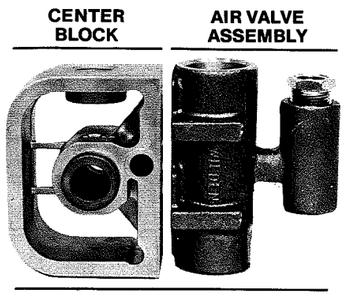
SECTION V
AIR VALVE / CENTER BLOCK DISASSEMBLY / REASSEMBLY

The air valve assembly consists of both the air valve body and piston and the center block. The unique design of the air valve relies only on differential pressure to effect the diaphragm shift. It is reliable and simple to maintain. The bushing in the center block, along with the diaphragm shaft, provides the "trigger" to tell the air valve to shift. The following procedure will ensure that the air valve on your Wilden pump will provide long trouble-free service.

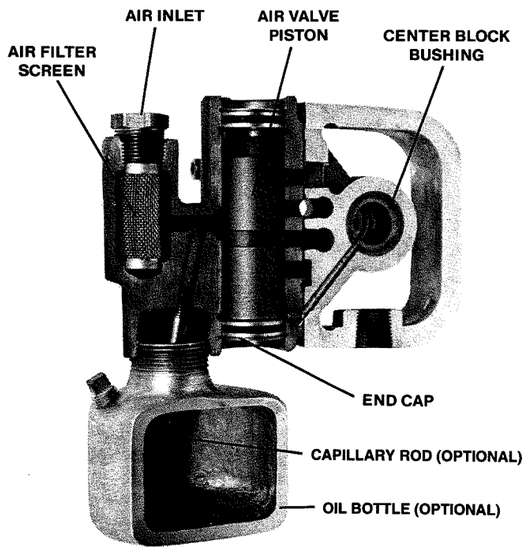
AIR VALVE BODY AND PISTON ASSEMBLY AND DISASSEMBLY:

The air valve body and piston can be disconnected from the pump by removing the four socket head cap screws which attach it to the center block. The piston in the air valve is aluminum with a dark gray anodized coating. The piston should move freely and the ports on the face of the air valve body should align with the ports in the air valve piston (see *Figure D).* The piston should also appear to be dull, dark gray in color. If the piston appears to be a shiny aluminum color, the air valve is probably worn beyond working tolerances and should be replaced.



Center Section Assembly *Figure A*

If the piston does not move freely in the air valve, the entire air valve should be immersed in a cleaning solution. **(NOTE:** Do not force the piston by inserting a metal object.) This soaking should remove any accumulation of sludge and grit which is preventing the air valve piston from moving freely. Also, remove and clean the air valve screen. If the air valve piston does not move freely after the above cleaning, the air valve should be disassembled as follows: remove the snap ring from the top end of the air valve cylinder and apply an air jet to the 3/16-inch hole on the opposite end of the air valve face (see *Figure C).* **CAUTION:** The air valve end cap may come out with considerable force. Hand protection such as a padded glove or rag should be used to capture the end cap.



NOTE: Air valve available with or without oil bottle and capillary rod. *Figure B*

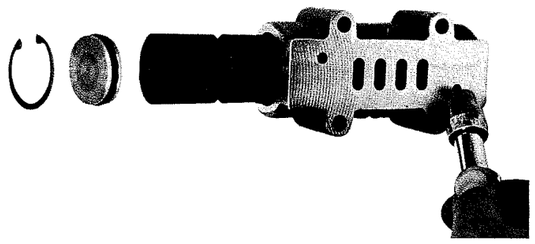


Figure C

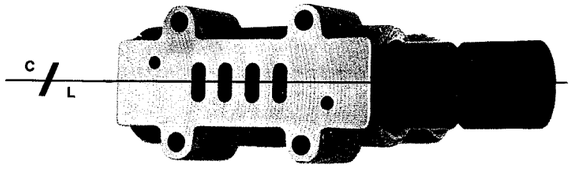


Figure D

Inspect the piston and cylinder bore for nicks and scoring. Small nicks can usually be dressed out the piston returned to service. Inspect the cylinder end caps. Make sure that the guide pin is straight and smooth or the piston will not move freely in the cylinder. New O-rings should be installed oin the end caps, assuring that proper alignment of the piston and cylinder ports is maintained (see *Figure D).* Reinstall air valve to center block of pump. Tighten to the required torque specifications* (Item #1).

O-RING REPLACEMENT:

When the O-rings become worn or flat, they will no longer seal and must be replaced. This is most easily accomplished by using a tool called an O-ring pick, available through most industrial supply companies.

CENTER BLOCK ASSEMBLY:

The pump's center block consists of a polypropylene or die cast housing with a cast-in bronze bushing. The bushing has eleven grooves cut on the inside diameter. There are seven O-rings that fit in these grooves (see *Figure E).* Since these O-rings form a part of the shifting function of the pump, it is necessary that they be located in the proper grooves. The bronze bushing is replaceable in cast iron blocks only. When bushing wear becomes excessive, a new center block must be used.

NOTE: Use an ISO grade 15 oil to lubricate O-rings.

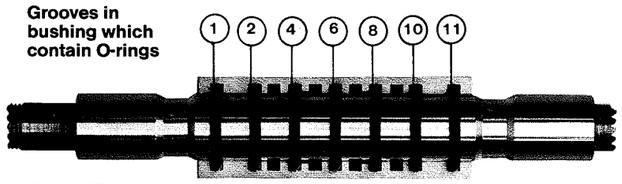


Figure E

Figure F (Side View)

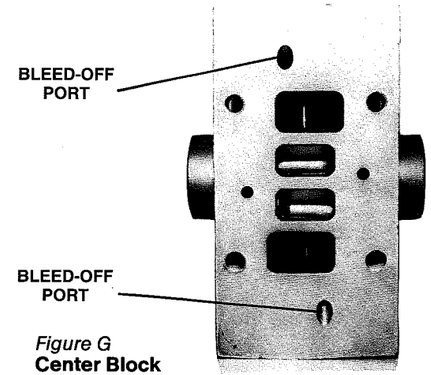
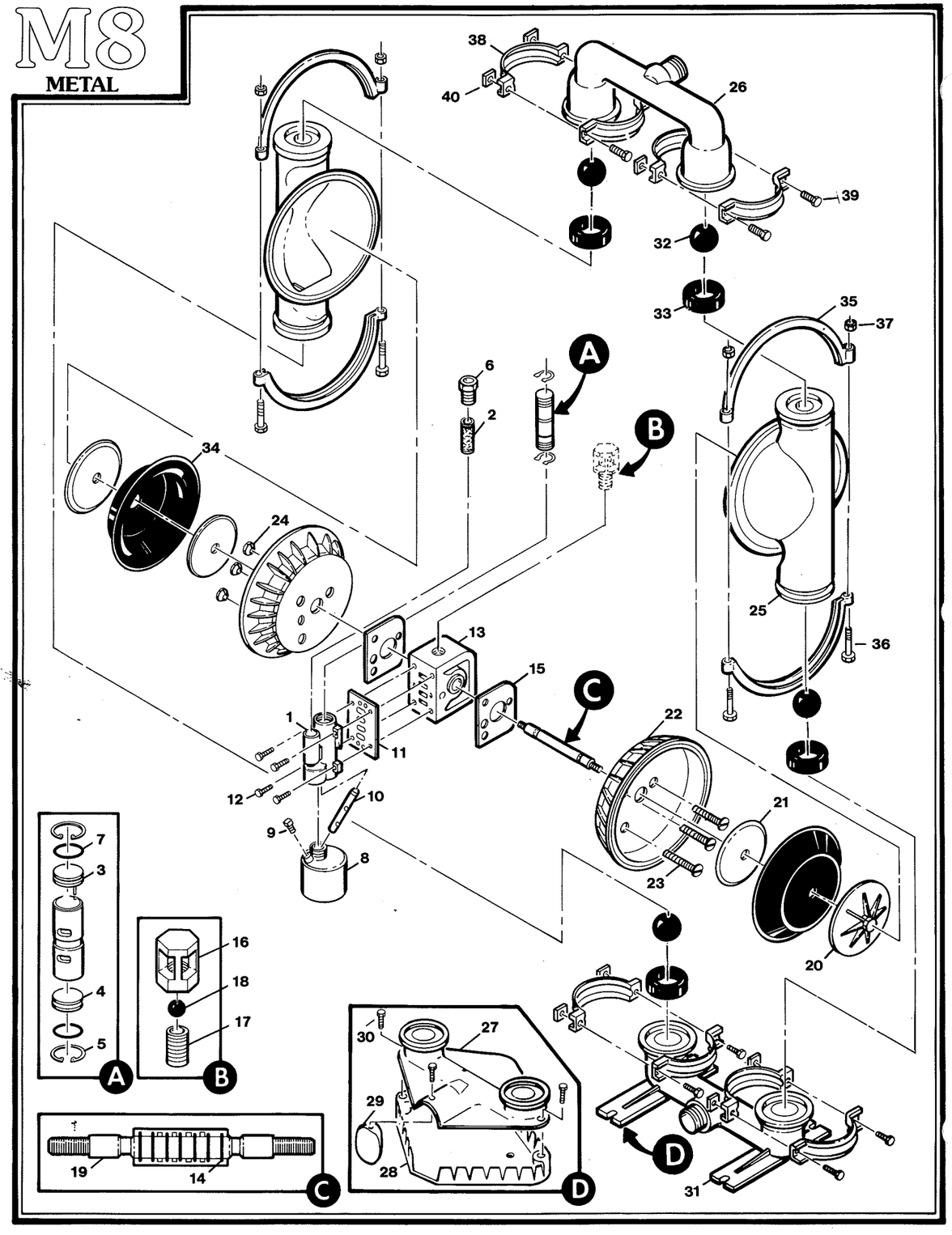


Figure G
Center Block
(Front View)

P/N 20N Bronze Bushing can be pressed into a stainless steel or cast iron center section. (See *Figure F).* When installing a new bushing, two bleeder holes which allow the pump to exhaust air must be drilled. A 7/32" drill should be used. (See *Figure G).*

*Refer to page 7 for the required torque specifications.



