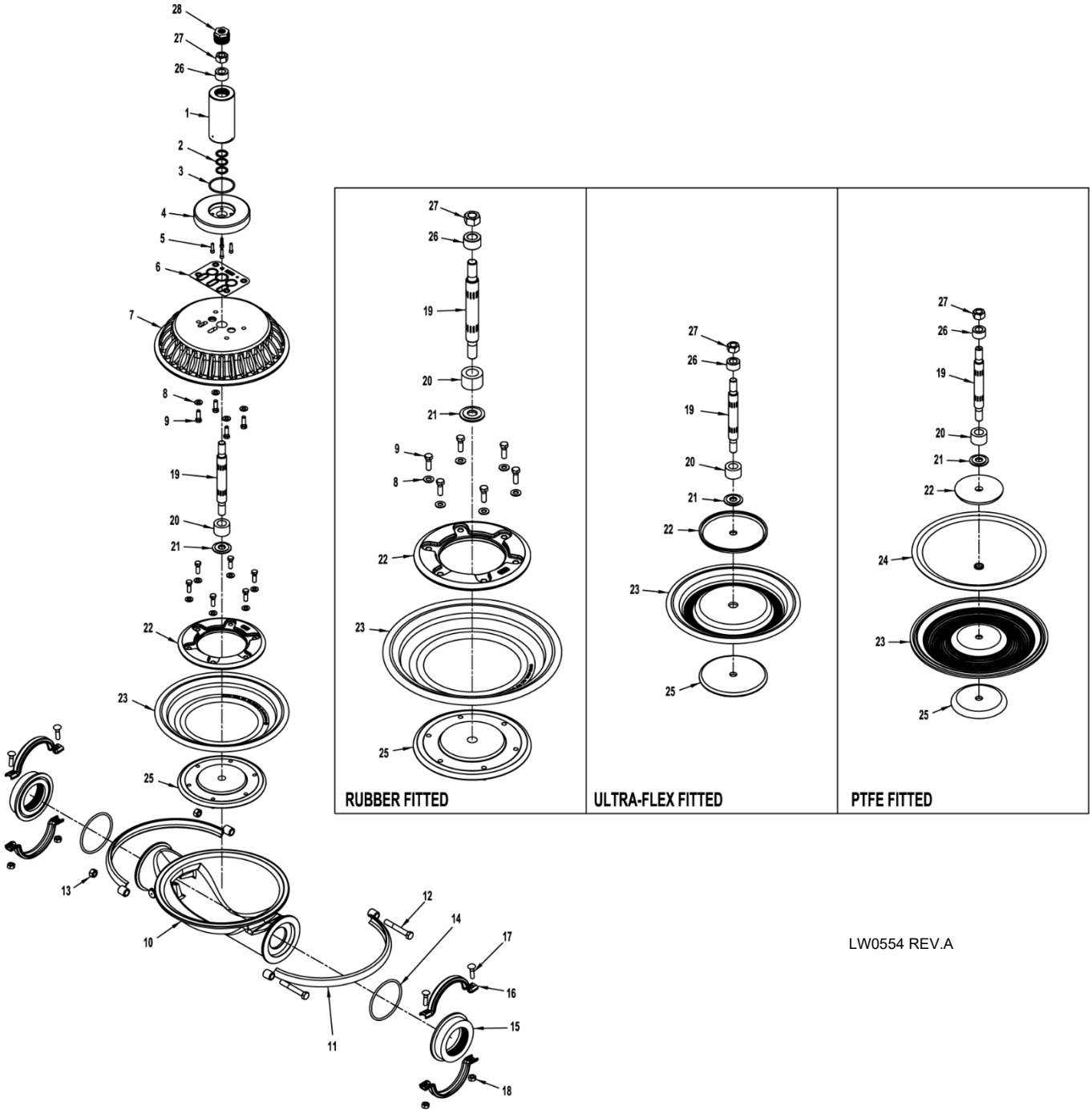
EXPLODED VIEW AND PARTS LIST

Item	Part Description	Qty.	XSD2/SSAA/…/0040 P/N
1	Body, Regulator[1]	1	76-8515-01
2	Ring II, Glyd	3	08-3210-55-225
3	O-Ring -230 (Ø2.484 x Ø.139)	1	76-1285-52
4	Plate, Regulator Adapter	1	76-8510-01
5	Screw, 1/4-20 x .88 Soc Hd Cap	4	70-6250-03
6	Gasket, Center Block	1	04-3529-56
7	Chamber, Air	1	08-3690-01
8	Screw, 3/8-16 x 1.00 Soc Flt Csk Hd Cap	4	71-6250-08
9	Chamber, Liquid	1	71-5000-03-42
10	Washer (Type A), Plain	14	02-6730-03
11	Screw, 3/8-16 x 1.75 Hex Cap	14	04-6181-03
12	Spring (Belleville Type), Disk	14	08-6820-03-42
13	Nut, 3/8-16 Hex	14	02-6430-03
14	Shaft, Straight	1	77-3800-03
15	Adapter, Shaft Stud Rubber Fitted	1	71-6153-08
	Stud, 1/2-20 x 1.88 Threaded Ultra-Flex™	1	08-6150-08
	Stud, 1/2-20 x 2.13 Threaded PTFE	1	08-6152-08
16	Stop, Shaft	1	71-8800-17
17	Piston, Rubber & TPE Inner	1	08-3700-01
	Piston, Ultra-Flex™ Inner	1	04-3700-08
	Piston, PTFE Inner	1	08-3750-01
	Piston, SIPD Inner	1	04-3700-08
18	Diaphragm, Primary	1	*
	Diaphragm Ultra-Flex™	1	*
	Diaphragm, PTFE	1	*
	Diaphragm, SIP	1	*
19	Diaphragm, Backup	1	*
20	Piston, Rubber & TPE Outer	1	08-4550-03
	Piston, Ultra-Flex™ Outer	1	04-4550-03
	Piston, PTFE Outer	1	08-4600-03
21	Washer, Stop	1	70-6790-08
22	Screw, 1/2-20 x 1.00 Hex Cap	1	04-6090-08
23	Reducer Bushing	1	70-6950-08

[1]Air Regulator Body includes qty. 3 Glyd™ Rings LW0557 Rev. A
*Elastomer options listed on page 25
All bold face items are primary wear items

