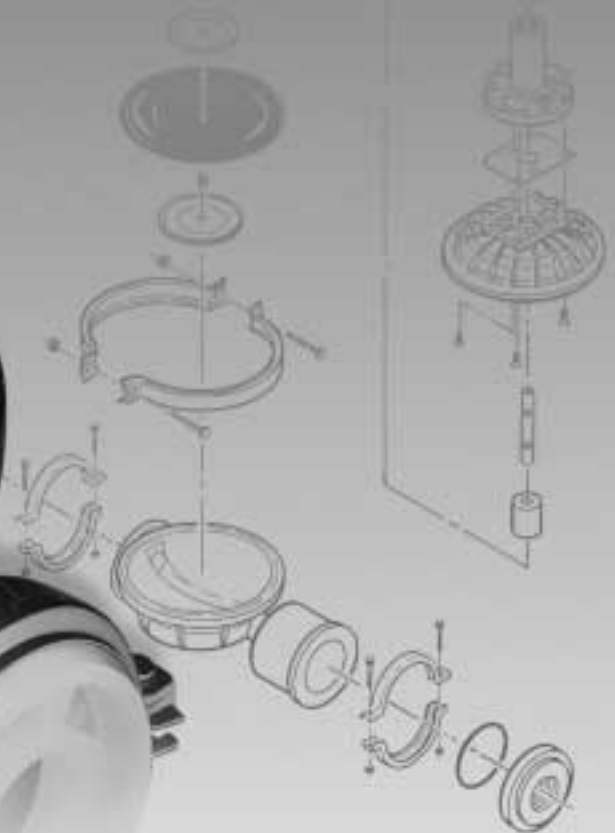


SD

Engineering Operation & Maintenance

CE



WILDEN®

A DOVER COMPANY

THE EQUALIZER®
WILDEN AUTOMATIC SURGE DAMPENER

SD 1/2, SD 1,
& SD 2

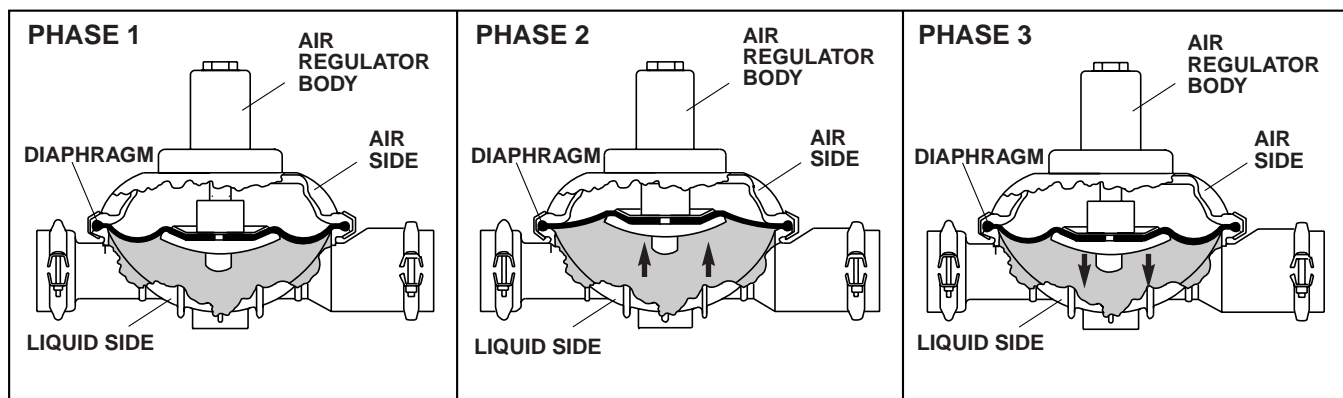
Surge Dampeners

THE EQUALIZER®

All reciprocating pumps experience a 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 virtually eliminate pressure variation and pulsation.

The Equalizer® automatically sets and main-

tains 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 deletion 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). When

the pump redirects its motion upon stroke completion, the liquid discharge pressure decreases forcing 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.

CAUTION: DO NOT EXCEED 125 PSIG AIR PRESSURE.

Maximum temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures. Consult Wilden Chemical Guide for chemical compatibility and temperature limits.

Plastic Equalizers are manufactured with virgin plastic and are not UV stabilized. Direct sunlight for prolonged periods can cause deterioration of these plastics. In this situation a metal Equalizer® is suggested.

Wear safety glasses. When diaphragm rupture occurs, material being pumped may be forced out air exhaust.

WARNING

Prevention of static sparking — If static sparking occurs, fire or explosion could result. Pump, Equalizer®, valves, and containers must be grounded when handling flammable fluids and whenever discharge of static electricity is a hazard.

THE WILDEN EQUALIZER®

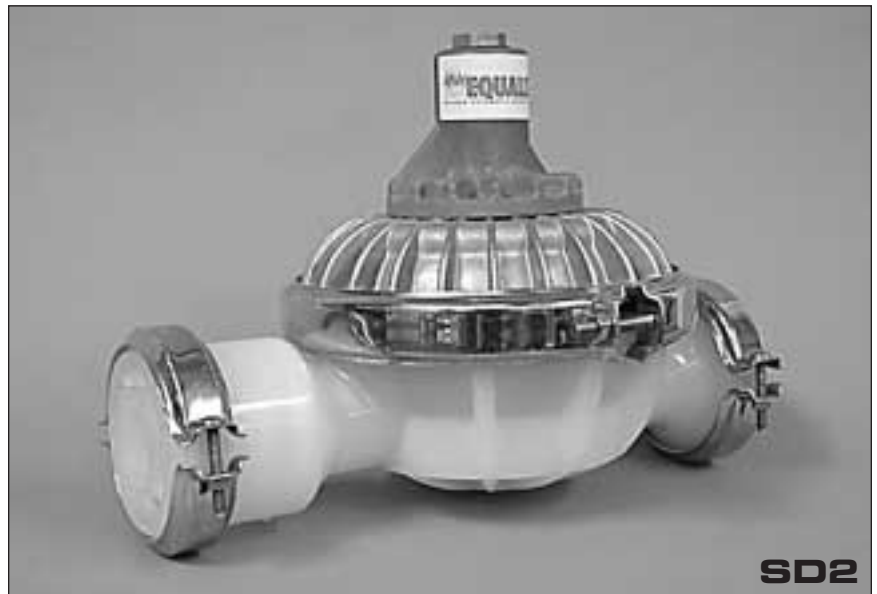
AUTOMATIC SURGE DAMPENER

BENEFITS:

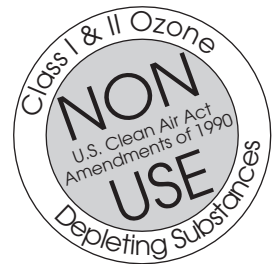
- Minimizes pipe strain.
- Protects in-line equipment.
- Reduces water hammer.
- Absorbs acceleration head.
- Lowers system maintenance costs.

FEATURES:

- Clamp band construction for ease of maintenance.
- Automatically adjusts to any pressure and/or flow setting of the pump.
- Wide variety of materials to satisfy temperature and chemical compatibility considerations.
- Flow through design utilizing existing Wilden pump parts.
- Regulator Shaft controls the flex pattern of the diaphragm extending part life.
- Equalizer® utilizes a proven long-lasting Wilden diaphragm.



SD2



SD1

MATERIALS OF CONSTRUCTION:

Aluminum	Carbon-filled Acetal
316 S.S.	Polypropylene
Cast Iron (SD1 and SD2)	PVDF
	Teflon® PFA (SD1)*
	Teflon® PTFE (SD½)*

*All Teflon® Equalizers are assembled in a Class 10,000 Clean Room.

TEMPERATURE LIMITS FOR PLASTICS:

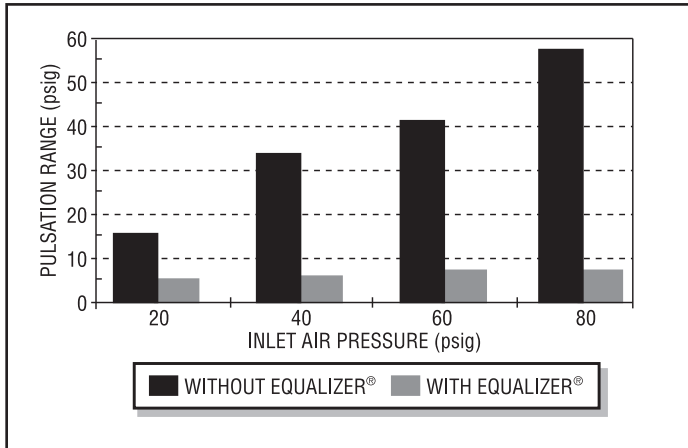
Polypropylene	+32 F (0 C)	to	+175 F (79.4 C)
PVDF	+10 F (-12.2 C)	to	+225 F (107.2 C)
Teflon® PFA	-20 F (-28.9 C)	to	+225 F (107.2 C)
Teflon® PTFE	-20 F (-28.9 C)	to	+225 F (107.2 C)

TEMPERATURE LIMITS FOR ELASTOMERS:

Neoprene	0 F (-17.8 C)	to	+200 F (93.3 C)
Buna-N	+10 F (-12.2 C)	to	+180 F (82.2 C)
Nordel	-60 F (-51.1 C)	to	+280 F (137.8 C)
Viton	-40 F (-40 C)	to	+350 F (176.7 C)
Teflon®	+40 F (+4 C)	to	+220 F (104.4 C)

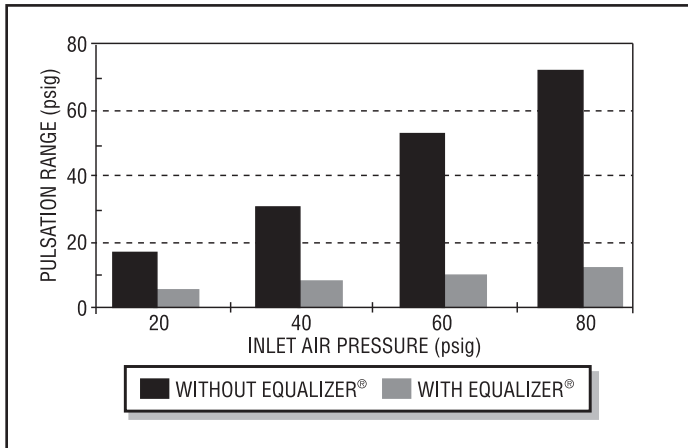
SECTION I – DAMPENING EFFECTIVENESS

The following bar charts highlight the effectiveness of the Equalizer® automatic surge dampeners. Pumps were operated at the stated air inlet pressures as the discharge pressure was then varied. The pulsation range was calculated from data points obtained using pressure transducers and an oscilloscope.



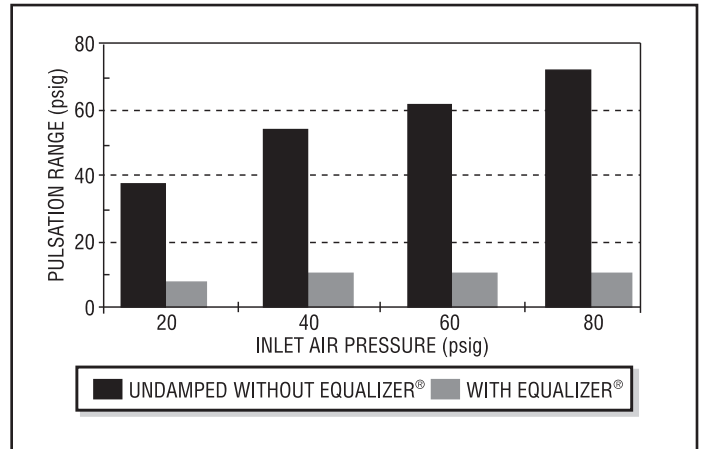
¼" (12.7mm) pumps/SD½

The above chart reflects the discharge pressure variation of a Wilden model ¼" (12.7mm) Polypropylene pump with rubber elastomers compared to the same ¼" (12.7mm) with a model SD½ Equalizer® installed.