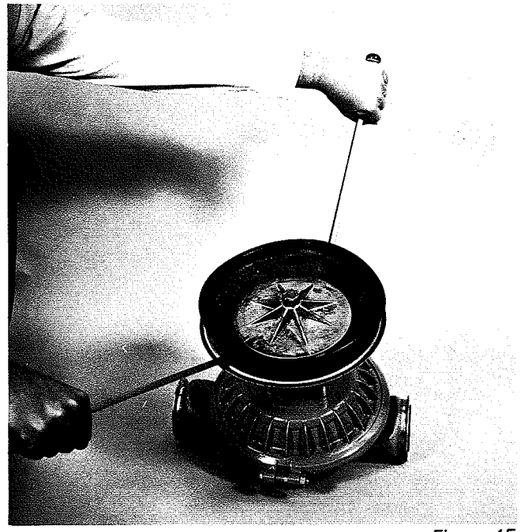


Figure 4F

Figure 4G

Now install water chamber with large clamp band on one side. Center section should then be turned over so that diaphragm can be pushed up with pry bars to full stroke position so that opposite water chamber can be installed. Tighten to the required torque specifications* (Item #7). *(Figure 4F* and *Figure 4G)*. **CAUTION:** Both the top and bottom flange surfaces of the water chambers must be aligned so that they are level and in the same planes to prevent leakage.

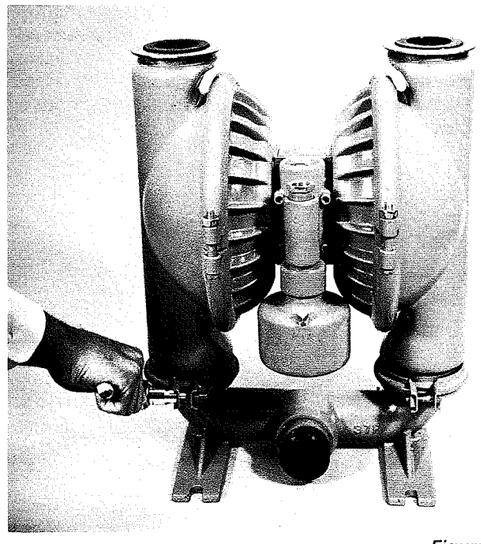


Figure 4H

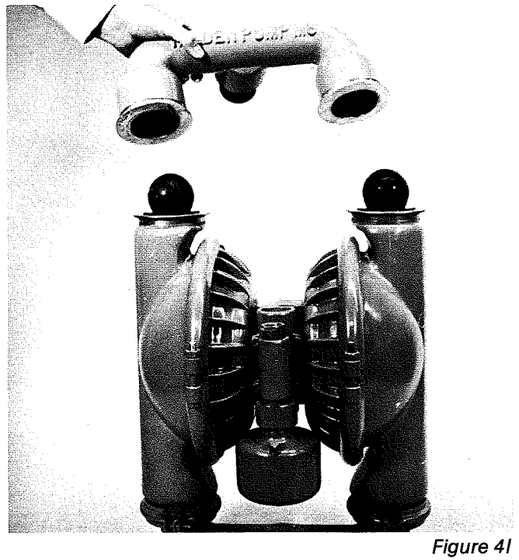


Figure 4I

Install the valve seats in the water chambers and inlet manifold with the molded seat O-ring down inside the seat recess. Next, securely tighten small clamp bands around inlet manifold and water chambers to the required torque specifications* (Item #4 or #5). *(Figure 4H.)* Finally, place discharge manifold over assembled center section *(Figure 4I)* and tighten clamp bands to the required torque specifications* (Item #4 or #5). **Blow out air line for 10 to 20 seconds to make sure all pipeline debris is clear.** Connect the air line and run pump dry. Good suction should be observed at inlet. Refer to pages 5–7 for suction lift data.

*Refer to page 7 for required torque specifications.

Figure 4A

Figure 4B

Step 2

Before assembly, remove the O-rings from the center block bushing and flush center block removing grit and contaminants. Install new O-rings in center block (see page 9). To install shaft, push shaft firmly through the bushing in the center block. Be sure to lubricate bushing with an ISO grade 15-5 wt. oil so that shaft may pass by the O-rings (see *Figure 4A).* Next, push diaphragm down so that it fits into the lip of the air chamber *(Figure 4B).* Then turn center section over and push diaphragm from full stroke position to exhaust position, thus exposing shaft so that other diaphragm can be positioned *(Figure 4C).* Wil-Flex™ and Saniflex™ diaphragms are rigid and cannot be pushed to the exhaust position. These diaphragms should be inverted prior to feeding the shaft through center bushing to allow for proper positioning. Next, place inner piston and opposite diaphragm in position for assembly. Once diaphragms are installed, it is important to tighten outer pistons simultaneously (turning in opposite directions) to ensure a tight, secure fit. Tighten to the required torque specifications* (Item #2 or #3). *(Figure 4E).*

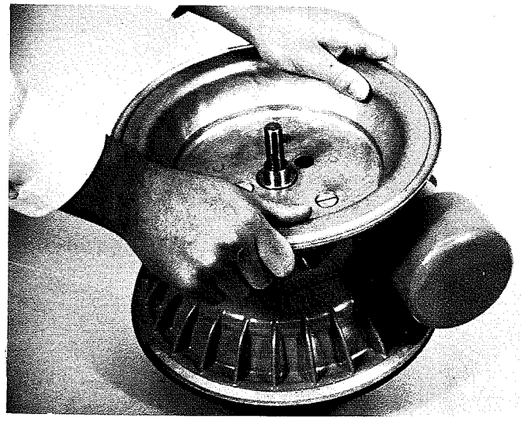


Figure 4C

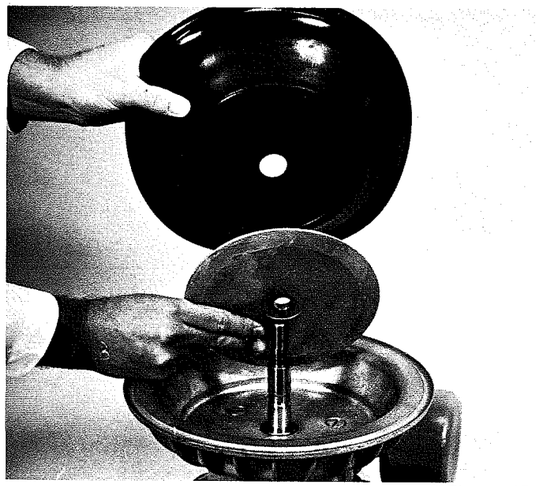


Figure 4D

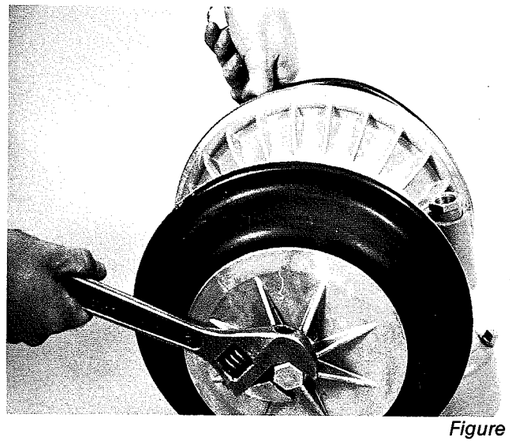


Figure 4E

*Refer to page 7 for the required torque specifications.

Wilden Model M8 Metal with Rubber Fitted Elastomers

Item	Part Description	Qty.	M8 /OO P/N	M8 /FO P/N	M8 /BO P/N	M8 /BF P/N	M8 /OA P/N	M8 /OB P/N	M8 /OF P/N	M8 /FB P/N	M8 /HO P/N	M8 /HF P/N	M8 /HS P/N
1	Air Valve Assembly[1]	1	20A	20A	20A	20A	20A	20A	20A	20A	20A	SP20A	20A
2	Air Valve Screen	1	20E	20E	20E	20E	20E	20E	20E	20E	20E	20E	20E
3	Air Valve End Cap w/Guide (top)	1	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23
4	Air Valve End Cap w/o Guide (bottom)	1	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23
5	Air Valve Snap Ring	2	S20T	S20T	S20T	S20T	S20T	S20T	S20T	S20T	S20T	S20T	S20T
6	Air Valve Bushing	1	20AP	20AP	20AP	20AP	20AP	20AP	20AP	20AP	S20AP	S20AP	20AP
7	Air Valve Cap O-Ring	2	20U	20U	20U	20U	20U	20U	20U	20U	20U	20U	20U
8	Oil Bottle (optional)	1	20D	20D	20D	20D	20D	20D	20D	20D	20D	N/A	20D
9	Plug (optional)	1	20DP	20DP	S20DP	S20DP	20DP	S20DP	20DP	S20DP	20DP	N/A	S20DP
10	Capillary Rod (optional)	1	20C	20C	20C	20C	20C	20C	20C	20C	20C	N/A	20C
11	Air Valve Gasket — Buna	1	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52
12	Air Valve Screw ¾"-18 x 2¼"	4	20AS	20AS	30AS	30AS	20AS	30AS	20AS	30AS	30AS	30AS	30AS
13	Center Block	1	P20H	P20H	P20H	P20H	20H	20H	20H	20H	P20H	SG20H	S20H
14	Center Block O-Ring	7	20JH	20JH	20JH	20JH	20JH	20JH	20JH	20JH	20JH	20JH	20JH
15	Block Gasket — Buna	2	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52
16	Check Body	1	20K8	N/A	20K8	N/A	20K8	20K8	N/A	N/A	N/A	N/A	N/A
17	Nipple	1	20F	N/A	20FS	N/A	20F	20FS	N/A	N/A	N/A	N/A	N/A
18	Check Ball	1	20M	N/A	20M	N/A	20M	20M	N/A	N/A	N/A	N/A	N/A
19	Shaft	1	21A	21A	21A	21A	21A	21A	21A	21A	21A	21A	21A
20	Piston, Outer	2	B21B	B21B	B21B	B21B	B21B	B21B	B21B	B21B	H21B	H21B	H21B
21	Piston, Inner	2	21B	21B	21B	21B	21B	21B	21B	21B	21B	21B	S21C
22	Air Chamber, Counter Sunk	2	22B	22B	22B	22B	22B	22B	22B	22B	22B	SG22B	S22B
23	Air Chamber Screw ⅜"-16 x ½"	3	22C	22C	22C	22C	22C	22C	22C	22C	22C	22C	S22C
24	Air Chamber Cone Nut ⅜"-16	3	22D	22D	22D	22D	22D	22D	22D	22D	22D	22D	S22D
25	Water Chamber	2	35	35	35	35	35	35	35	35	H35	H35	H35
26	Discharge Manifold	1	36	36	B36	B36	36	B36	36	B36	H36	H36	H36
27	Inlet Housing for Screened Base	1	37	N/A	B37	N/A	37	B37	N/A	N/A	N/A	N/A	N/A
28	Screeen for P/N 37	1	38	N/A	38	N/A	38	38	N/A	N/A	N/A	N/A	N/A
29	Suction Hook Up Cover for P/N 37	1	42	N/A	42	N/A	42	42	N/A	N/A	N/A	N/A	N/A
30	Cap Screw for P/N 38 & 42 ⅜"-16 x ⅞"	3	38A	N/A	38AS	N/A	38A	38AS	N/A	N/A	N/A	N/A	N/A
31	Inlet Housing for Footed Base	1	N/A	37F	N/A	B37F	N/A	N/A	37F	B37F	H37	H37	H37
32	Valve Ball[2]	4	—	—	—	—	—	—	—	—	—	—	—
33	Valve Seat[2]	4	—	—	—	—	—	—	—	—	—	—	—
34	Diaphragm[2]	2	—	—	—	—	—	—	—	—	—	—	—
35	Large Clamp Band Half	4	30B	30B	S30B	S30B	30B	S30B	30B	S30B	S30B	S30B	S30B
36	Large Carriage Bolt ⅜"-16 x 2¼"	4	30C	30C	S30C	S30C	30C	S30C	30C	S30C	S30C	S30C	S30C
37	Large Hex Nut ⅜"-16	4	30D	30D	S30D	S30D	30D	S30D	30D	S30D	S30D	S30D	S30D
38	Small Clamp Band Half	8	39A	39A	S39A	S39A	39A	S39A	39A	S39A	S39A	S39A	S39A
39	Small Hex Head Cap Screw ¾"-18 x 1¼"	8	39B	39B	S39B	S39B	39B	S39B	39B	S39B	S39B	S39B	S39B
40	Small Hex Nut ¾"-18	8	39C	39C	S39C	S39C	39C	S39C	39C	S39C	S39C	S39C	S39C
41	Muffler (optional — not shown)	1	70A	70A	70A	70A	70A	70A	70A	70A	70A	70A	70A