EXPLODED VIEW AND PARTS LIST

XSD3 Original™ Metal



LW0554 REV.A

EXPLODED VIEW AND PARTS LIST

Item	Part Description	Qty.	XSD3/AAAA/… P/N	XSD3/SSSS/… P/N
1	Body, Regulator[1]	1	78-8515-01	78-8515-03
2	Ring II, Glyd	3	15-3210-55-225	
3	O-Ring -230 (Ø2.484 x Ø.139)	1	76-1285-52	
4	Plate, Regulator Adapter	1	76-8510-01	76-8510-03
5	Screw, 1/4-20 x .75 Soc Hd Cap	4	76-6250-03	
6	Gasket, Center Block	1	04-3529-56	
7	Chamber, Air	1	15-3660-01	15-3660-03
8	Washer, Plain	10	15-6740-08-50	
9	Screw, 3/8-16 x 1.13 Hex Cap	10	15-6130-08	
10	Chamber, Liquid	1	15-5000-01	15-5000-03
11	Clamp Band, Half	2	15-7300-08	15-7300-03
12	Screw, 1/2-13 x 3.50 Hex Cap	2	15-6120-08	15-6120-03
13	Nut, 1/2-13 Heavy Hex	2	15-6420-08	15-6420-03
14	O-Ring -348 (Ø4.350 x Ø.210)	2	08-1371-52	08-1371-60
15	End, 3" NPT Surge	2	78-8600-01	78-8600-03
	End, 3" BSPT Surge	2	78-8600-01-14	78-8600-03-14
16	Band, Small Clamp	4	15-7100-08	15-7100-03
17	Bolt, 5/16-18 x 2.25 Rnd Hd Sq Neck	4	15-6050-08	
18	Nut, 3/8-16 Heavy Hex	4	08-6450-08	08-6450-03
19	Shaft, Straight	1	78-3800-03	
20	Stop, Shaft	1	78-8800-17	
21	Washer, Shoulder	1	15-6850-08	
22	Piston, Rubber & TPE Inner	1	15-3700-01	
	Piston, Ultra-Flex™ Inner	1	15-3760-08	
	Piston, PTFE Inner	1	15-3750-01	
23	Diaphragm, Primary	1	*	
	Diaphragm, Ultra-Flex™	1	*	
	Diaphragm, PTFE	1	*	
24	Diaphragm, Backup	1	*	
25	Piston, Rubber & TPE Outer	1	15-4550-01	15-4550-03
	Piston, Ultra-Flex™ Outer	1	15-4560-01	15-4560-03
	Piston, PTFE Outer	1	15-4600-03	
26	Stop, Washer	1	78-6790-08	
27	Nut, 3/4-16 Hex	1	78-6450-08	
28	Reducer Bushing	1	70-6950-08	71-6950-03

[1]Air Regulator Body includes qty. 3 Glyd™ Rings

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*Elastomer options listed on page 25

All bold face items are primary wear items

SECTION 9

ELASTOMER OPTIONS

	ELASTOMER	DIAPHRAGM	BACK-UP DIAPHRAGM	ULTRA-FLEX™ DIAPHRAGMS	SIP DIAPHRAGM	O-RINGS
METAL XSD1 EQIALIZER®	NEOPRENE	04-1010-51	04-1060-51	04-1020-51	04-1030-72	
	NITRILE	04-1010-52	04-1060-52	04-1020-52		70-1280-52
	VITON®	04-1010-53		04-1020-53		
	NORDEL®	04-1010-54	04-1060-54	04-1020-54		
	TEFLON® PTFE	04-1010-55				70-1280-55
	SANIFLEX™	04-1010-56	04-1060-56			
	WIL-FLEX™	04-1010-58				
METAL XSD2 EQIALIZER®	NEOPRENE	08-1010-51	08-1060-51	08-1020-51	08-1030-72	
	NITRILE	08-1010-52	08-1060-52	08-1020-52		71-1281-52
	VITON®	08-1010-53		08-1020-53		
	NORDEL®	08-1010-54	08-1060-54	08-1020-54		
	TEFLON® PTFE	08-1010-55				71-1281-55
	SANIFLEX™	08-1010-56	08-1060-56			
	WIL-FLEX™	08-1010-58				
METAL XSD2 ADVANCED EQIALIZER®	NEOPRENE	08-1010-51	08-1060-51	08-1020-51	08-1030-72	
	NITRILE	08-1010-52	08-1060-52	08-1020-52		
	VITON®	08-1010-53		08-1020-53		
	NORDEL®	08-1010-54	08-1060-54	08-1020-54		
	TEFLON® PTFE	08-1010-55-42				
	SANIFLEX™	08-1010-56	08-1060-56			
	WIL-FLEX™	08-1010-58				
METAL XSD3 EQIALIZER®	NEOPRENE	15-1010-51	15-1060-51	15-1020-51		
	NITRILE	15-1010-52	15-1060-52	15-1020-52		08-1371-52
	VITON®	15-1010-53		15-1020-53		08-1371-60
	NORDEL®	15-1010-54	15-1060-54	15-1020-54		
	TEFLON® PTFE	15-1010-55				
	SANIFLEX™	15-1010-56	15-1060-56			
	WIL-FLEX™	15-1010-58				

LW0555 Rev. A

NOTES

NOTES

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