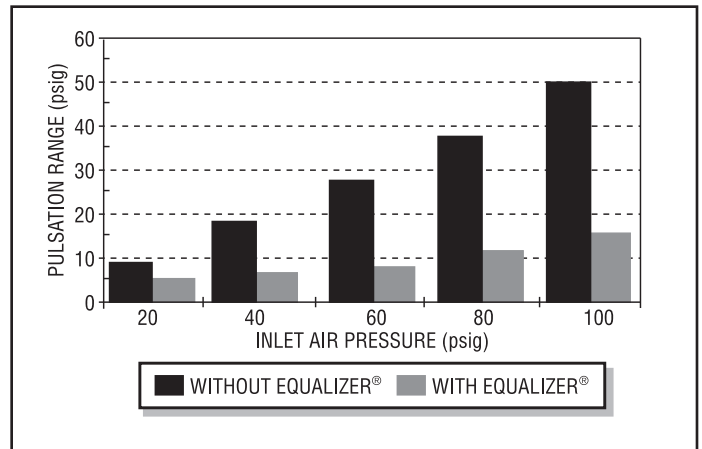
½" (12.7mm) pumps/SD½

The above chart reflects the discharge pressure variation of a Wilden model ½" (12.7mm) Polypropylene pump with rubber elastomers compared to the same ½" (12.7mm) with a model SD½ Equalizer® installed.



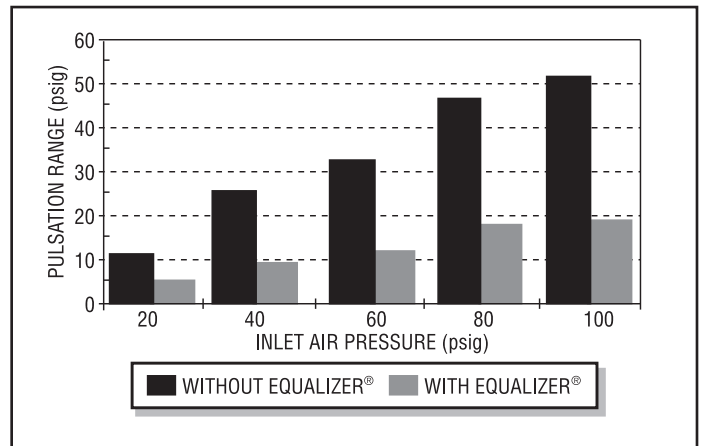
1" (25.4mm) pumps/SD1

The above chart reflects the discharge pressure variation of a Wilden model 1" (25.4mm) Polypropylene pump with rubber elastomers compared to the same 1" (25.4mm) with a model SD1 Equalizer® installed.



1½" (38.1mm) pumps/SD2

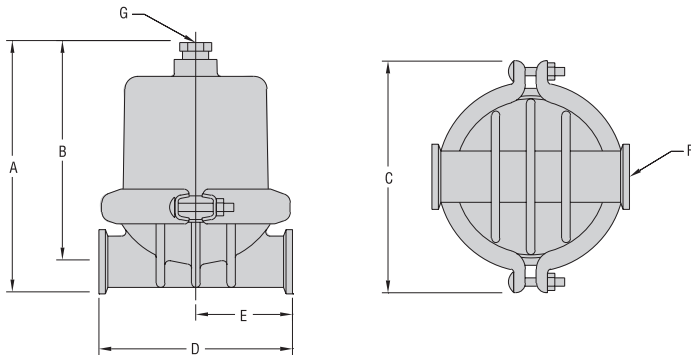
The above chart reflects the discharge pressure variation of a Wilden model 1½" (38.1mm) Polypropylene pump with rubber elastomers compared to the same 1½" (38.1mm) with a model SD2 Equalizer® installed.



2" (50.8mm) pumps/SD2

The above chart reflects the discharge pressure variation of a Wilden model 2" (50.8mm) Polypropylene pump with rubber elastomers compared to the same 2" (50.8mm) with a model SD2 Equalizer® installed.

SECTION IIA – SD½ DIMENSIONAL DRAWING



INCHES [mm]

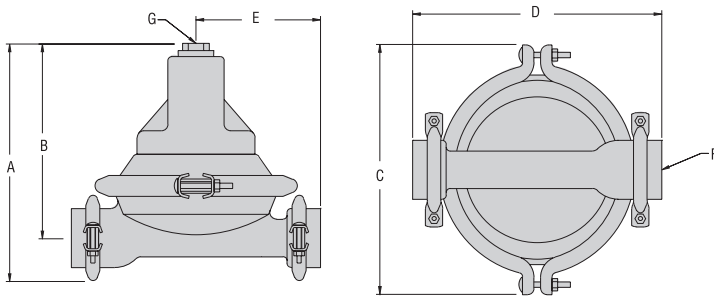
DIMENSION	SD½	SD½	SD½
	METAL	PLASTIC	TEFLON® PTFE
A	7 1/8 [181]	7 1/8 [181]	6 15/16 [176]
B	6 1/4 [159]	6 3/16 [157]	6 3/16 [157]
C	6 7/8 [175]	6 7/8 [175]	6 7/8 [175]
D	4 5/8 [117]	5 5/8 [143]	5 11/16 [145]
E	2 11/16 [68]	2 13/16 [71]	2 27/32 [72]
F	1/2" NPT or 1/2" BSP	1/2" NPT or 1/2" BSP	1/2" NPT or 1/2" BSP
G	1/8" NPT	1/8" NPT	1/8" NPT

SD½ (½" INLET/DISCHARGE)

MATERIAL	SHP. WT.	MATERIAL	SHP. WT.
Aluminum	3.1 lbs.	PVDF	2.9 lbs.
316 Stainless Steel	4.8 lbs.	Teflon® PFA*	3.7 lbs.
Polypropylene	2.4 lbs.		

*All Teflon® Equalizers® are assembled in a Class 10,000 Clean Room.

SECTION IIB – SD1 DIMENSIONAL DRAWING



INCHES [mm]

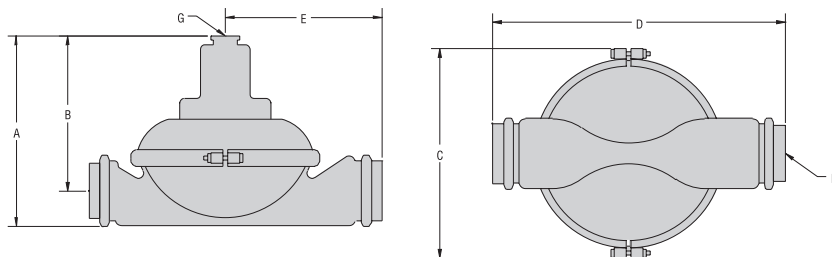
DIMENSION	SD1	SD1
	METAL	PLASTIC
A	11 [279]	11 1/2 [292]
B	9 [229]	9 1/4 [235]
C	11 3/8 [289]	11 3/8 [289]
D	11 5/8 [295]	15 1/16 [383]
E	5 13/16 [148]	7 1/2 [191]
F	1" NPT or 1" BSP	1" NPT or 1" BSP
G	1/2" NPT	1/2" NPT

SD1 (1" INLET/DISCHARGE)

MATERIAL	SHP. WT.	MATERIAL	SHP. WT.
Aluminum	18 lbs.	PVDF	19 lbs.
316 Stainless Steel	24 lbs.	Teflon® PFA*	21 lbs.
Polypropylene	18 lbs.		

*All Teflon® Equalizers® are assembled in a Class 10,000 Clean Room.

SECTION IIC – SD2 DIMENSIONAL DRAWING



INCHES [mm]

DIMENSION	SD2	SD2
	METAL	PLASTIC
A	12 [305]	13 1/2 [343]
B	9 3/4 [248]	10 1/2 [267]
C	13 3/4 [349]	13 3/4 [349]
D	17 7/8 [454]	19 3/8 [492]
E	9 5/8 [244]	10 3/4 [273]
F	2 NPT	2 NPT
G	1/2 NPT	1/2 NPT

SD2 (2" INLET/DISCHARGE)

MATERIAL	SHP. WT.	MATERIAL	SHP. WT.
Aluminum	27 lbs.	Polypropylene	28 lbs.
Cast Iron	47 lbs.	PVDF	34 lbs.
316 Stainless Steel	44 lbs.		

SECTION III – INSTALLATION

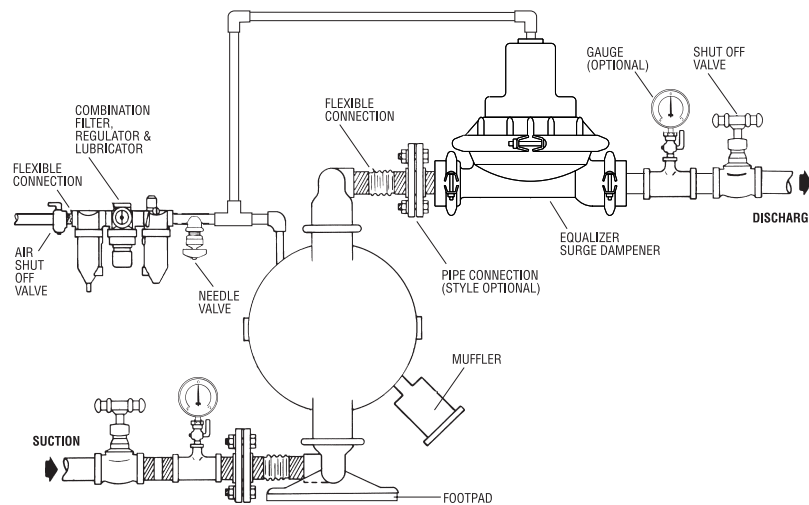
The model SD $\frac{1}{2}$ has a $\frac{1}{2}$ " inlet/discharge. The model SD1 has a 1" inlet/discharge. The model SD2 has a 2" inlet/discharge. The Equalizer[®] can be installed in either direction. A variety of materials are available to satisfy temperature, chemical compatibility, abrasion and flex 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.

The model SD $\frac{1}{2}$ is engineered for use with Wilden $\frac{1}{4}$ " (6.35mm) and $\frac{1}{2}$ " (12.7mm) pumps. The model SD1 is engineered for use with Wilden 1" (25.4mm) pumps. It can also be used with the 1 $\frac{1}{2}$ " (38.1mm) in applications where the discharge pressure is less than 50 psi. The model SD2 is engineered for use with Wilden 1 $\frac{1}{2}$ " (38.1mm) and 2" (50.8mm) pumps.

Install the Equalizer[®] as shown below. The use of flexible connections and a Filter, Regulator, Lubricator (FRL) will extend parts life on the SD1 and SD2. Lubrication is not needed for the SD $\frac{1}{2}$. 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.

SUGGESTED INSTALLATION



SECTION IV – TROUBLESHOOTING

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 this hole during steady fluid discharge pressure, the Equalizer[®] is not functioning properly and should be inspected. The SD1 and SD2 air regulator body houses three O-rings which may need to be replaced. A few drops of oil in the top of the regulator every 200 hours of operation will significantly extend the life of these O-rings. The SD $\frac{1}{2}$ utilizes 3 slipper seals with back-up O-rings which allow

lubrication-free operation.