Item	Part Description	Qty.	M8 /HW P/N	M8 /SO P/N	M8 /SJ P/N	M8 /SS P/N	M8 /SW P/N	M8 /SX P/N	M8 /WO P/N	M8 /WS P/N	M8 /WW P/N	M8[3] /SGR P/N
1	Air Valve Assembly[1]	1	20A	20A	SP20A	20A	20A	S20A	20A	20A	20A	SP20A
2	Air Valve Screen	1	20E	20E	20E	20E	20E	20E	20E	20E	20E	20E
3	Air Valve End Cap w/Guide (top)	1	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23
4	Air Valve End Cap w/o Guide (bottom)	1	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23
5	Air Valve Snap Ring	2	S20T	S20T	S20T	S20T	S20T	S20T	S20T	S20T	S20T	S20T
6	Air Valve Bushing	1	30AP	30AP	S20AP	30AP	30AP	S20AP	30AP	30AP	30AP	S20AP
7	Air Valve Cap O-Ring	2	20U	20U	20U	20U	20U	20U	20U	20U	20U	20U
8	Oil Bottle (optional)	1	20D	20D	N/A	20D	20D	20D	W20D	W20D	N/A	N/A
9	Plug (optional)	1	20DP	20DP	N/A	20DP	20DP	20DP	20DP	20DP	N/A	N/A
10	Capillary Rod (optional)	1	20C	20C	N/A	20C	20C	20C	20C	20C	N/A	N/A
11	Air Valve Gasket — Buna	1	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52
12	Air Valve Screw ⅜"-18 x 2¼"	4	30AS	30AS	30AS	30AS	30AS	30AS	20AS	30AS	30AS	30AS
13	Center Block	1	P20H	P20H	SG20H	S20H	P20H	S20H	P20H	P20H	P20H	S20H
14	Center Block O-Ring	7	20JH	20JH	20JH	20JH	20JH	20JH	20JH	20JH	20JH	20JH
15	Block Gasket — Buna	2	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52
16	Check Body	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	Nipple	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	Check Ball	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Shaft	1	21A	21A	21A	21A	21A	21A	21A	21A	21A	21A
20	Piston, Outer	2	H21B	S21B	S21B	S21B	S21B	S21B	W21B	W21B	W21B	S21B
21	Piston, Inner	2	21B	21B	21B	S21C	21B	S21C	21B	21B	21B	21B
22	Air Chamber, Counter Sunk	2	W22B	22B	SG22B	S22B	W22B	S22B	22B	22B	W22B	S22B
23	Air Chamber Screw ⅜"-16 x ½"	3	22C	22C	22C	S22C	22C	S22C	22C	22C	22C	S22C
24	Air Chamber Cone Nut ⅜"-16	3	22D	22D	22D	S22D	22D	S22D	22D	22D	22D	S22D
25	Water Chamber	2	H35	S35	S35	S35	S35	S35	W35	W35	W35	S35
26	Discharge Manifold	1	H36	S36	S36	S36	S36	S36	W36	W36	W36	SG36
27	Inlet Housing for Screened Base	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
28	Screeen for P/N 37	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	Suction Hook Up Cover for P/N 37	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	Cap Screw for P/N 38 & 42 ⅜"-16 x ⅞"	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
31	Inlet Housing for Footed Base	1	H37	S37	S37	S37	S37	S37	W37	W37	W37	SG37
32	Valve Ball[2]	4	—	—	—	—	—	—	—	—	—	FG41
33	Valve Seat[2]	4	—	—	—	—	—	—	—	—	—	FB40
34	Diaphragm[2]	2	—	—	—	—	—	—	—	—	—	FG24
35	Large Clamp Band Half[3]	4	S30B	S30B	S30B	S30B	S30B	S30B	30B	S30B	S30B	SG30B
36	Large Carriage Bolt ⅜"-16 x 2¼"	4	S30C	S30C	S30C	S30C	S30C	S30C	30C	S30C	S30C	S30C
37	Large Hex Nut ⅜"-16	4	S30D	S30D	S30D	S30D	S30D	S30D	30D	S30D	S30D	SP30WN
38	Small Clamp Band Half[4]	8	S39A	S39A	S39A	S39A	S39A	S39A	39A	S39A	S39A	SG39A
39	Small Hex Head Cap Screw ¾"-18 x 1¼"	8	S39B	S39B	S39B	S39B	S39B	S39B	39B	S39B	S39B	S39B
40	Small Hex Nut ¾"-18	8	S39C	39C	S39C	S39C	S39C	S39C	39C	S39C	S39C	SP39WN
41	Muffler (optional — not shown)	1	70A	70A	70A	70A	70A	70A	70A	70A	70A	70A

[1]Air Valve Assembly includes parts through 20U. To order pump with oil bottle add letter D to model #. (Example: M8/OOD.)
[2]Refer to corresponding elastomer chart on page 22.
[3]SG pump large clamp band comes with SP30WN wing nut and SP30C washer.
[4]SG pump small clamp band comes with SP39WN wing nut and SP39C washer.
[5]M8/SGR is available with swivel stand (STD-1), model number M8/SGRB.
BSP threads available.