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.

Air leakage at the bottom of the SD1 and SD2 air regulator body normally requires the tightening of the three screws located in the air chamber. If leakage continues, the gasket between the air regulator body and air chamber should be replaced.

If air bubbles in fluid discharge line are present, check for diaphragm rupture and tightness of clamp bands.

SECTION V – DIRECTIONS FOR DISASSEMBLY/ASSEMBLY (SD $\frac{1}{2}$)



To expedite parts ordering, please find an exploded view of the Equalizer® models at the back of this manual. If you have any questions, please call your local authorized Wilden distributor, or call Wilden Pump & Engineering Co. at (909) 422-1730.

TOOLS REQUIRED

SD $\frac{1}{2}$ (1/2" INLET/DISCHARGE)

- 7/16" Open-Ended Wrench
- 7/8" Open-Ended Wrench
- O-ring Pick

CAUTION: Before any maintenance or repair is attempted, the compressed air line to the Equalizer® and the pump should be disconnected and all air pressure allowed to bleed from these units. Disconnect all intake, discharge, and air lines. Always wear safety glasses and proper clothing for added protection.

PLEASE READ ALL DIRECTIONS BEFORE STARTING DISASSEMBLY.

STEP 1



Figure 1 Figure 2

Loosen clamp band with 7/16" open-ended wrench (*Figure 1*).

Remove liquid chambers, inspect for damage, and set aside.

STEP 1



Figure 3

Pull diaphragm assembly (shaft, diaphragm[s], inner and outer piston) away from air regulator body. Loosen outer piston with a 7/8" wrench or adjustable wrench and inspect diaphragm and shaft for abrasion or chemical attack. Soft jaws in vise may need to be used if outer piston does not unfasten easily.



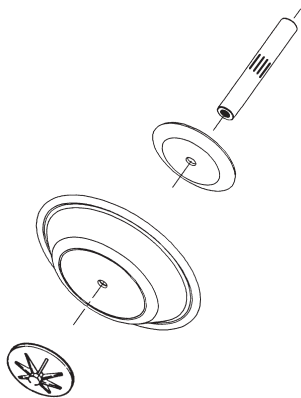
Figure 4

Air regulator slipper seals and back-up O-rings need to be inspected. If worn or chemically attacked they must be removed with an O-ring pick and replaced (*Figure 4*). Please refer to exploded view for part numbers.

ASSEMBLY

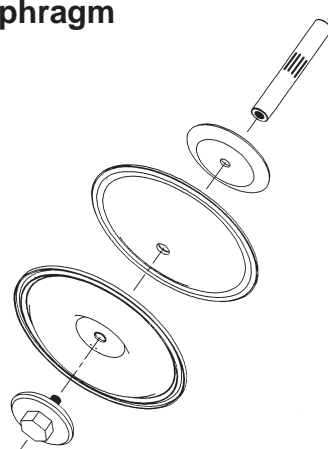
Prior to assembling the Equalizer®, please read this page first. Then refer to the disassembly instructions for photos and placement of parts.

Rubber Diaphragm



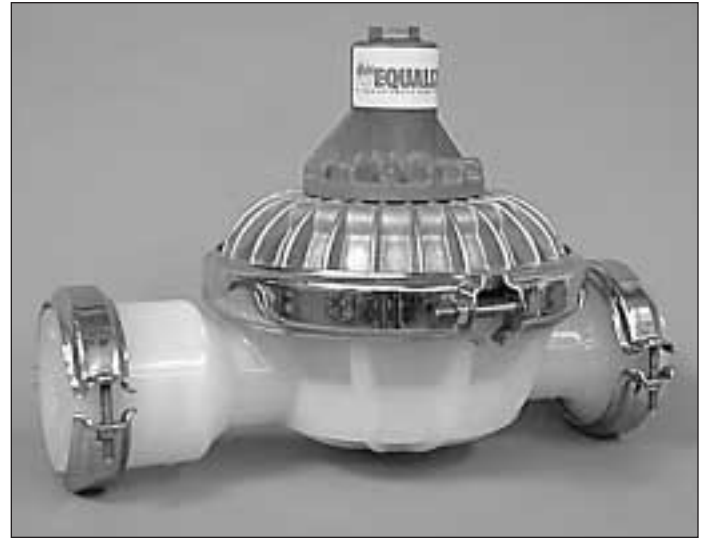
There are two types of diaphragm configurations available for the SD½: 1) Rubber diaphragm, and 2) Teflon® primary diaphragm with back-up diaphragm. Observe the "This side out" marking on the convex side of the

Teflon® Diaphragm



diaphragm. Install the inner piston, diaphragm(s), outer piston plate and stop on shaft. Teflon®-fitted Equalizers require Goretex tape to properly seal diaphragm bead area. See page 13 for instructions.

SECTION VI – DIRECTIONS FOR DISASSEMBLY/ASSEMBLY (SD1 & SD2)



TOOLS REQUIRED

SD1 (1" INLET)

- 3/4" Socket
- 1/2" Socket
- 3/16" Allen Wrench
- O-ring Pick
- Adjustable Wrench
- Pipe Wrench
- 2 Pry Bars (screw drivers)

SD2 (2" INLET)

- 3/4" Socket
- 1/2" Socket
- 11/16" Socket
- 7/32" Allen Wrench
- O-ring Pick
- Adjustable Wrench
- Pipe Wrench
- 2 Pry Bars (screw drivers)

CAUTION: Before any maintenance or repair is attempted, the compressed air line to the Equalizer® and the pump should be disconnected and all air pressure allowed to bleed from these units. Disconnect all intake, discharge, and air lines. Always wear safety glasses and proper clothing for added protection.

PLEASE READ ALL DIRECTIONS BEFORE STARTING DISASSEMBLY.

The instruction photos depict the SD2 polypropylene Equalizer®. The disassembly/assembly instructions are similar for the SD1 except where noted. To expedite parts ordering, please find an exploded view of the Equalizer® models at the back of this manual. If you have any questions, please call your local authorized Wilden distributor, or call Wilden Pump & Engineering Co. at (909) 422-1730.

STEP 1



Figure 1

Remove reducer bushing at top of regulator. (Use pipe wrench.)

STEP 2



Figure 2

Remove large clamp band.

STEP 3



Figure 3

Set liquid chamber aside.



Figure 4

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

STEP 3 (Cont'd.)



Figure 5



Figure 6



Figure 7



Figure 8

If outer piston loosens, remove outer piston, diaphragm, inner piston, and stop. Then knock shaft through regulator with soft mallet. (See *Figure 7.*) Remove shaft bolt and washer from shaft. Note: Protect the shaft from damage by using wood blocks or soft jaws in vise. (See *Figure 8.*)

STEP 3 (Cont'd.)



Figure 9



Figure 10



Figure 11

If shaft bolt loosens, remove bolt and washer. (See *Figure 9*.) Turn Equalizer® upside down and use two pry bars between inner piston and air chamber to pull shaft assembly from regulator. (See *Figure 10*.) Remove Stop. Disassemble shaft assembly by loosening outer piston. Note: Protect the shaft from damage by using wood blocks or soft jaws in vise. (See *Figure 11*.)

STEP 4

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.

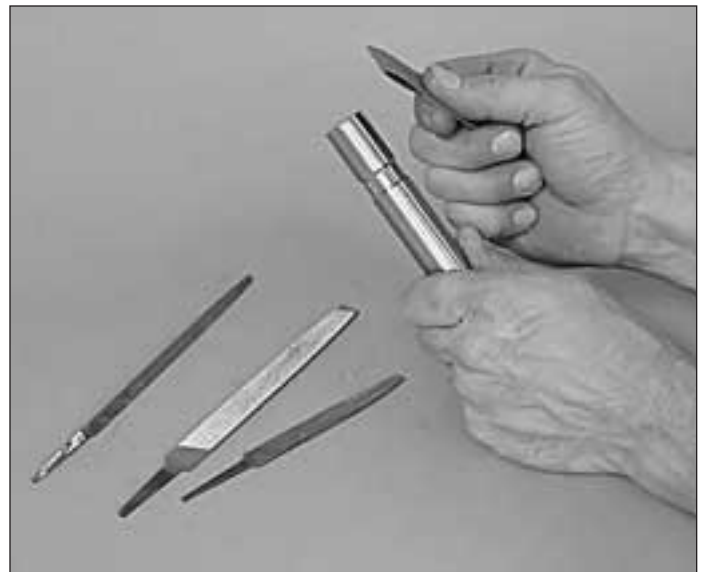


Figure 12

STEP 5



Figure 13



Figure 14

Replace Glyd™-rings in air regulator body. This is most easily accomplished by using a tool called an O-ring pick, available through most industrial supply companies. The air regulator body has 5 grooves cut into the inside diameter. There are three Glyd™-rings installed in the 1, 3, 5 positions. It is important that these Glyd™-rings be installed in the correct grooves so that the Equalizer® functions properly.

STEP 6



Figure 15



Figure 16

Disassembly of the air chamber from the regulator is needed only in the event of air leakage. Leakage is usually stopped by tightening the allen head bolts. (See *Figure 15.*) If leakage persists, remove air chamber and replace gasket.

STEP 7



Figure 17



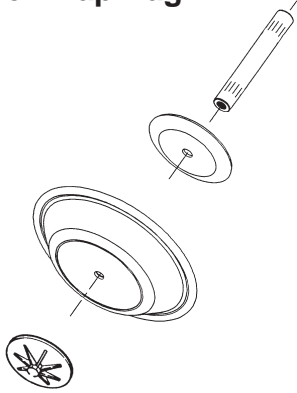
Figure 18

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 bolt. (See *Figure 19.*) If leakage persists, remove surge ends and replace O-rings.

ASSEMBLY

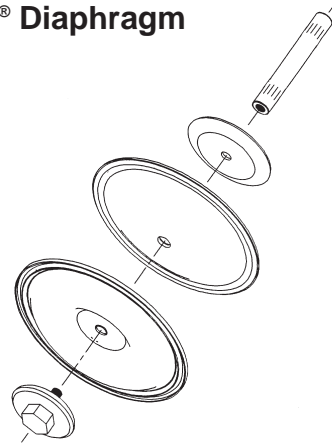
Prior to assembling the Equalizer®, please read this page first. Then refer to the disassembly instructions for photos and placement of parts.

Rubber Diaphragm



There are two types of diaphragm configurations available for the SD1 and SD2: 1) Rubber diaphragm, and 2) Teflon® primary diaphragm with back-up diaphragm. Observe the “This side out” marking on the convex side of the

Teflon® Diaphragm

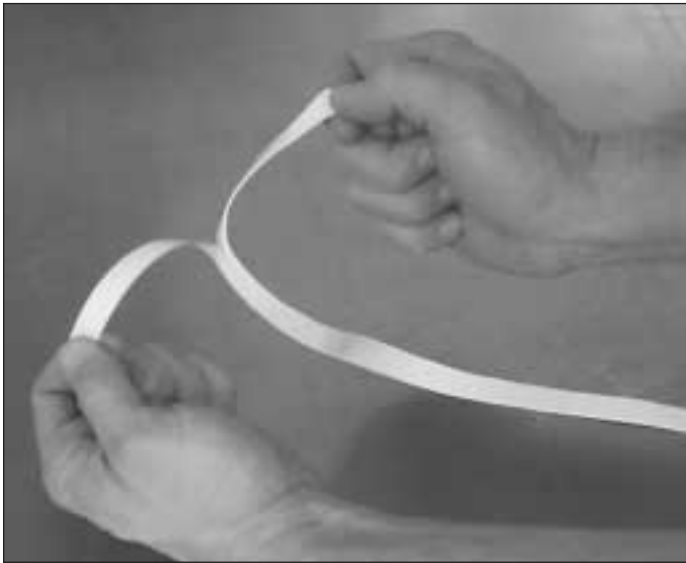


diaphragm. Install the inner piston, diaphragm(s), outer piston plate and stop on shaft. Lubricate the air regulator body Glyd™-rings with a 5 wt. arctic grade oil prior to inserting the shaft through the air regulator body.