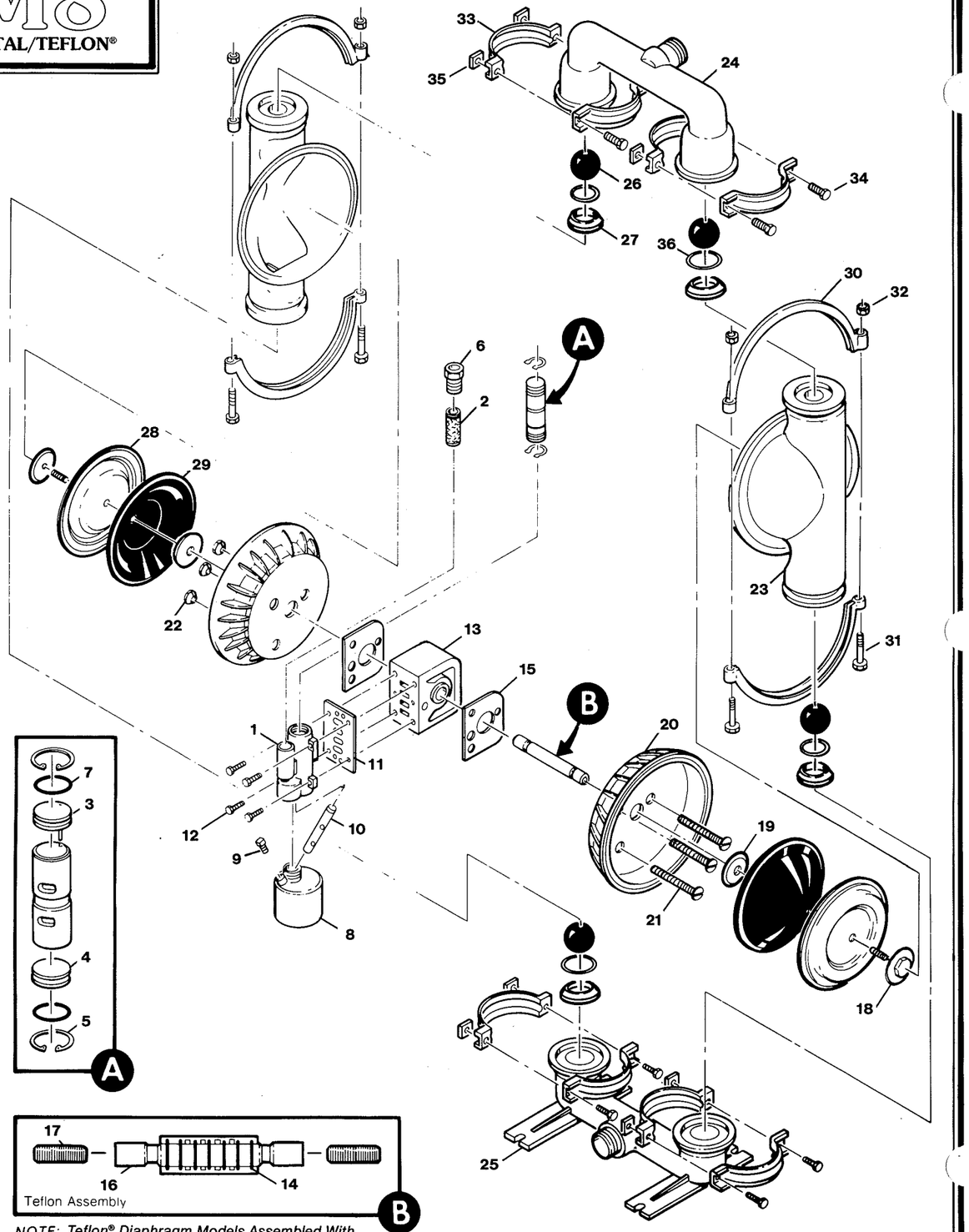
M8 Stallion Pump

Item	Part Description	Qty.	M8 /MOD P/N	M8 /MWD P/N	M8 /MWS P/N
1	Air Valve Assembly[1]	1	08-2080-07	08-2080-07	08-2090-03
2	Air Valve Screen	1	08-2500-07	08-2500-07	08-2500-07
3	Air Valve End Cap w/Guide (Top)	1	08-2340-23	08-2340-23	08-2340-23
4	Air Valve End Cap w/o Guide (Bottom)	1	08-2350-23	08-2350-23	08-2350-23
5	Air Valve Snap Ring	2	S20T	S20T	S20T
6	Air Valve Bushing	1	30AP	30AP	30AP
7	Air Valve Cap O-Ring	2	20U	20U	20U
8	Oil Bottle	1	20D	20D	N/A
9	Plug	1	30DP	30DP	N/A
10	Capillary Rod	1	20C	20C	N/A
11	Air Valve Gasket — Buna	1	08-2600-52	08-2600-52	08-2600-52
12	Air Valve Screw ⅜"-18x2¼"	4	20AS	20AS	30AS
13	Center Block	1	20H	20H	S20H
14	Center Block O-Ring	7	20JH	20JH	20JH
15	Block Gasket — Buna	2	08-3520-52	08-3520-52	08-3520-52
16	Check Body	1	20K8	20K8	20K8
17	Nipple	1	20F	20F	20F
18	Check Ball	1	20M	20M	20M
19	Shaft	1	08-4020-09	08-4020-09	08-4020-09
20	Piston, Outer	2	B21B	W21B	W21B
21	Piston, Inner	2	21B	21B	S21C
22	Air Chamber, Counter Sunk	2	22B	22B	W22B
23	Air Chamber Screws ⅜"-16x¼"	3	22C	22C	S22C
24	Air Chamber Cone Nut ⅜"x16"	3	22D	22D	S22D
25	Water Chamber	2	35	W35	W35
26	Discharge Manifold w/handles	1	08-6070-01	08-6070-02	08-6070-02
27	Inlet Housing, Screen Base, 4-Hole	1	08-6080-01	08-6080-02	08-6080-02
28	Screen Base	1	08-6620-62	08-6620-62	08-6620-62
29	Suction Hook Up Cover	1	42	42	42
30	Cap Screw	4	38A	38A	38AS
32	Valve Ball[2]	4	—	—	—
33	Valve Seat[2]	4	—	—	—
34	Diaphragm[2]	2	—	—	—
35	Large Clamp Band Half	2	30B	30B	S30B
36	Large Carriage Bolt ⅜"-16x2¾"	4	30C	30C	S30C
37	Large Hex Nut ⅜"-16	4	30D	30D	S30D
38	Small Clamp Band Half	4	39A	39A	S39A
39	Sm. Hex Head Cap Screw ¾"-18x1¼"	8	39B	39B	S39B
40	Small Square Nut ¾"-18"	8	39C	39C	S39C
41	Muffler (optional)	1	70A	70A	70A
42	Bumper Pad, Nylon (not shown)	2	08-4240-23	08-4240-23	08-4240-23

BSP threads available.

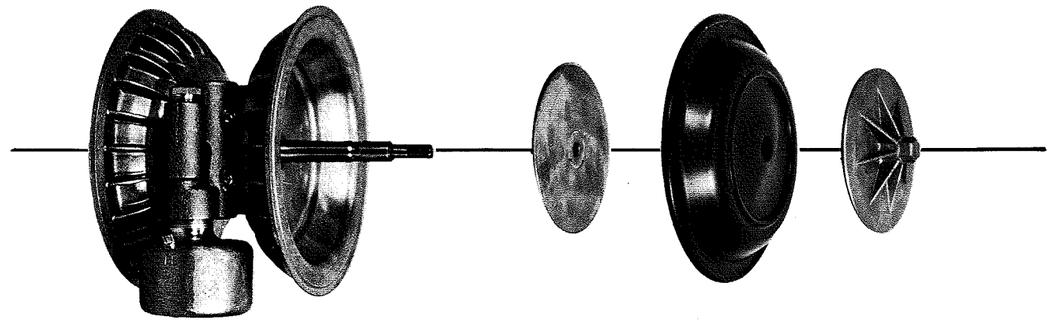
08- Blum should be Poly

08-6620-62

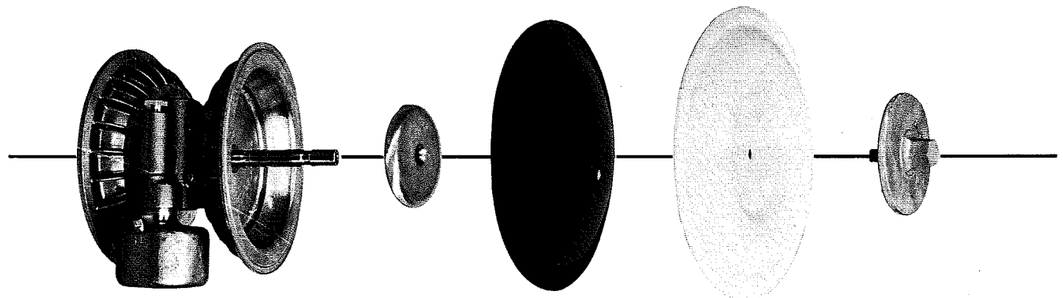


NOTE: *Teflon® Diaphragm Models Assembled With Teflon® Gasket Kit At Factory (Not Shown)*

ASSEMBLY



Step 1 *(RUBBER DIAPHRAGMS)* *Exploded View* *Figure 3A*



(TEFLON® DIAPHRAGMS) *Exploded View* *Figure 3B*

Step 2

Remove the two clamp bands that hold the inlet manifold to the main body of the pump. Lift the main body of the pump from the inlet manifold and set it to one side. The inlet ball valves and seats are now available for examination (see *Figure 2A*). Next, remove large clamp band which attaches water chamber to the center section of the pump (see *Figure 2B*).

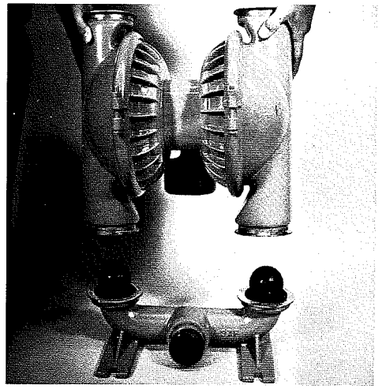


Figure 2A

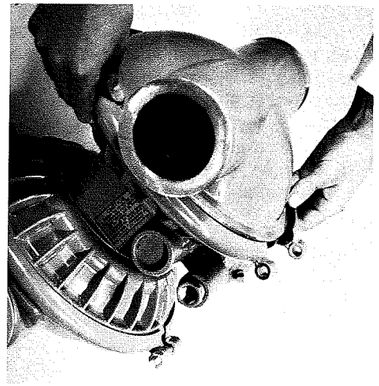


Figure 2B

Remove only one liquid chamber from the center section. This will expose the diaphragm and its piston plate (see *Figure 2C*). The diaphragm and the piston plate can be removed by unscrewing them from the connecting shaft with an adjustable wrench. The opposite diaphragm will be held tight by the opposite liquid chamber (see *Figure 2D*).

Figure 2C

Figure 2D

Now remove the opposite liquid chamber. The second diaphragm is now available for inspection and cleaning (see *Figure 2E*). A vise with wood blocks is suggested as a method of securing the shaft while removing the second diaphragm. **It is important not to score or mark the chrome-plated shaft.**

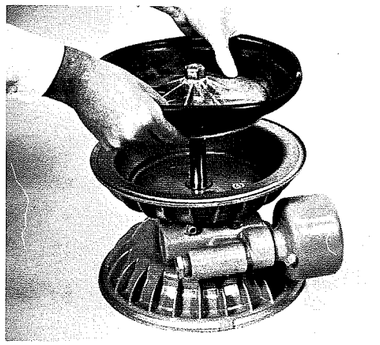


Figure 2E

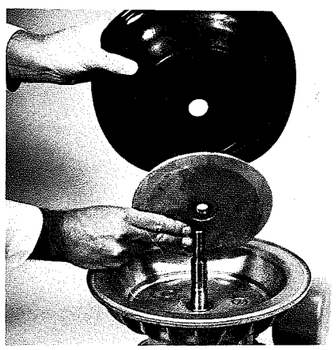


Figure 2F

Upon removing the diaphragms, the inner piston is now exposed and available for inspection (see *Figure 2F*).

Wilden Model M8 Metal with Teflon® Elastomers

Item	Part Description	Qty.	M8 /TO P/N	M8 /OT P/N	M8 /BT P/N	M8 /TB P/N	M8 /ST P/N	M8 /SV P/N	M8 /SY P/N
1	Air Valve Assembly[1]	1	20A	20A	20A	20A	20A	20A	20A
2	Air Valve Screen	1	20E	20E	20E	20E	20E	20E	20E
3	Air Valve End Cap w/Guide (top)	1	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23
4	Air Valve End Cap w/o Guide (bottom)	1	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23
5	Air Valve Snap Ring	2	S20T	S20T	S20T	S20T	S20T	S20T	S20T
6	Air Valve Bushing ¾" X ½"	1	30AP	30AP	30AP	30AP	30AP	30AP	30AP
7	Air Valve Cap O-Ring	2	20U	20U	20U	20U	20U	20U	20U
8	Oil Bottle (optional)	1	20D	20D	20D	20D	20D	20D	20D
9	Plug (optional)	1	20DP	20DP	S20DP	S20DP	20DP	20DP	20DP
10	Capillary Rod (optional)	1	20C	20C	20C	20C	20C	20C	20C
11	Air Valve Gasket — Buna	1	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52
12	Air Valve Screw ¾"-18 x 2¼"	4	20AS	20AS	30AS	30AS	30AS	30AS	30AS
13	Center Block	1	P20H	20H	P20H	20H	P20H	S20H	P20H
14	Center Block O-Ring	7	20JH	20JH	20JH	20JH	20JH	20JH	20JH
15	Block Gasket — Buna	2	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52
16	Shaft	1	T21A	T21A	T21A	T21A	T21A	T21A	T21A
17	Shaft Stud ½"-20 x 1¾"	2	T21F	T21F	T21F	T21F	T21F	T21F	T21F
18	Piston, Outer	2	T21B	T21B	T21B	T21B	T21B	T21B	T21B
19	Piston, Inner	2	T21C	T21C	T21C	T21C	T21C	T21C	T21C
20	Air Chamber, Counter Sunk	2	22B	22B	22B	22B	22B	S22B	W22B
21	Air Chamber Screw ⅜"-16 x ½"	3	22C	22C	22C	22C	22C	S22C	22C
22	Air Chamber Nut	3	22D	22D	22D	22D	22D	S22D	22D
23	Water Chamber	2	35	35	35	35	S35	S35	S35
24	Discharge Manifold	1	36	36	B36	B36	S36	S36	S36
25	Inlet Housing, Footed	1	37F	37F	B37F	B37F	S37	S37	S37
26	Valve Ball[2]	4	TF41	TF41	TF41	TF41	TF41	TF41	TF41
27	Valve Seat[2]	4	A40	A40	A40	A40	S40	S40	S40
28	Diaphragm[2]	2	TF24	TF24	TF24	TF24	TF24	TF24	TF24
29	Diaphragm — Back-up[6]	2	08-1060-56	08-1060-56	08-1060-56	08-1060-56	08-1060-56	08-1060-56	08-1060-56
30	Large Clamp Band Half	4	S30B	S30B	S30B	S30B	S30B	S30B	S30B
31	Large Carriage Bolt ⅜"-16 x 2¾"	4	S30C	S30C	S30C	S30C	S30C	S30C	S30C
32	Large Hex Nut ⅜"-16 3	4	S30D	S30D	S30D	S30D	S30D	S30D	S30D
33	Small Clamp Band Half	8	S39A	S39A	S39A	S39A	S39A	S39A	S39A
34	Small Hex Head Cap Screw ⅜"-18 x 1¼"	8	S39B	S39B	S39B	S39B	S39B	S39B	S39B
35	Small Hex Nut ⅜"-18 4	8	S39C	S39C	S39C	S39C	S39C	S39C	S39C
36	Teflon® Valve Seat O-Ring	4	40T	40T	40T	40T	40T	40T	40T
37	Muffler (optional — not shown)	1	70A	70A	70A	70A	70A	70A	70A

Item	Part Description	Qty.	M8 /SZ P/N	M8 /HT P/N	M8 /HV P/N	M8 /HY P/N	M8 /WT P/N	M8 /WY P/N	M8[5] /SNR P/N
1	Air Valve Assembly[1]	1	S20A	20A	20A	20A	20A	20A	SP20A
2	Air Valve Screen	1	20E	20E	20E	20E	20E	20E	20E
3	Air Valve End Cap w/Guide (top)	1	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23
4	Air Valve End Cap w/o Guide (bottom)	1	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23
5	Air Valve Snap Ring	2	S20T	S20T	S20T	S20T	S20T	S20T	S20T
6	Air Valve Bushing ¾" X ½"	1	S20AP	30AP	30AP	30AP	30AP	30AP	S20AP
7	Air Valve Cap O-Ring	2	20U	20U	20U	20U	20U	20U	20U
8	Oil Bottle (optional)	1	N/A	20D	20D	20D	20D	20D	N/A
9	Plug (optional)	1	N/A	20DP	20DP	20DP	20DP	20DP	N/A
10	Capillary Rod (optional)	1	N/A	20C	20C	20C	20C	20C	N/A
11	Air Valve Gasket — Buna	1	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	06-2600-52	08-2600-52
12	Air Valve Screw ¾"-18 x 2¼"	4	30AS	30AS	30AS	30AS	30AS	30AS	30AS
13	Center Block	1	S20H	P20H	S20H	P20H	P20H	P20H	S20H
14	Center Block O-Ring	7	20JH	20JH	20JH	20JH	20JH	20JH	20JH
15	Block Gasket — Buna	2	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52
16	Shaft	1	T21A	T21A	T21A	T21A	T21A	T21A	T21A
17	Shaft Stud ½"-20 x 1¾"	2	T21F	T21F	T21F	T21F	T21F	T21F	T21F
18	Piston, Outer	2	ST21B	HT21B	HT21B	HT21B	ST21B	ST21B	ST21B
19	Piston, Inner	2	T21C	T21C	T21C	T21C	T21C	T21C	T21C
20	Air Chamber, Counter Sunk	2	S22B	22B	S22B	W22B	22B	W22B	S22B
21	Air Chamber Screw ⅜"-16 x ½"	3	S22C	22C	S22C	22C	22C	22C	22C
22	Air Chamber Nut	3	S22D	22D	S22D	22D	22D	22D	S22D
23	Water Chamber	2	S35	H35	H35	H35	W35	W35	S35
24	Discharge Manifold	1	S36	H36	H36	H36	W36	W36	SG36
25	Inlet Housing, Footed	1	S37	H37	H37	H37	W37	W37	SG37
26	Valve Ball[2]	4	TF41	TF41	TF41	TF41	TF41	TF41	TF41
27	Valve Seat[2]	4	S40	H40	H40	H40	CS40	CS40	S40
28	Diaphragm[2]	2	TF24	TF24	TF24	TF24	TF24	TF24	TF24
29	Diaphragm — Back-up[6]	2	08-1060-56	08-1060-56	08-1060-56	08-1060-56	08-1060-56	08-1060-56	08-1060-56
30	Large Clamp Band Half[3]	4	S30B	S30B	S30B	S30B	S30B	S30B	SG30B~
31	Large Carriage Bolt ⅜"-16 x 2¾"	4	S30C	S30C	S30C	S30C	S30C	S30C	S30C
32	Large Hex Nut ⅜"-16 3	4	S30D	S30D	S30D	S30D	S30D	S30D	SP30WN
33	Small Clamp Band Half	8	S39A	S39A	S39A	S39A	S39A	S39A	S39A
34	Small Hex Head Cap Screw ⅜"-18 x 1¼"	8	S39B	S39B	S39B	S39B	S39B	S39B	S39B
35	Small Hex Nut ⅜"-18 4	8	S39C	S39C	S39C	S39C	S39C	S39C	SP39WN
36	Teflon® Valve Seat O-Ring	4	40T	40T	40T	40T	40T	40T	40T
37	Muffler (optional — not shown)	1	70A	70A	70A	70A	70A	70A	70A

[1]Air Valve Assembly includes parts through 20U. To order pump with oil bottle add letter D to model #. (Example: M8/OOD.)
[2]Refer to corresponding elastomer options on page 22.
[3]SN pump large clamp band comes with SP30WN wing nut and SP30C washer.
[4]SN pump small clamp band comes with SP39WN wing nut and SP39C washer.
[5]M8/SNR is available with swivel stand (STD-1), model number M8/SNRB.
[6]Neoprene back-up diaphragms, P/N TF24B, are available upon request. Please consult your local distributor.
BSP threads available.

Elastomers for M8 Metal Pumps

MATERIAL	VALVE BALLS (4) ITEM #32	VALVE SEATS (4) ITEM #33	DIAPHRAGMS ITEM #34	VALVE SEAT O-RING (4)
Polyurethane	08-1080-50	08-1120-50	PU24	—
Neoprene	41	40	24	—
Buna-N	BN41	BN40	BN24	40B[3]
Nordel	ND41	ND40	ND24	—
Viton	VT41	VT40	VT24	—
Saniflex™	FG41	FB40	FG24	08-1200-56[3]
Teflon® PTFE	TF41	—	TF24	40T[3]
Saniflex™ Back-up[2]	—	—	08-1060-56[1]	
Wil-Flex™	08-1080-58	08-1120-58	08-1060-58	

[1]Use Saniflex™ back-up diaphragms with Teflon® diaphragms only.
[2]Neoprene back-up diaphragms, P/N TF24B, are available upon request. Please consult your local Distributor
[3]Utilized in conjunction with metallic seat.