EQUALIZERS WITH TEFLON® DIAPHRAGMS ONLY

All Teflon® fitted Equalizers require expanded Teflon® gasket material with the exception of all aluminum Equalizers and stainless steel SDI Equalizers. This type of Teflon® is very strong, but soft. Its use assures

a positive seal between the Teflon® diaphragm outer bead and its corresponding groove in the liquid chamber. This gasket material should be replaced each time the Equalizer® is disassembled.



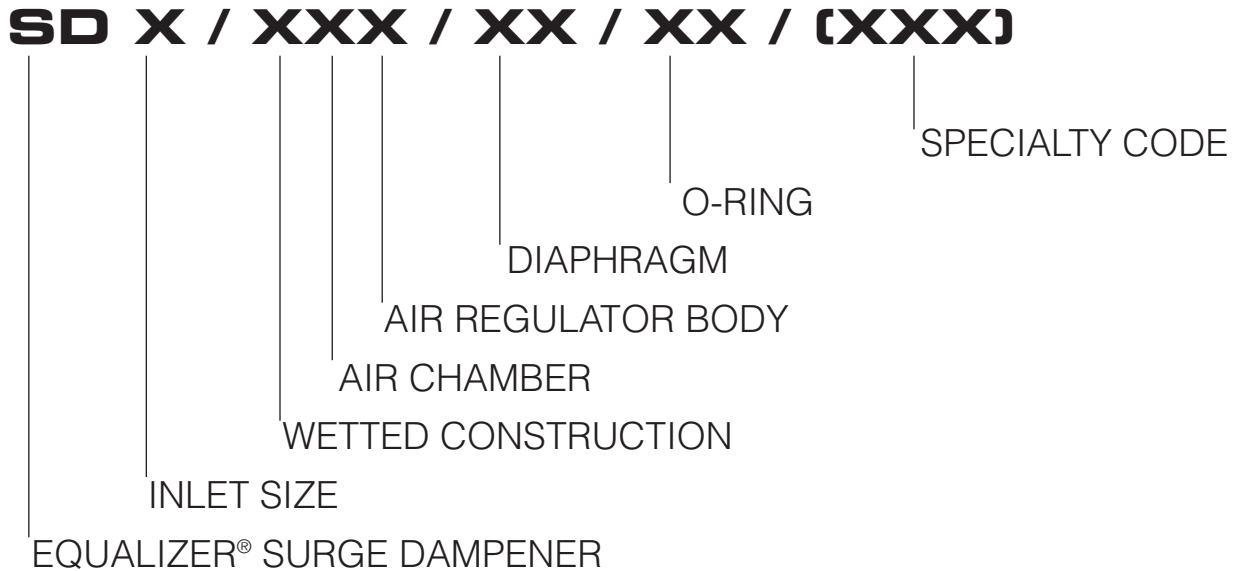
Select a strip of ¼"-wide material and carefully remove the covering from the adhesive strip. Ensure that the adhesive strip remains attached to the gasket material. Starting at any point, place the gasket strip in the center of the



diaphragm bead groove on the diaphragm and press lightly on the gasket to ensure that adhesive holds it in place during assembly. The ends of the gasket should overlap approximately ½-inch.

EQUALIZER® SURGE DAMPENER

MODEL NUMBER LEGEND



() Specialty codes included only when necessary.

INLET SIZE

- ½ ½ inch
- 1 1 Inch
- 2 2 Inch

WETTED CONSTRUCTION

- A Aluminum
- G Carbon-Filled Acetal (SD½)
- K PVDF
- P Polypropylene
- T Teflon® PTFE (SD½)
- T Teflon® PFA (SD1 only)
- S Stainless Steel
- W Cast Iron (SD1 and SD2)

AIR REGULATOR BODY

- G Carbon-Filled Acetal (SD½ only)
- P Polypropylene

DIAPHRAGM

- BN Buna-N
- ND Nordel®
- NE Neoprene
- TF Teflon® TFE
- VT Viton®
- WF Wil-Flex™ (SD½ and SD1 only)
- FG Saniflex™ (SD½ and SD1 only)
- TS Teflon® TFE w/Saniflex Backup

O-RINGS

- BN Buna-N
- TF Teflon®
- TV Teflon® Encap. Viton®

SPECIALTY CODES

- 03 Alloy fitted (SD1 and SD2)
- 14 BSP
- 502 w/Teflon® coated hardware
- 315 w/Teflon® coated hardware/BSP

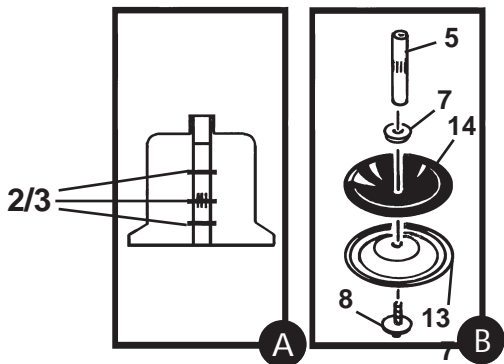
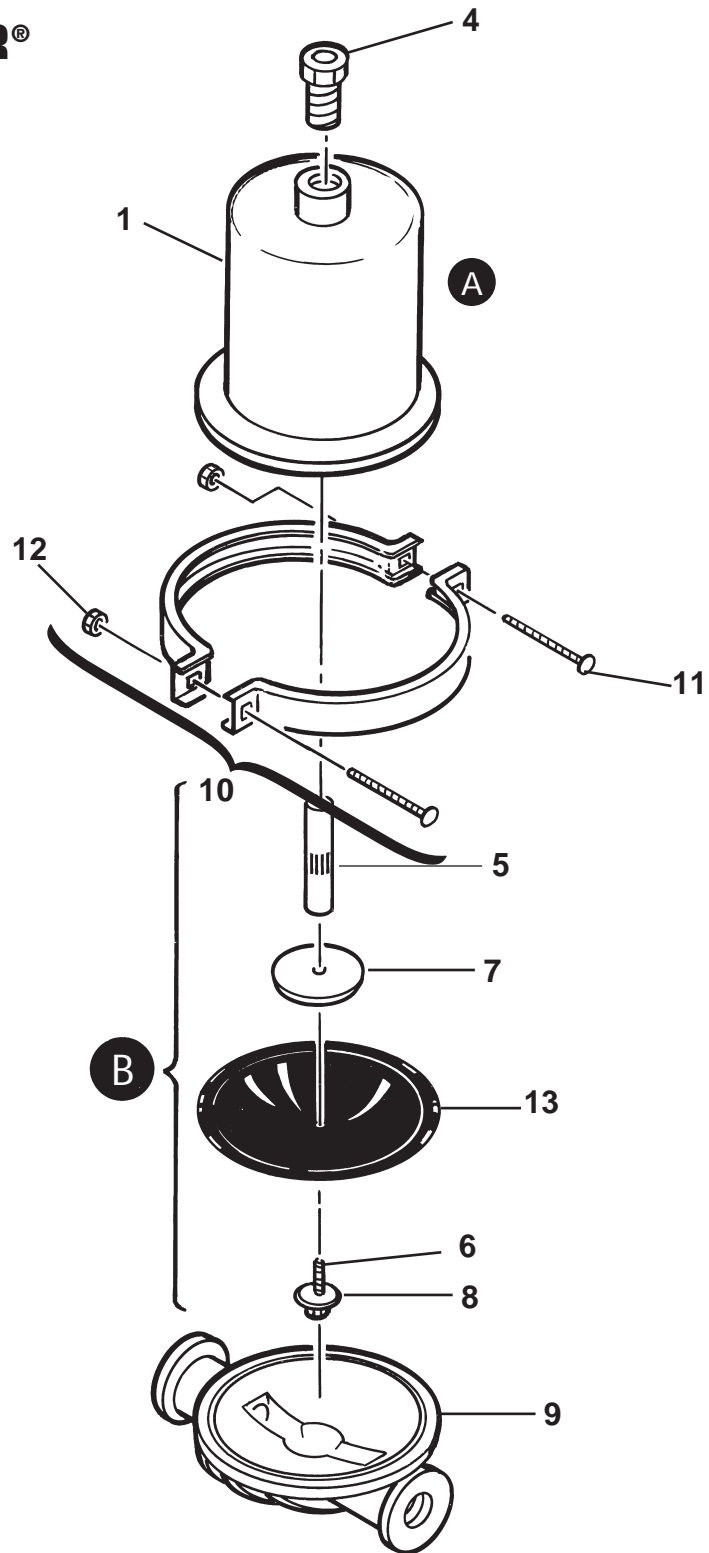
AIR CHAMBER

- A Aluminum (SD2)
- G Carbon-Filled Acetal (SD½)
- M Mild Steel (SD1)
- S Stainless Steel (SD2)
- W Cast Iron (SD2)
- C Teflon® Coated
- P Polypropylene (SD½)

SECTIONS 7A, 7B, 8, 9
EXPLODED VIEWS
SD ½ EQUALIZER®
SD 1 AND 2 EQUALIZER
ELASTOMER OPTIONS
TORQUE SPECIFICATIONS

SECTION 7A

THE EQUALIZER® (SD 1/2) Exploded View



SD½ EQUALIZER®

ITEM	PART DESCRIPTION	QTY.	POLYPROPYLENE	PVDF	CARBON-FILLED ACETAL	TEFLON® PTFE
			SD½/PPP	SD½/KPP	SD½/GGG	SD½/TPP
1	Air Regulator Body ¹	1	72-8500-20	72-8500-20	72-8500-16	72-8500-20
2	Slipper Seal	3	01-3210-55-200	01-3210-55-200	01-3210-55-200	01-3210-55-200
3	Back-Up O-Ring	3	01-2390-52	01-2390-52	01-2390-52	01-2390-52
4	Reducer Bushing	1	72-6950-07	72-6950-07	72-6950-07	72-6950-07
5	Straight Shaft	1	01-3800-03-07	01-3800-03-07	01-3800-03-07	01-3800-03-07
6	S.S. Threaded Stud	1	NA	NA	NA	NA
7	Inner Piston	1	01-3710-01	01-3710-01	01-3710-01	01-3710-01
8	Outer Piston	1	01-4570-20-500	01-4570-21-500	01-4570-16	01-4570-22-500
9	Liquid Chamber ²	1	72-5000-20	72-5000-21	72-5000-16	72-5000-55
10	Clamp Band Assembly	1	01-7300-03	01-7300-03	01-7300-03	01-7300-03
11	Bolt, 1/4-20 x 1 3/4 Carriage	2	01-6070-03	01-6070-03	01-6070-03	01-6070-03
12	Nut, HEX (1/4-20)	2	04-6400-03	04-6400-03	04-6400-03	04-6400-03
13	Primary Diaphragm^{3, 5}	1	*	*	*	*
14	Back-Up Diaphragm⁴	1	01-1060-51	01-1060-51	01-1060-51	01-1060-51
	Grounding Strap (Not Shown)	1	N/A	N/A	00-8300-99	N/A

¹Air regulator body includes slipper seals and back-up O-rings.

²Liquid chamber is available with BSP threads. The additional digits "14" added to the end of the part number designated BSP threads.