Elastomers for M8 Stallion

MATERIAL	VALVE BALLS (4) ITEM #32	VALVE SEATS (4) ITEM #33	DIAPHRAGMS ITEM #34
Polyurethane	08-1090-62	08-1130-62	PU24
Buna-N	08-1090-52	08-1130-52	—
Wil-Flex™	08-1090-58	08-1130-58	08-1060-58
Saniflex™	08-1090-56	08-1130-56	FG24

Elastomers for M8 Champ Pumps (Plastic)

MATERIAL	VALVE SEAT O-RING (4) ITEM #28	MANIFOLD O-RING (4) ITEM #29	DIAPHRAGM (2) ITEM #30	VALVE BALL (4) ITEM #32
Polyurethane	P40P	P32P	PU24	08-1080-50
Neoprene	—	—	24	41
Buna-N	P40B	P32B	BN24	BN41
Nordel	—	—	ND24	ND41
Viton	—	—	VT24	VT41
Saniflex™	—	—	FG24	FG41
Teflon® PTFE	—	—	TF24[3]	TF41
Saniflex™ Back-up	—	—	08-1060-56[4]	—
Wil-Flex™	—	—	08-1010-58	08-1080-58
Teflon®-Encapsulated Silicone	TFE40B[1]	TFE32BV[1]	—	—
Teflon®-Encapsulated Viton	TFE40BV[2]	TFE32BV[2]	—	—

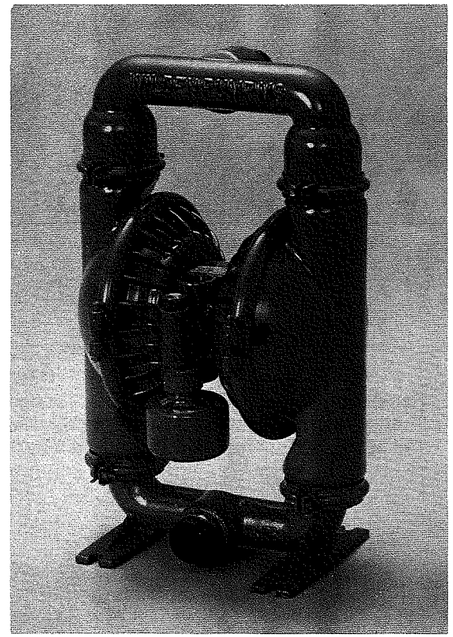
NOTES
[1]Teflon®-encapsulated silicone O-rings, TFE40B and TFE32B, are standard on all Teflon®-fitted polypropylene pumps.
[2]Teflon®-encapsulated Viton O-rings, TFE40BV and TFE32BV, are standard on all Teflon®-fitted PVDF pumps.
[3]Teflon® diaphgram, TF24, must be used with Saniflex™ back-up diaphragms, P/N ;08-1060-56.
[4]Neoprene back-up diaphragm, P/N TF24B, is available upon request. Please consult your local distributor.

SECTION IV
MODEL M8 METAL
DIRECTIONS FOR DISASSEMBLY/REASSEMBLY

CAUTION: Before any maintenance or repair is attempted, the compressed air line to the pump should be disconnected and all air pressure allowed to bleed from 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. Wear safety glasses. When diaphragm failure occurs, material being pumped may be forced out air exhaust.

The M8 has a 2" inlet and 2" outlet and is designed for flow up to 155 gpm. Its air distribution system is based upon design simplicity and proven efficiency. The model M8 is available in aluminum, cast iron, 316 stainless steel or Hastelloy wetted parts. It is available with optional screened inlet base for submersible applications. For highly corrosive applications, polypropylene and PVDF models are available and are discussed in Section VI.

NOTE: Before starting disassembly, mark a line from each liquid chamber to its corresponding air chamber. This line will assist in proper alignment during reassembly.



Disassembly:
Step 1

NOTE: Models used for these instructions incorporate rubber diaphragms, balls and seats. Models with Teflon® diaphragms, balls and seats are the same except where noted.

Start by removing the two clamp bands that fasten the discharge manifold to the main body of the pump *(Figure 1A* and *Figure 1B).* The discharge valve balls and seats are now available for inspection.

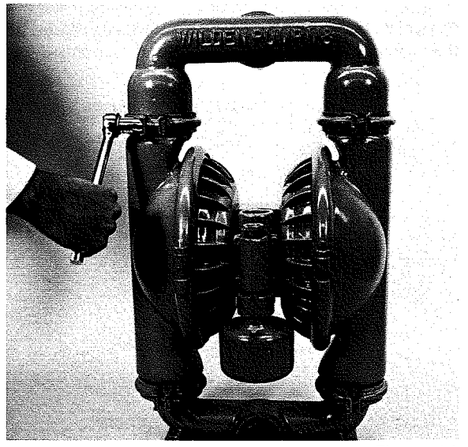


Figure 1A

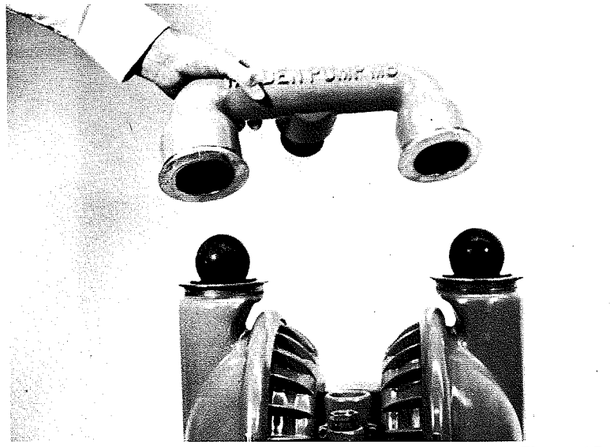


Figure 1B

MAINTENANCE RECORD

DATE	SERVICE RENDERED	SERVICED BY

SECTION VI

MODEL M8 CHAMP (Plastic)

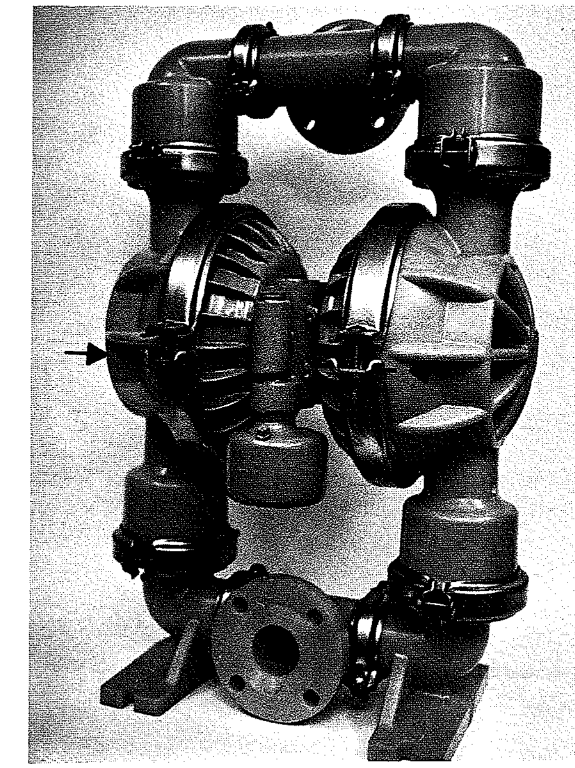
DIRECTIONS FOR DISASSEMBLY/REASSEMBLY

CAUTION: Before any maintenance or repair is attempted, the compressed air line to the pump should be disconnected and all air pressure allowed to bleed from 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.

The Wilden "Champ" is a Wilden model M8 pump (2-inch) with all-wetted parts of injection molded polypropylene or PVDF material. Performance and operation of the "Champ" are essentially the same as other Wilden model M8 pumps of metal construction subject to temperature and chemical compatibility of the material being pumped with polypropylene and PVDF.

The air valve, center section, and diaphragms are standard M8 components. The "Champ" pump differs, however, in that flanges (150 psi American Standard Pipe) are utilized instead of threaded inlet and discharge parts; increased external dimensions; and 10 sets of clamp bands instead of 6. Performance and operation are the same as a metal construction M8 with one exception: the maximum temperature for the polypropylene is limited to 175 degrees Fahrenheit and 225 degrees Fahrenheit for the PVDF.

NOTE: Before starting disassembly, mark a line from each liquid chamber to its corresponding air chamber. This line will assist in proper alignment during reassembly.



DISASSEMBLY: Step 1

NOTE: Model used for these instructions incorporates Teflon® diaphragms, balls, and valve seat O-rings. Models with rubber diaphragms, balls and O-rings are the same except where noted.

Start by removing the two clamp bands that fasten the discharge manifold to the main body of the pump.