³Refer to page 25 for elastomer options.

⁴Back-up diaphragm is only utilized with Teflon® primary diaphragm.

⁵Teflon® Gasket Kit, P/N 01-9500-99, required.

All bold face items are primary wear parts.

ITEM	PART DESCRIPTION	QTY.	ALUMINUM	STAINLESS STEEL
			SD½/APP	SD½/SPP
1	Air Regulator Body ¹	1	72-8500-20	72-8500-20
2	Slipper Seal	3	01-3210-55-200	01-3210-55-200
3	Back-Up O-Ring	3	01-2390-52	01-2390-52
4	Reducer Bushing	1	72-6950-07	72-6950-07
5	Straight Shaft	1	01-3800-03-07	01-3800-03-07
6	S.S. Threaded Stud	1	NA	01-6150-03
7	Inner Piston	1	01-3710-01	01-3710-01
8	Outer Piston	1	01-4570-01	01-4570-03
9	Liquid Chamber ²	1	72-5000-01	72-5000-03
10	Clamp Band Assembly	1	01-7300-03	01-7300-03
11	Bolt, 1/4-20 x 1 3/4 Carriage	2	01-6070-03	01-6070-03
12	Nut, HEX (1/4-20)	2	04-6400-03	04-6400-03
13	Primary Diaphragm³	1	*	*
14	Back-Up Diaphragm⁴	1	01-1060-51	01-1060-51

¹Air regulator body includes slipper seals and back-up O-rings.

²Liquid chamber is available with BSP threads. The additional digits "14" added to the end of the part number designated BSP threads.

³Refer to page 25 for elastomer options.

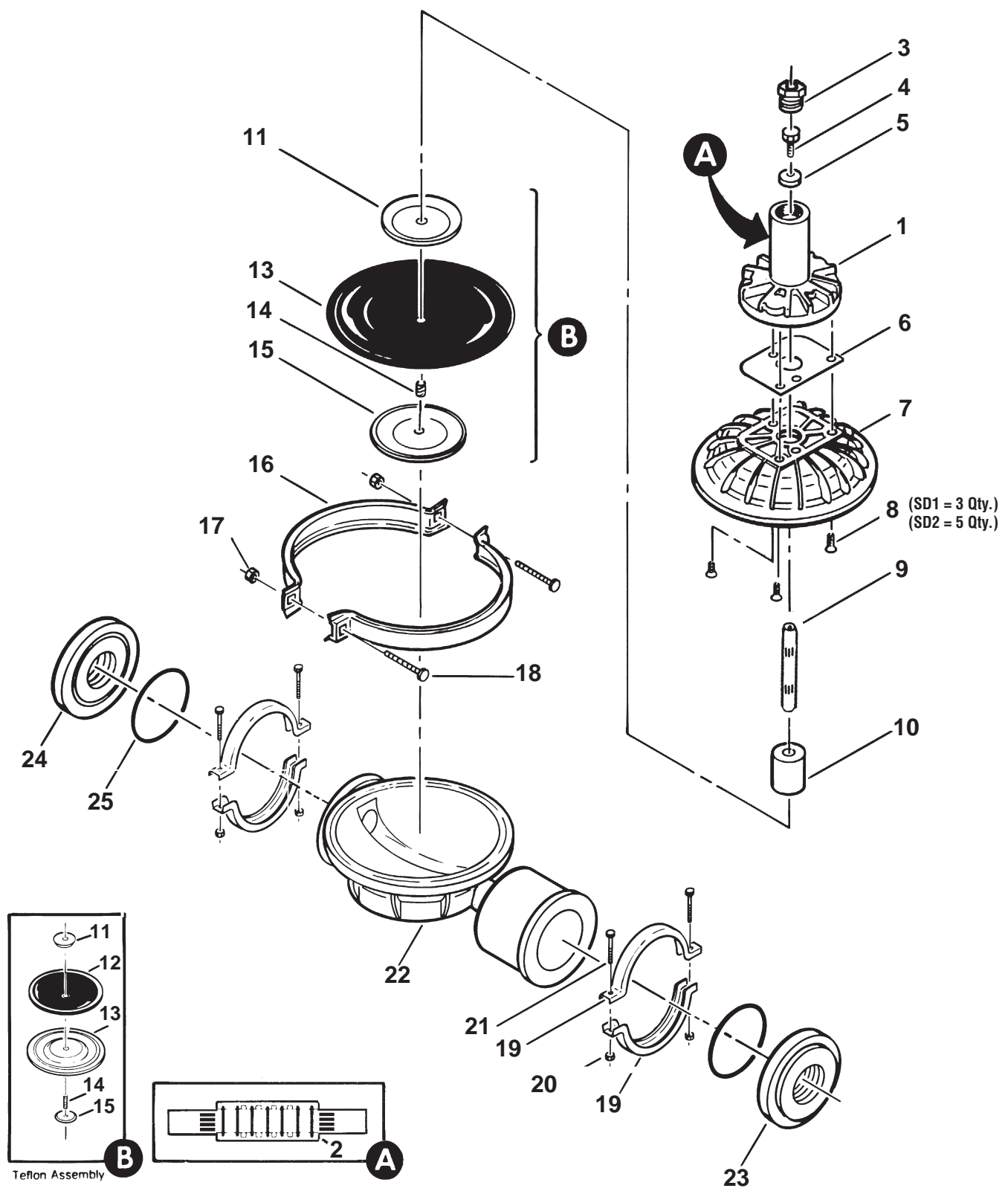
⁴Back-up diaphragm is only utilized with Teflon® primary diaphragm.

All bold face items are primary wear parts.



SECTION 7B

THE EQUALIZER® (SD1 and SD2) Exploded View



SD1 EQUALIZER®

Aluminum Construction

ITEM	PART DESCRIPTION	QTY.	SD1-AMP	SD1-AMP-03	SD1-AMP-TF-03
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-08	70-6950-08	70-6950-08
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08	70-6790-08
6	Center Block Gasket	1	04-3520-52	04-3520-52	04-3520-52
7	Air Chamber	1	04-3650-08	04-3650-08	04-3650-08
8	Socket Head Cap Screw 1/4-20 x 3/4	3	70-6250-03	70-6250-03	70-6250-03
9	Shaft	1	04-3820-09-07	04-3820-09-07	04-3820-09-07
10	Stop	1	70-8800-17	70-8800-17	70-8800-17
11	Inner Piston	1	04-3700-08	04-3700-08	70-3750-01
12	Back Up Diaphragm	1	N/R	N/R	04-1060-51
13	Diaphragm	1	*	*	04-1010-55
14	Shaft Stud 1/2-20 x 1 1/2 All Thd	1	N/R	N/R	04-6150-08
15	Outer Piston	1	04-4552-01	04-4552-01	04-4600-01
16	Large Clamp Band Assembly	1	04-7300-08	04-7300-03	04-7300-03
17	Hex Nut 5/16-18	2	04-6420-08	08-6400-03	08-6400-03
18	Carriage Bolt 5/16-18 x 2 1/4	2	04-6070-08	04-6070-03	04-6070-03
19	Small Clamp Band Assembly	2	04-7100-08	04-7100-03	04-7100-03
20	Hex Nut 1/4-20	4	04-6400-08	04-6400-03	04-6400-03
21	Carriage Bolt 1/4-20 x 1 3/4	4	04-6050-08	01-6070-03	01-6070-03
22	Liquid Chamber	1	04-5000-01	04-5000-01	04-5000-01
23	Surge End	1	70-8600-01	70-8600-01	70-8600-01
24	Surge End	1	70-8600-01	70-8600-01	70-8600-01
25	Surge End O-Ring	2	*	*	70-1280-55

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings.

All bold face items are primary wear parts.

SD1 EQUALIZER®

Stainless Steel Construction

ITEM	PART DESCRIPTION	QTY.	SD1-SMP	SD1-SMP-TF
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-08	70-6950-08
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08
6	Center Block Gasket	1	04-3520-52	04-3520-52
7	Air Chamber	1	04-3650-08	04-3650-08
8	Socket Head Cap Screw 1/4-20 x 3/4	3	70-6250-03	70-6250-03
9	Shaft	1	04-3820-09-07	04-3820-09-07
10	Stop	1	70-8800-17	70-8800-17
11	Inner Piston	1	04-3700-08	70-3750-01
12	Back Up Diaphragm	1	N/R	04-1060-51
13	Diaphragm	1	*	04-1010-55
14	Shaft Stud 1/2-20 x 1 1/2 All Thd	1	04-6150-08	04-6150-08
15	Outer Piston	1	04-4550-03	04-4600-03
16	Large Clamp Band Assembly	1	04-7300-03	04-7300-03
17	Hex Nut 5/16-18	2	08-6400-03	08-6400-03
18	Carriage Bolt 5/16-18 x 2 1/4	2	04-6070-03	04-6070-03
19	Small Clamp Band Assembly	2	04-7100-03	04-7100-03
20	Hex Nut 1/4-20	4	04-6400-03	04-6400-03
21	Carriage Bolt 1/4-20 x 1 3/4	4	01-6070-03	01-6070-03
22	Liquid Chamber	1	04-5000-03	04-5000-03
23	Surge End	1	70-8600-03	70-8600-03
24	Surge End	1	70-8600-03	70-8600-03
25	Surge End O-Ring	2	*	70-1280-55

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings.

*Elastomer options listed on page 25.

All bold face items are primary wear parts.



SD1 EQUALIZER®

Polypropylene and PVDF Construction with Stainless Steel hardware

ITEM	PART DESCRIPTION	QTY.	SD1-502-			
			POLY SD1-PMP	POLY SD1-PMP-TF	PVDF SD1-KMP	PVDF SD1-KMP-TF
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-08	70-6950-08	70-6950-08	70-6950-08
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08	70-6790-08	70-6790-08
6	Center Block Gasket	1	04-3520-52	04-3520-52	04-3520-52	04-3520-52
7	Air Chamber	1	04-3650-08	04-3650-08	04-3650-08	04-3650-08
8	Socket Head Cap Screw 1/4-20 x 3/4	3	70-6250-03	70-6250-03	70-6250-03	70-6250-03
9	Shaft	1	04-3820-09-07	04-3820-09-07	04-3820-09-07	04-3820-09-07
10	Stop	1	70-8800-17	70-8800-17	70-8800-17	70-8800-17
11	Inner Piston	1	04-3700-08	04-3750-01	04-3700-08	04-3750-01
12	Back Up Diaphragm	1	N/R	04-1060-51	N/R	04-1060-51
13	Diaphragm	1	*	04-1010-55	2*	04-1010-55²
14	Shaft Stud 1/2-20 x 1 1/2 All Thd	1	N/R	N/R	N/R	N/R
15	Outer Piston	1	04-4550-20-500	04-4600-20-500	04-4550-21-500	04-4600-21-500
16	Large Clamp Band Assembly	1	04-7330-03	04-7330-03	04-7330-03	04-7330-03
17	Hex Nut 5/16-18	2	08-6400-03	08-6400-03	08-6400-03	08-6400-03
18	Carriage Bolt 5/16-18 x 2 1/4	2	04-6070-03	04-6070-03	04-6070-03	04-6070-03
19	Small Clamp Band Assembly	2	04-7100-03-500	04-7100-03-500	04-7100-03-500	04-7100-03-500
20	Hex Nut 5/16-18	4	08-6400-03	08-6400-03	08-6400-03	08-6400-03
21	Carriage Bolt 5/16-18 x 1 3/4	4	08-6050-03-500	08-6050-03-500	08-6050-03-500	08-6050-03-500
22	Liquid Chamber	1	04-5000-20	04-5000-20	04-5000-21	04-5000-21
23	Surge End	1	70-8600-20	70-8600-20	70-8600-21	70-8600-21
24	Surge End	1	70-8600-20	70-8600-20	70-8600-21	70-8600-21
25	Surge End O-Ring	2	*	70-1270-60	*	70-1270-60

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings. **All bold face items are primary wear parts.**

²Teflon® Gasket Kit, P/N 04-9500-99, required.

SD1 EQUALIZER®

Polypropylene and PVDF Construction with Teflon®-coated hardware

ITEM	PART DESCRIPTION	QTY.	SD1-502-			
			POLY PCP	POLY PCP-TF	PVDF KCP	PVDF KCP-TF
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-05	70-6950-05	70-6950-05	70-6950-05
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08	70-6790-08	70-6790-08
6	Center Block Gasket	1	04-3520-52	04-3520-52	04-3520-52	04-3520-52
7	Air Chamber	1	04-3650-05	04-3650-05	04-3650-05	04-3650-05
8	Socket Head Cap Screw 1/4-20 x 3/4	3	70-6250-03	70-6250-03	70-6250-03	70-6250-03
9	Shaft	1	04-3820-09-07	04-3820-09-07	04-3820-09-07	04-3820-09-07
10	Stop	1	70-8800-17	70-8800-17	70-8800-17	70-8800-17
11	Inner Piston	1	04-3700-08	04-3750-01	04-3700-08	04-3750-01
12	Back Up Diaphragm	1	N/R	04-1060-51	N/R	04-1060-51
13	Diaphragm	1	*	04-1010-55	2*	04-1010-55²
14	Shaft Stud 1/2-20 x 1 1/2 All Thd	1	N/R	N/R	N/R	N/R
15	Outer Piston	1	04-4550-20-500	04-4600-20-500	04-4550-21-500	04-4600-21-500
16	Large Clamp Band Assembly	1	04-7330-05	04-7330-05	04-7330-05	04-7330-05
17	Hex Nut 5/16-18	2	08-6400-05	08-6400-05	08-6400-05	08-6400-05
18	Carriage Bolt 5/16-18 x 2 1/4	2	04-6070-05	04-6070-05	04-6070-05	04-6070-05
19	Small Clamp Band Assembly	2	04-7100-05-500	04-7100-05-500	04-7100-05-500	04-7100-05-500
20	Hex Nut 5/16-18	4	08-6400-05	08-6400-05	08-6400-05	08-6400-05
21	Carriage Bolt 5/16-18 x 1 3/4	4	08-6050-05-500	08-6050-05-500	08-6050-05-500	08-6050-05-500
22	Liquid Chamber	1	04-5000-20	04-5000-20	04-5000-21	04-5000-21
23	Surge End	1	70-8600-20	70-8600-20	70-8600-21	70-8600-21
24	Surge End	1	70-8600-20	70-8600-20	70-8600-21	70-8600-21
25	Surge End O-Ring	2	*	70-1270-60	*	70-1270-60

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings. **All bold face items are primary wear parts.**

²Teflon® Gasket Kit, P/N 04-9500-99, required.

*Elastomer options listed on page 25.

SD1 EQUALIZER®
Teflon® PFA Construction

ITEM	PART DESCRIPTION	QTY.	SD1-			
			TMP-VT	TMP-TF	TMP-VT-502	TMP-TF-502
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-08	70-6950-08	70-6950-05	70-6950-05
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08	70-6790-08	70-6790-08
6	Center Block Gasket	1	04-3520-52	04-3520-52	04-3520-52	04-3520-52
7	Air Chamber	1	04-3650-08	04-3650-08	04-3650-05	04-3650-05
8	Socket Head Cap Screw 1/4-20 x 3/4	3	70-6250-03	70-6250-03	70-6250-03	70-6250-03
9	Shaft	1	04-3820-09-07	04-3820-09-07	04-3820-09-07	04-3820-09-07
10	Stop	1	70-8800-17	70-8800-17	70-8800-17	70-8800-17
11	Inner Piston	1	04-3700-08	04-3750-01	04-3700-08	04-3750-01
12	Back Up Diaphragm	1	N/R	04-1060-51	N/R	04-1060-51
13	Diaphragm²	1	04-1010-53	04-1010-55	04-1010-53	04-1010-55
14	Shaft Stud 1/2-20 x 1 1/2 All Thd	1	N/R	N/R	N/R	N/R
15	Outer Piston	1	04-4550-22-500	04-4600-22-500	04-4550-22-500	04-4600-22-500
16	Large Clamp Band Assembly	1	04-7330-03	04-7330-03	04-7330-05	04-7330-05
17	Hex Nut 5/16-18	2	08-6400-03	08-6400-03	08-6400-05	08-6400-05
18	Carriage Bolt 5/16-18 x 2 1/4	2	04-6070-03	04-6070-03	04-6070-05	04-6070-05
19	Small Clamp Band Assembly	2	04-7100-03-500	04-7100-03-500	04-7100-05-500	04-7100-05-500
20	Hex Nut 5/16-18	4	08-6400-03	08-6400-03	08-6400-05	08-6400-05
21	Carriage Bolt 5/16-18 x 1 3/4	4	08-6050-03-500	08-6050-03-500	08-6050-05-500	08-6050-05-500
22	Liquid Chamber	1	04-5000-22	04-5000-22	04-5000-22	04-5000-22
23	Surge End	1	70-8600-55	70-8600-55	70-8600-55	70-8600-55
24	Surge End	1	70-8600-55	70-8600-55	70-8600-55	70-8600-55
25	Surge End O-Ring	2	70-1270-60	70-1270-60	70-1270-60	70-1270-60

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings.

²Teflon® Gasket Kit, P/N 04-9500-99, required.

All bold face items are primary wear parts.



SD2 EQUALIZER®

Aluminum and Cast Iron Construction with Standard Hardware

ITEM	PART DESCRIPTION	QTY.	ALUMINUM SD2-AAP	CAST IRON SD2-WAP	CAST IRON SD2-WWP
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-08	70-6950-08	70-6950-08
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08	70-6790-08
6	Center Block Gasket	1	71-3520-30	71-3520-30	71-3520-30
7	Air Chamber for SD2	1	71-3650-01	71-3650-01	71-3650-02
8	Flat Head Cap Screw 3/8-16 x 1	5	71-6250-08	71-6250-08	71-6250-08
9	Shaft	1	04-3820-09-07	04-3820-09-07	04-3820-09-07
10	Stop	1	71-8800-17	71-8800-17	71-8800-17
11	Inner Piston	1	04-3700-08	04-3700-08	04-3700-08
12	Back Up Diaphragm	1	N/R	N/R	N/R
13	Diaphragm	1	*	2*	2*
14	Shaft Bolt	1	N/R	04-6090-08	04-6090-08
	Shaft Bolt Washer (Not Shown)	1	N/R	04-6800-08	04-6800-08
15	Outer Piston	1	04-4552-01	04-4550-08	04-4550-08
16	Large Clamp Band Assembly	1	08-7300-08	08-7300-08	08-7300-08
17	Hex Nut Heavy 3/8-16	2	08-6450-08	08-6450-08	08-6450-08
18	Hex Head Cap Screw 3/8-16 x 2 3/4	2	08-6120-08	08-6120-08	08-6120-08
19	Small Clamp Assembly	2	08-7100-08	08-7100-08	08-7100-08
20	Hex Nut 5/16-18	4	04-6420-08	04-6420-08	04-6420-08
21	Hex Head Cap Screw 5/16-18 x 1 3/8	4	08-6050-08	08-6050-08	08-6050-08
22	Liquid Chamber	1	08-5000-01	08-5000-02	08-5000-02
23	Surge End	1	71-8600-01	71-8600-03	71-8600-03
24	Surge End	1	71-8600-01	71-8600-03	71-8600-03
25	Surge End O-Ring	2	*	*	*

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings. **All bold face items are primary wear parts.**

²Teflon® Gasket Kit, P/N 08-9500-99, required.

SD2 EQUALIZER®

Cast Iron Construction with Stainless Steel Hardware

ITEM	PART DESCRIPTION	QTY.	CAST IRON SD2-WAP-03	CAST IRON SD2-WWP-03
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-08	70-6950-08
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08
6	Center Block Gasket	1	71-3520-30	71-3520-30
7	Air Chamber for SD2	1	71-3650-01	71-3650-02
8	Flat Head Cap Screw 3/8-16 x 1	5	71-6250-08	71-6250-08
9	Shaft	1	04-3820-09-07	04-3820-09-07
10	Stop	1	71-8800-17	71-8800-17
11	Inner Piston	1	04-3700-08	04-3700-08
12	Back Up Diaphragm	1	N/R	N/R
13	Diaphragm	1	2*	2*
14	Shaft Bolt	1	04-6090-08	04-6090-08
	Shaft Bolt Washer	1	04-6800-08	04-6800-08
15	Outer Piston	1	04-4550-08	04-4550-08
16	Large Clamp Band Assembly	1	08-7300-03	08-7300-03
17	Hex Nut Heavy 3/8-16	2	08-6450-03	08-6450-03
18	Hex Head Cap Screw 3/8-16 x 2 3/4	2	08-6120-03	08-6120-03
19	Small Clamp Band Assembly	2	08-7100-03	08-7100-03
20	Hex Nut 5/16-18	4	08-6400-03	08-6400-03
21	Hex Head Cap Screw 5/16-18 x 1 3/8	4	08-6050-03	08-6050-03
22	Liquid Chamber	1	08-5000-02	08-5000-02
23	Surge End	1	71-8600-03	71-8600-03
24	Surge End	1	71-8600-03	71-8600-03
25	Surge End O-Ring	2	*	*

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings. **All bold face items are primary wear parts.**

²Teflon® Gasket Kit, P/N 08-9500-99, required.

*Elastomer options listed on page 25.



SD2 EQUALIZER®

Aluminum Construction with Stainless Steel Hardware and Stainless Steel Construction

ITEM	PART DESCRIPTION	QTY.	SD2-			
			ALUMINUM AAP-TF-03	ALUMINUM AAP-03	316 S.S. SAP	316 S.S. SSP
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-08	70-6950-08	70-6950-08	70-6950-08
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08	70-6790-08	70-6790-08
6	Center Block Gasket	1	71-3520-30	71-3520-30	71-3520-30	71-3520-30
7	Air Chamber for SD2	1	71-3650-01	71-3650-01	71-3650-01	71-3650-03
8	Flat Head Cap Screw 3/8-16 x 1	5	71-6250-08	71-6250-08	71-6250-08	71-6250-08
9	Shaft	1	04-3820-09-07	04-3820-09-07	04-3820-09-07	04-3820-09-07
10	Stop	1	71-8800-17	71-8800-17	71-8800-17	71-8800-17
11	Inner Piston	1	08-3750-01	04-3700-08	04-3700-08	04-3700-08
12	Back Up Diaphragm	1	08-1060-51	N/R	N/R	N/R
13	Diaphragm	1	08-1010-55	*	2*	2*
14	Shaft Stud 1/2-20 x 1 1/2 All Thd	1	08-6150-08	N/R	04-6150-08	04-6150-08
15	Outer Piston	1	08-4600-01	04-4550-01	04-4550-03	04-4550-03
16	Large Clamp Band Assembly	1	08-7300-03	08-7300-03	08-7300-03	08-7300-03
17	Hex Nut Heavy 3/8-16	2	08-6450-03	08-6450-03	08-6450-03	08-6450-03
18	Hex Head Cap Screw 3/8-16 x 2 3/4	2	08-6120-03	08-6120-03	08-6120-03	08-6120-03
19	Small Clamp Band Assembly	2	08-7100-03	08-7100-03	08-7100-03	08-7100-03
20	Hex Nut 5/16-18	4	08-6400-03	08-6400-03	08-6400-03	08-6400-03
21	Hex Head Cap Screw 5/16-18 x 1 3/8	4	08-6030-03	08-6030-03	08-6030-03	08-6030-03
22	Liquid Chamber	1	08-5000-01	08-5000-01	08-5000-03	08-5000-03
23	Surge End	1	71-8600-01	71-8600-01	71-8600-03	71-8600-03
24	Surge End	1	71-8600-01	71-8600-01	71-8600-03	70-8600-03
25	Surge End O-Ring	2	71-1280-55	*	*	*

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings.