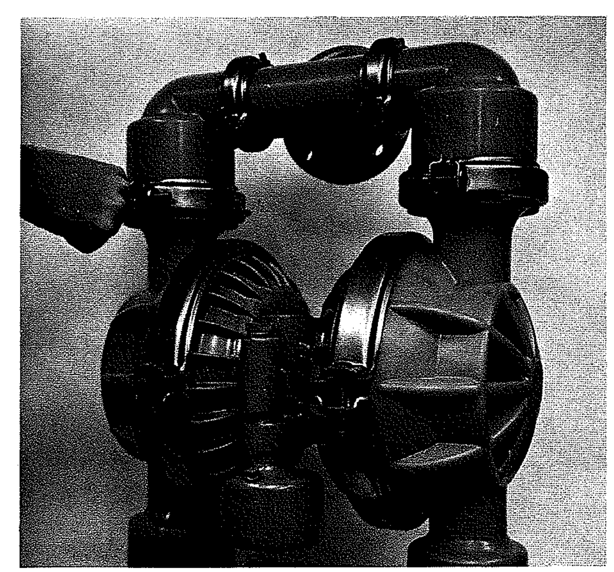


Figure 1A

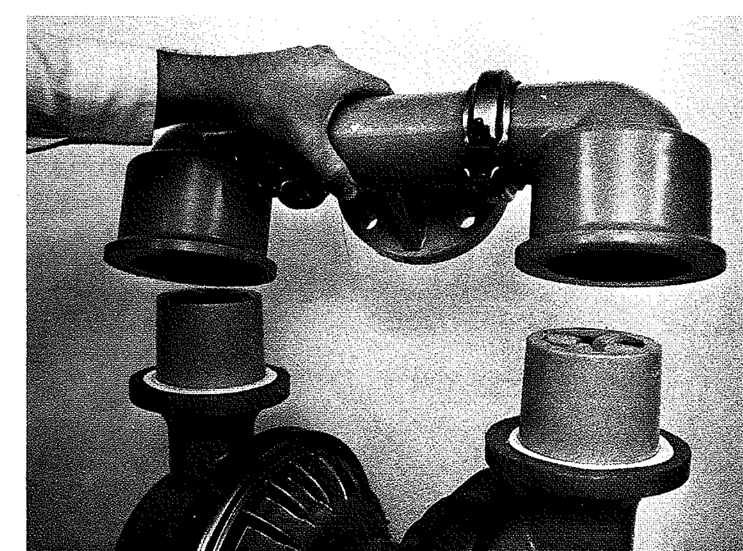


Figure 1B

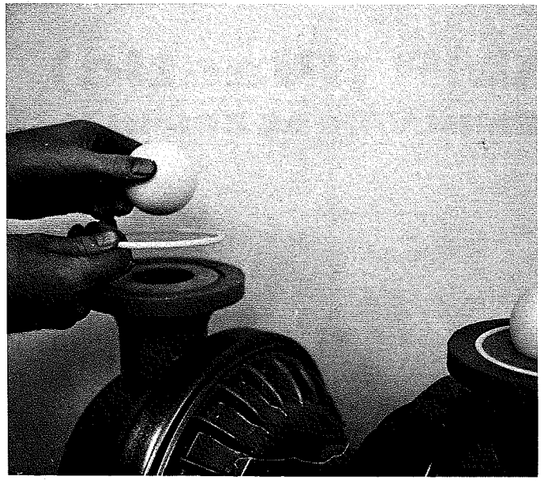


Figure 2A

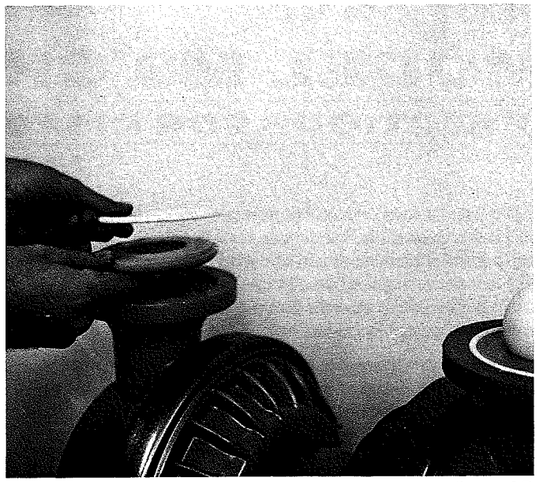


Figure 2B

Step 2

The valve ball, round O-ring and the seat are now exposed for inspection. If the O-ring is flattened or out-of-round, it must be replaced. Valve ball and seat should be inspected for damage or excessive wear.

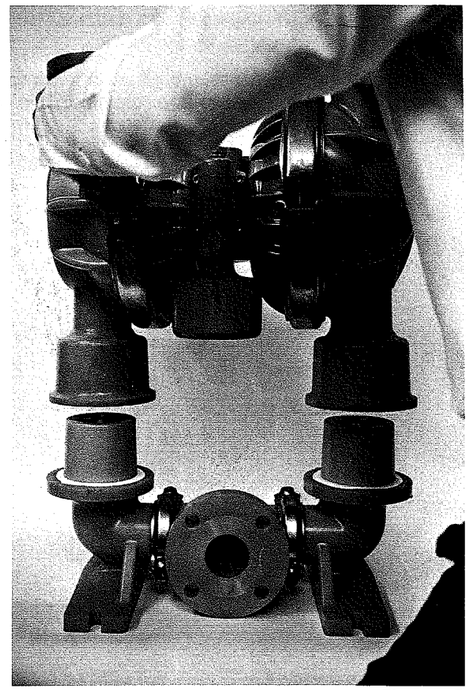


Figure 3B

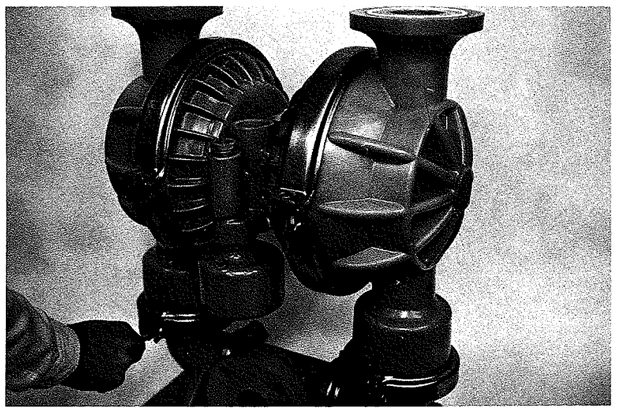


Figure 3A

Step 3

Remove the two clamp bands that hold the inlet manifold to the main body of the pump. Lift the main body of the pump from the inlet manifold and set it to one side. The inlet ball valves, cages, seats and O-rings are now available for examination.

Pump discharge rate can be controlled by limiting the volume and/or pressure of the air supply to the pump (preferred method). The use of a needle valve installed at the air inlet to the pump is suggested for this purpose. Pump discharge rate can also be controlled by throttling the pump discharge by installing a valve in the discharge line of the pump when the need to control the pump from a remote location exists. When the pump discharge pressure equals or exceeds the air supply pressure, the pump will stop; no bypass or pressure relief valve is needed, and pump damage will not occur. When operation is controlled by a solenoid valve in the air line, a three-way valve should be used. Pumping volume can be set by counting the number of strokes per minute.

A muffler installed on the pump's air exhaust will give quiet exhaust. Sound levels are reduced below OSHA specifications using a Wilden muffler.

3. ELEVATION: Selecting a site that is well within the pump's dynamic lift capability will assure that loss-of-prime troubles will be eliminated. In addition, pump efficiency can be adversely affected if proper attention is not given to elevation (see pump performance chart).

4. PIPING: Final determination of the pump site should not be made until the piping problems of each possible location have been evaluated. The impact of current and future installations should be considered ahead of time to make sure that inadvertent restrictions are not created for any remaining sites.

The best choice possible will be a site involving the shortest and the straightest hook-up of suction and discharge piping. Unnecessary elbows, bends, and fittings should be avoided. Pipe sizes should be selected so as to keep friction losses within practical limits. All piping should be supported independently of the pump. In addition, it should line up without placing stress on the pump fittings.

Expansion joints can be installed to aid in absorbing the forces created by the natural reciprocating action of the pump. If the pump is to be bolted down to a solid foundation, a mounting pad placed between the pump and foundation will assist in minimizing pump vibration. Flexible connections between the pump and rigid piping will also assist in minimizing pump vibration. If quick-closing valves are installed at any point in the discharge system, or if pulsation within a system becomes a problem, a surge suppressor should be installed to protect the pump, piping and gauges from surges and water hammer.

When pumps are installed in applications involving flooded suction or suction head pressures, a gate valve should be installed in the suction line to permit closing of the line for pump service.

INSPECTIONS: Periodic inspections have been found to offer the best means for preventing unscheduled pump downtime.

Individuals responsible for checking and maintaining lubrication levels in the pumps should also check for any abnormal noise or leakage. Personnel familiar with the pumps' construction and service should be informed of any abnormalities that are detected.

RECORDS: When service is required, a record should be made of all necessary repairs and replacements. Over a period of time, such records can become a valuable tool for predicting and preventing future maintenance problems and unscheduled downtime. In addition, accurate records make it possible to identify pumps that are poorly suited to their applications.

SECTION III
TROUBLESHOOTING

Pump will not run or runs slowly.

1. Check air inlet screen and air filter for debris.
2. Check for sticking air valve, flush air valve in solvent.
3. Check for worn out air valve. If piston face in air valve is shiny instead of dull, air valve is probably worn beyond working tolerances and must be replaced.
4. Check center block O-rings. If worn excessively, they will not seal and air will simply flow through pump and out air exhaust. Use only Wilden O-rings as they are of special construction.
5. Check for rotating piston in air valve.
6. Check type of lubricant being used. A higher viscosity oil than suggested may cause the piston to stick or run erratically. Wilden suggests the use of a hydraulic oil with arctic characteristics (ISO 15-5 wt.).

Pump runs but little or no product flows.

1. Check for pump cavitation; slow pump speed down to match thickness of material being pumped.
2. Check for sticking ball checks. If material being pumped is not compatible with pump elastomers, swelling may occur. Replace ball checks and seal with proper elastomers.
3. Check to make sure all suction connections are air tight, especially clamp bands around intake balls.

Pump air valves freezes.

Check for excessive moisture in compressed air. Either install dryer or hot air generator for compressed air.

Air bubbles in pump discharge.

1. Check for ruptured diaphragm.
2. Check tightness of clamp bands, especially at intake manifold.

Product comes out air exhaust.

1. Check for diaphragm rupture.
2. Check tightness of piston plates to shaft.

SECTION I
INSTALLATION

The Model M8 has a 2" inlet and 2" outlet and is designed for flows to 155 gpm. The **M8 Champ** pump is manufactured with wetted parts of pure, unpigmented PVDF or Polypropylene. The **M8 Metal** is manufactured of aluminum, cast iron, stainless steel or Hastelloy. The center block of the **M8** is constructed of glass-filled polypropylene. A variety of diaphragms, valve balls, and O-rings are available to satisfy temperature, chemical compatibility, abrasion and flex concerns.

The suction pipe size should be at least 2" diameter or larger if highly viscous material is being pumped. The suction hose must be non-collapsible, reinforced type as the M8 is capable of pulling a high vacuum. Discharge piping should be at least 2"; larger diameter can be used to reduce friction losses. It is critical that all fittings and connections are airtight or a reduction or loss of pump suction capability will result.

For M8 Champ models, a non-raised surfaced-flange adapter should be utilized when mating to the pump's inlet and discharge manifolds for proper mechanical sealing.

The M8 can be used in submersible applications only when both wetted and non-wetted portions are compatible with the material being pumped. If the pump is to be used in a submersible application, a hose should be attached to the pump's air exhaust and the exhaust air piped above the liquid level.

If the pump is to be used in a self-priming application, be sure that all connections are airtight and that the suction lift is within the pump's ability. Note: Materials of construction and elastomer material have an effect on suction lift parameters. Please consult Wilden distributor's for specifics.

Pumps in service with a positive suction head are most efficient when inlet pressure is limited to 7–10 psig. Premature diaphragm failure may occur if positive suction is 11 psig and higher.