All bold face items are primary wear parts.

²Teflon® Gasket Kit, P/N 08-9500-99, required.

SD2 EQUALIZER®

Stainless Steel and Cast Iron Construction with PTFE Diaphragms

ITEM	PART DESCRIPTION	QTY.	SD2-			
			316 S.S. SAP-TF	316 S.S. SSP-TF	CAST IRON WAP-TF	CAST IRON WWP-TF
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-08	70-6950-08	70-6950-08	70-6950-08
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08	70-6790-08	70-6790-08
6	Center Block Gasket	1	71-3520-30	71-3520-30	71-3520-30	71-3520-30
7	Air Chamber for SD2	1	71-3650-01	71-3650-03	71-3650-01	71-3650-02
8	Flat Head Cap Screw 3/8-16 x 1	5	71-6250-08	71-6250-08	71-6250-08	71-6250-08
9	Shaft	1	04-3820-09-07	04-3820-09-07	04-3820-09-07	04-3820-09-07
10	Stop	1	71-8800-17	71-8800-17	71-8800-17	71-8800-17
11	Inner Piston	1	08-3750-01	08-3750-01	08-3750-01	08-3750-01
12	Back Up Diaphragm	1	08-1060-51	08-1060-51	08-1060-51	08-1060-51
13	Diaphragm²	1	08-1010-55	08-1010-55	08-1010-55	08-1010-55
14	Shaft Stud 1/2-20 x 1 1/2 All Thd	1	08-6150-08	08-6150-08	08-6150-08	08-6150-08
15	Outer Piston	1	08-4600-03	08-4600-03	08-4600-03	08-4600-03
16	Large Clamp Band Assembly	1	08-7300-03	08-7300-03	08-7300-03	08-7300-03
17	Hex Nut Heavy 3/8-16	2	08-6450-03	08-6450-03	08-6450-03	08-6450-03
18	Hex Head Cap Screw 3/8-16 x 2 3/4	2	08-6120-03	08-6120-03	08-6120-03	08-6120-03
19	Small Clamp Band Assembly	2	08-7100-03	08-7100-03	08-7100-03	08-7100-03
20	Hex Nut 5/16-18	4	08-6400-03	08-6400-03	08-6400-03	08-6400-03
21	Hex Head Cap Screw 5/16-18 x 1 3/8	4	08-6050-03	08-6050-03	08-6050-03	08-6050-03
22	Liquid Chamber	1	08-5000-03	08-5000-03	08-5000-02	08-5000-02
23	Surge End	1	71-8600-03	71-8600-03	71-8600-03	71-8600-03
24	Surge End	1	71-8600-03	71-8600-03	71-8600-03	71-8600-03
25	Surge End O-Ring	2	71-1280-55	71-1280-55	71-1280-55	71-1280-55

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings.

All bold face items are primary wear parts.

²Teflon® Gasket Kit, P/N 08-9500-99, required.

*Elastomer options listed on page 25.

SD2 EQUALIZER®

Polypropylene and PVDF Construction with Stainless Steel Hardware

ITEM	PART DESCRIPTION	QTY.	SD2-			
			POLY PAP	POLY PAP-TF	PVDF KAP	PVDF KAP-TF
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-08	70-6950-08	70-6950-08	70-6950-08
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08	70-6790-08	70-6790-08
6	Center Block Gasket	1	71-3520-30	71-3520-30	71-3520-30	71-3520-30
7	Air Chamber for SD2	1	71-3650-01	71-3650-01	71-3650-01	71-3650-01
8	Flat Head Cap Screw 3/8-16 x 1	5	71-6250-08	71-6250-08	71-6250-08	71-6250-08
9	Shaft	1	04-3820-09-07	04-3820-09-07	04-3820-09-07	04-3820-09-07
10	Stop	1	71-8800-17	71-8800-17	71-8800-17	71-8800-17
11	Inner Piston	1	04-3700-08	08-3750-01	04-3700-08	08-3750-01
12	Back Up Diaphragm	1	N/R	08-1060-51	N/R	08-1060-51
13	Diaphragm²	1	*	08-1010-55	*	08-1010-55
14	Shaft Stud 1/2-20 x 1 1/2 All Thd	1	N/R	N/R	N/R	N/R
15	Outer Piston	1	04-4550-20-500	08-4600-21-500	04-4550-21-500	08-4600-21-500
16	Large Clamp Band Assembly	1	08-7300-03-500	08-7300-03-500	08-7300-03-500	08-7300-03-500
17	Hex Nut Heavy 3/8-16	2	08-6450-03	08-6450-03	08-6450-03	08-6450-03
18	Carriage Bolt 3/8-16 x 2 1/2	2	08-6070-03-500	08-6070-03-500	08-6070-03-500	08-6070-03-500
19	Small Clamp Band Assembly	2	08-7200-03-500	08-7200-03-500	08-7200-03-500	08-7200-03-500
20	Hex Nut 5/16-89	4	08-6400-03	08-6400-03	08-6400-03	08-6400-03
21	Hex Head Cap Screw 5/16-18 x 2 1/4	4	04-6070-03	04-6070-03	04-6070-03	04-6070-03
22	Liquid Chamber	1	08-5000-20	08-5000-20	08-5000-21	08-5000-21
23	Surge End	1	71-8700-20	71-8700-20	71-8700-21	71-8700-21
24	Surge End	1	71-8710-20	71-8710-20	71-8710-21	71-8710-21
25	Surge End O-Ring	2	*	71-1270-60	*	71-1270-60

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings. **All bold face items are primary wear parts.**

²Teflon® Gasket Kit, P/N 08-9500-99, required.

SD2 EQUALIZER®

Polypropylene and PVDF Construction with Teflon®-coated Hardware and Air Chambers

ITEM	PART DESCRIPTION	QTY.	SD2-502			
			POLY PCP	POLY PCP-TF	PVDF KCP	PVDF KCP-TF
1	Air Regulator Body ¹	1	70-8500-20	70-8500-20	70-8500-20	70-8500-20
2	Glyd Ring	3	08-3210-55-225	08-3210-55-225	08-3210-55-225	08-3210-55-225
3	Reducer Bushing 1 1/4 x 1/2 NPT	1	70-6950-05	70-6950-05	70-6950-05	70-6950-05
4	Shaft Bolt 1/2-20 x 1	1	04-6090-08	04-6090-08	04-6090-08	04-6090-08
5	Flat Washer	1	70-6790-08	70-6790-08	70-6790-08	70-6790-08
6	Center Block Gasket	1	71-3520-30	71-3520-30	71-3520-30	71-3520-30
7	Air Chamber for SD2	1	71-3650-05	71-3650-05	71-3650-05	71-3650-05
8	Flat Head Cap Screw 3/8-16 x 1	5	71-6250-08	71-6250-08	71-6250-08	71-6250-08
9	Shaft	1	04-3820-09-07	04-3820-09-07	04-3820-09-07	04-3820-09-07
10	Stop	1	71-8800-17	71-8800-17	71-8800-17	71-8800-17
11	Inner Piston	1	04-3700-08	08-3750-01	04-3700-08	08-3750-01
12	Back Up Diaphragm	1	N/R	08-1060-51	N/R	08-1060-51
13	Diaphragm²	1	*	08-1010-55	*	08-1010-55
14	Shaft Stud 1/2-20 x 1 1/2 All Thd	1	N/R	N/R	N/R	N/R
15	Outer Piston	1	04-4550-20-500	08-4600-21-500	04-4550-21-500	08-4600-21-500
16	Large Clamp Band Assembly	1	08-7300-05-500	08-7300-05-500	08-7300-05-500	08-7300-05-500
17	Hex Nut Heavy 3/8-16	2	08-6420-05	08-6420-05	08-6420-05	08-6420-05
18	Carriage Bolt 3/8-16 x 2 1/2	2	08-6070-05-500	08-6070-05-500	08-6070-05-500	08-6070-05-500
19	Small Clamp Band Assembly	2	08-7200-05-500	08-7200-05-500	08-7200-05-500	08-7200-05-500
20	Hex Nut 5/16-89	4	08-6400-05	08-6400-05	08-6400-05	08-6400-05
21	Hex Head Cap Screw 5/16-18 x 2 1/4	4	04-6070-05	04-6070-05	04-6070-05	04-6070-05
22	Liquid Chamber	1	08-5000-20	08-5000-20	08-5000-21	08-5000-21
23	Surge End	1	71-8700-20	71-8700-20	71-8700-21	71-8700-21
24	Surge End	1	71-8710-20	71-8710-20	71-8710-21	71-8710-21
25	Surge End O-Ring	2	*	71-1270-60	*	71-1270-60

¹Air Regulator Body includes qty. 3 shaft Glyd™-rings. **All bold face items are primary wear parts.**

²Teflon® Gasket Kit, P/N 08-9500-99, required.

*Elastomer options listed on page 25.

SECTION 8

ELASTOMER OPTIONS

ELASTOMERS FOR METAL AND PLASTIC SD½ EQUALIZERS

	PRIMARY DIAPHRAGM	BACK-UP DIAPHRAGM
Teflon® PTFE	01-1010-55	NA
Buna-N	01-1010-52	NA
Viton®	01-1010-53	NA
Saniflex™	01-1010-56	NA
Wil-Flex™	01-1010-58	NA
Neoprene	—	01-1060-51

ELASTOMERS FOR METAL SD1 EQUALIZERS

	DIAPHRAGM	BACK-UP DIAPHRAGM	O-RINGS
Teflon®	04-1010-55	NA	70-1280-55
Buna-N	04-1010-52	NA	70-1280-52
Neoprene	04-1010-51	04-1060-51	NA
Nordel®	04-1010-54	NA	NA
Viton®	04-1010-53	NA	NA
Wil-Flex™	04-1010-58	NA	NA
Saniflex™	04-1010-56	04-1060-56	NA

ELASTOMERS FOR PLASTIC SD1 EQUALIZERS

	DIAPHRAGM	BACK-UP DIAPHRAGM	O-RINGS
Teflon® TFE	04-1010-55	NA	NA
Teflon® Encapsulated Viton®	NA	NA	70-1270-60
Buna-N	04-1010-52	NA	70-1270-52
Neoprene	04-1010-51	04-1060-51	NA
Nordel®	04-1010-54	NA	NA
Viton®	04-1010-53	NA	NA
Wil-Flex™	04-1010-58	NA	NA
Saniflex™	04-1010-56	04-1060-56	NA

ELASTOMERS FOR METAL SD2 EQUALIZERS

	DIAPHRAGM	BACK-UP DIAPHRAGM	O-RINGS
Teflon®	08-1010-55	NA	71-1280-55
Buna-N	08-1010-52-06	NA	71-1280-52
Neoprene	08-1010-51-06	08-1060-51	NA
Nordel®	08-1010-54-06	NA	NA
Viton®	08-1010-53-06	NA	NA
Saniflex™	N/A	08-1060-56	NA

ELASTOMERS FOR PLASTIC SD2 EQUALIZERS

	DIAPHRAGM	BACK-UP DIAPHRAGM	O-RINGS
Teflon®	08-1010-55	NA	NA
Teflon® Encapsulated Viton®	NA	NA	71-1270-60
Buna-N	08-1010-52-06	NA	71-1270-52
Neoprene	08-1010-51-06	08-1060-51	NA
Nordel®	08-1010-54-06	NA	NA
Viton®	08-1010-53-06	NA	NA
Saniflex™	N/A	08-1060-56	NA

Buna-N, Nordel and Viton are registered trademarks of DuPont Dow Elastomers.
Teflon is a registered trademark of DuPont.



SECTION 9

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS FOR METAL AND PLASTIC SD $\frac{1}{2}$ EQUALIZERS

DESCRIPTION OF PART	MAXIMUM TORQUE
Air Regulator Body	75 in.-lbs. [8 m-N]
Outer Piston	75 in.-lbs. [8 m-N]
Clamp Band Assembly — Rubber-Fitted	65 in.-lbs. [7.4 m-N]
Clamp Band Assembly — Teflon®-Fitted	85 in.-lbs. [9.6 m-N]

TORQUE SPECIFICATIONS FOR METAL SD1 EQUALIZERS

DESCRIPTION OF PART	MAXIMUM TORQUE
Air Regulator Body	11 ft.-lbs. [14.9 m-N]
Shaft Assembly	33 ft.-lbs. [44.7 m-N]
Small Clamp Band	30 in.-lbs. [3.4 m-N]
Large Clamp Band — Rubber	100 in.-lbs. [11.3 m-N]
Large Clamp Band — Teflon®	120 in.-lbs. [13.6 m-N]

TORQUE SPECIFICATIONS FOR PLASTIC SD1 EQUALIZERS

DESCRIPTION OF PART	MAXIMUM TORQUE
Air Regulator Body	11 ft.-lbs. [14.9 m-N]
Shaft Assembly	33 ft.-lbs. [44.7 m-N]
Small Clamp Bands	85 in.-lbs. [9.6 m-N]
Large Clamp Bands	165 in.-lbs. [18.6 m-N]

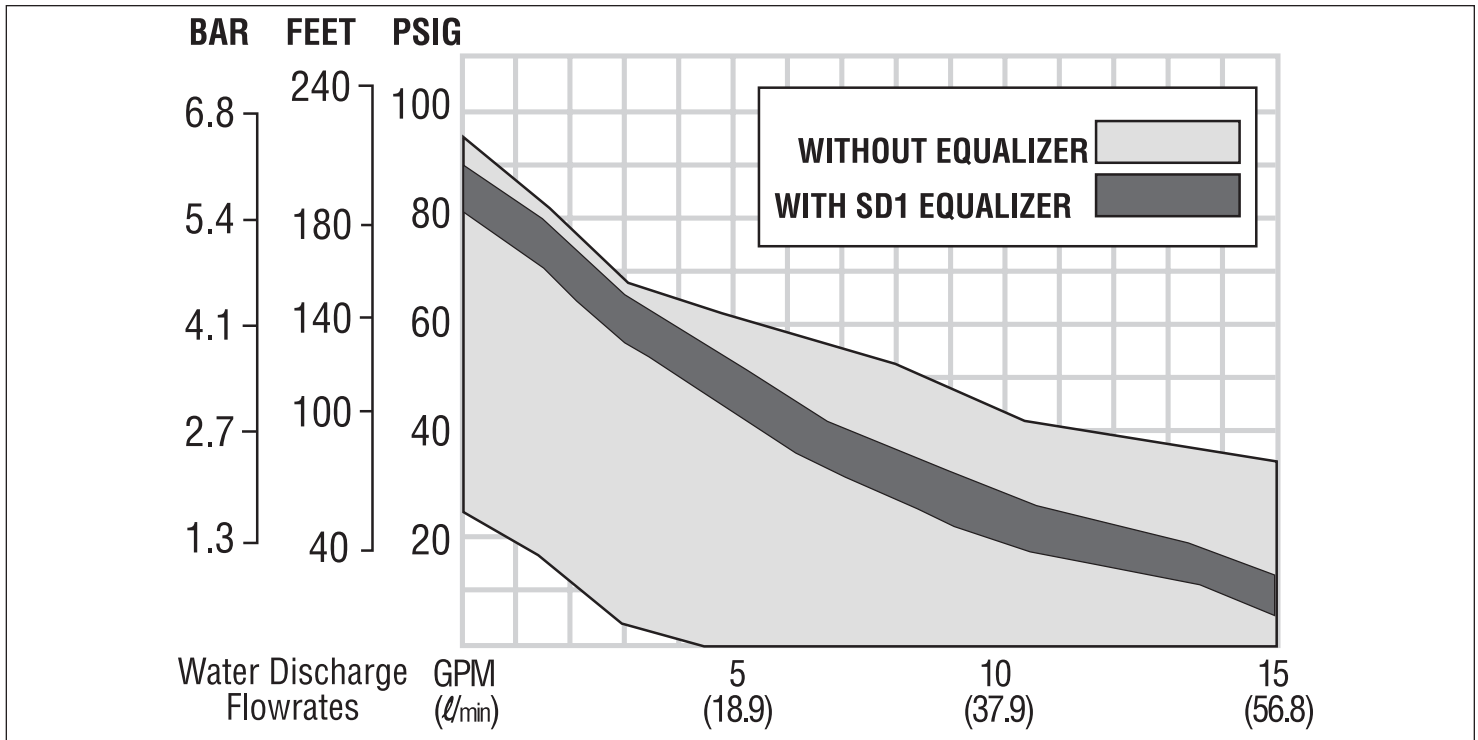
TORQUE SPECIFICATIONS FOR METAL SD2 EQUALIZERS

DESCRIPTION OF PART	MAXIMUM TORQUE
Air Regulator Body	28 in.-lbs. [2.8 m-N]
Shaft Assembly — Rubber	33 ft.-lbs. [44.7 m-N]
Shaft Assembly — Teflon®	58 ft.-lbs. [78.6 m-N]
Small Clamp Band — Rubber	27 in.-lbs. [3.0 m-N]
Small Clamp Band — Teflon®	58 in.-lbs. [6.6 m-N]
Large Clamp Band	28 ft.-lbs. [38.0 m-N]

TORQUE SPECIFICATIONS FOR PLASTIC SD2 EQUALIZERS

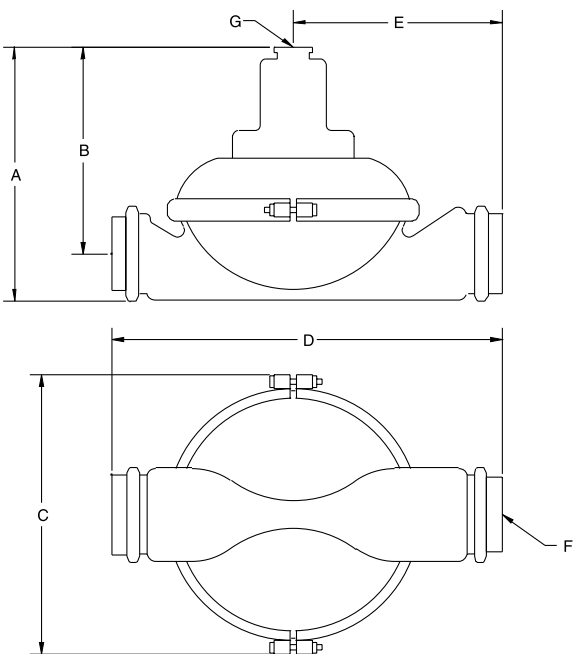
DESCRIPTION OF PART	MAXIMUM TORQUE
Air Regulator Body	28 ft.-lbs. [38.0 m-N]
Shaft Assembly — Rubber	33 ft.-lbs. [44.7 m-N]
Shaft Assembly — Teflon®	58 ft.-lbs. [78.6 m-N]
Small Clamp Band	90 in.-lbs. [10.2 m-N]
Large Clamp Band	28 ft.-lbs. [38.0 m-N]

PRESSURE VARIATION BAND



The above curve reflects the discharge pressure variation of a Wilden model M1 compared to an M1 with the Equalizer® (model SD1) installed. Plotted data points were obtained from an Oscilloscope.

DIMENSIONAL DRAWING MODELS SD1 and SD2



INCHES [mm]

DIMENSION	SD1		SD2	
	METAL	PLASTIC	METAL	PLASTIC
A	11 [279]	11 1/2 [292]	12 [305]	13 1/2 [343]
B	9 [229]	9 1/4 [235]	9 3/4 [248]	10 1/2 [267]
C	11 3/8 [289]	11 3/8 [289]	13 3/4 [349]	13 3/4 [349]
D	11 5/8 [295]	15 1/16* [383]	17 7/8 [454]	19 3/8 [492]
E	5 13/16 [148]	7 1/2 [191]	9 5/8 [244]	10 3/4 [273]
F	1 NPT	1 NPT	2 NPT	2 NPT
G	1/2 NPT	1/2 NPT	1/2 NPT	1/2 NPT

*SD1 — Teflon® PFA = 13 1/16"

SD1 (1" INLET/DISCHARGE)

MATERIAL	SHP. WT.	MATERIAL	SHP. WT.
Aluminum	18 lbs.	PVDF	19 lbs.
316 Stainless Steel	24 lbs.	Teflon® PFA	21 lbs.
Polypropylene	18 lbs.		

SD2 (2" INLET/DISCHARGE)

MATERIAL	SHP. WT.	MATERIAL	SHP. WT.
Aluminum	27 lbs.	Polypropylene	28 lbs.
Cast Iron	47 lbs.	PVDF	34 lbs.
316 Stainless Steel	44 lbs.		

ENGINEERED REVOLUTION

“Revolutionizing the way you solve your toughest pumping problems”



Plastic

- Polypropylene
- Carbon-Filled Acetal
- PVDF
- Teflon® PTFE
- Teflon® PFA



Metal

- Aluminum
- 316 S.S.
- Cast Iron
- Hastelloy



SANIFLO
SANITARY PUMP TECHNOLOGY

FDA USDA 3A



Peristaltic Dosing Pumps

ACCUPULSE
PERISTALTIC DOSING PUMP



Accessories

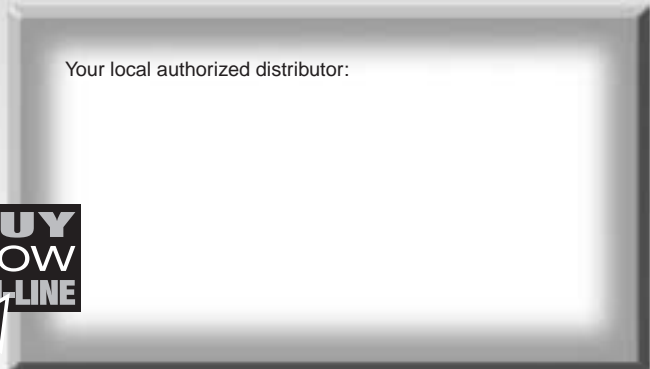
- SPCI
- Wil-Gard II
- FCSII
- Equalizers
- Drum Pump Kits
- Automatic Powder Valve

WILDEN

A **DOVER** COMPANY

22069 Van Buren St., Grand Terrace, CA 92313-5607
Telephone (909) 422-1730 • Fax (909) 783-3440
www.wildenpump.com

Your local authorized distributor:



wildenpump.com
BUY NOW ON-LINE

PRINTED IN THE U.S.A.