THE MODEL M8 WILL PASS 1/4" SOLIDS. THE M8 STALLION WILL PASS 3/4" SOLIDS. WHENEVER THE POSSIBILITY EXISTS THAT LARGER SOLID OBJECTS MAY BE SUCKED INTO THE PUMP, A STRAINER SHOULD BE USED ON THE SUCTION LINE.

CAUTION: DO NOT EXCEED 125 PSIG AIR SUPPLY PRESSURE.

BLOW OUT AIR LINE FOR 10 TO 20 SECONDS BEFORE ATTACHING TO PUMP TO MAKE SURE ALL PIPE LINE DEBRIS IS CLEAR.

SECTION II
SUGGESTED OPERATION AND MAINTENANCE INSTRUCTIONS

INSTALLATION: Months of careful planning, study, and selection efforts can result in unsatisfactory pump performance if installation details are left to chance.

Premature failure and long term dissatisfaction can be avoided if reasonable care is exercised throughout the installation process.

LOCATION: Noise, safety, and other logistical factors usually dictate that "utility" equipment be situated away from the production floor. Multiple installations with conflicting requirements can result in congestion of utility areas, leaving few choices for siting of additional pumps.

Within the framework of these and other existing conditions, every pump should be located in such a way that four key factors are balanced against each other to maximum advantage.

1. ACCESS: First of all, the location should be accessible. If it's easy to reach the pump, maintenance personnel will have an easier time carrying out routine inspections and adjustments. Should major repairs become necessary, ease of access can play a key role in speeding the repair process and reducing total downtime.

2. AIR SUPPLY: Every pump location should have an air line large enough to supply the volume of air necessary to achieve the desired pumping rate (see pump performance chart). Use air pressure up to a maximum of 125 psi depending upon pumping requirements.

For best results, the pumps should use an air filter, regulator, and lubricator system. The use of an air filter before the pump will insure that the majority of any pipeline contaminants will be eliminated. The use of a lubricant, suitable for the application, helps perform a number of functions. Lubricants reduce friction to minimize required shifting forces and reduce wear. Lubricants provide a protective coating against some forms of corrosion and contaminants. **Wilden suggests an oil with arctic characteristics (ISO 15-5Wt.) This oil is chemically compatible with the center block O-rings and has a low pour point to guard against problems associated with low temperatures.** The amount of lubrication required is directly related to the amount of oil introduced from the factory air system. We therefore suggest that the lowest setting on the lubricator be utilized and then increased as necessary.

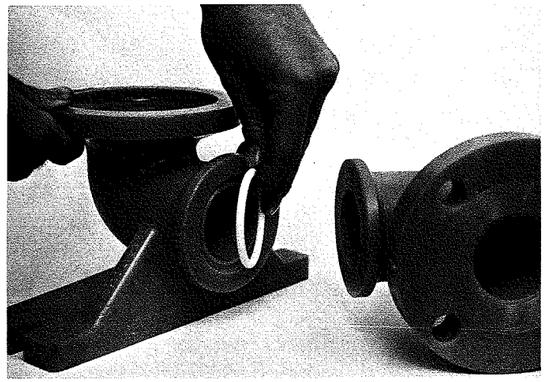


Figure 4A

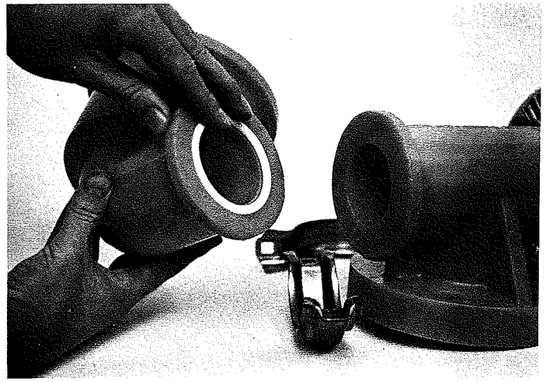


Figure 4B

Step 4

Both inlet *(Figure4A)* and discharge *(Figure 4B)* manifolds can now be disassembled by removing their clamp bands. Make sure the round O-rings are not damaged or swollen. These O-rings form the seal between the manifold ports and will not perform their function if damaged. **NOTE:** Manifolds need not normally be disassembled for maintenance.

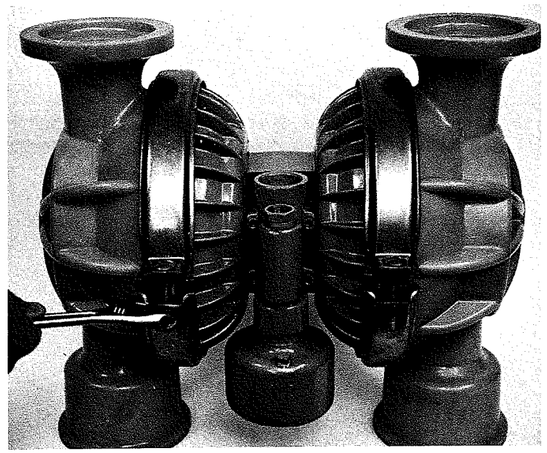


Figure 5A

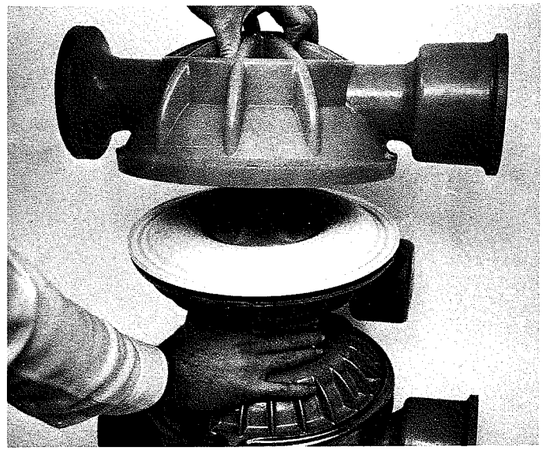


Figure 5B

Step 5

Remove only one liquid chamber from the center section. This will expose the diaphragm and its piston plate. By grasping the outer edges of the diaphragm and turning counterclockwise, the diaphragm and piston plate can be removed by unscrewing them from the connecting shaft. The opposite diaphragm will be held tight by the opposite liquid chamber. **NOTE:** The shaft may unscrew from the opposite diaphragm. Flats are provided on the piston plate for a wrench if necessary. If needed, a vise with wood blocks is the recommended method of securing the shaft while removing the second outer piston. Now remove the opposite liquid chamber. The second diaphragm is now available for inspection and cleaning. At this point of disassembly, all liquid contact areas of the pump are available for inspection and cleaning.

If inspection and/or servicing of the non-wetted air section is necessary please see Section VII.

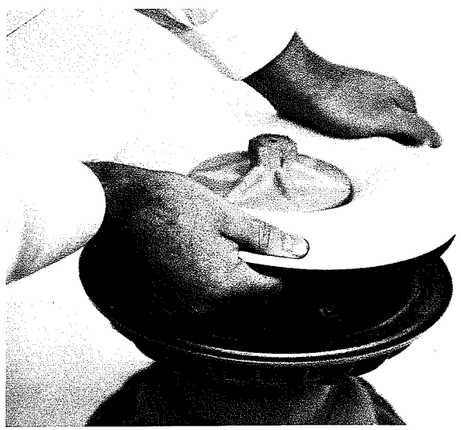
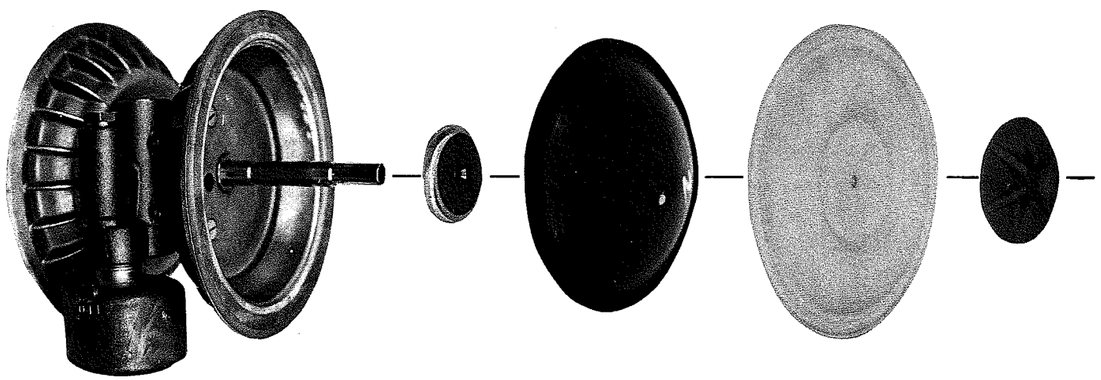


Figure 5C

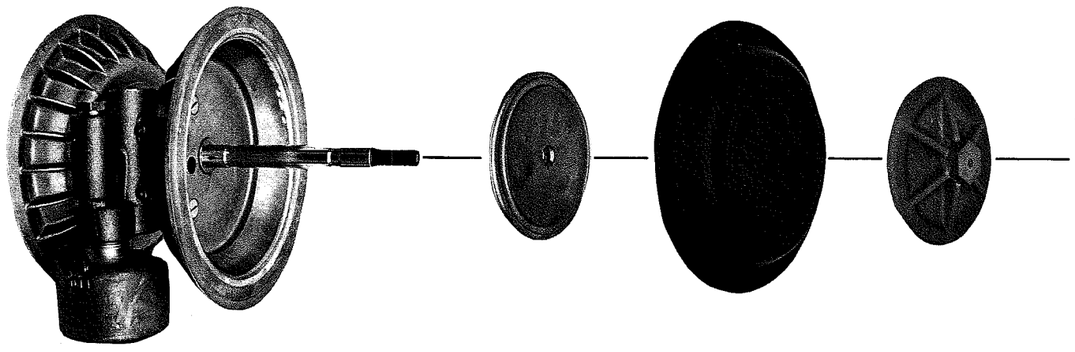
ASSEMBLY:



Exploded View *Figure 6A*

Step 1 (Teflon® Diaphragms)

First, install diaphragm and inner and outer piston plates on shaft. Observe the **"This Side Out"** marking on the convex side of the diaphragm. Hand-tighten the outer piston to the shaft only, at this time *(Figure 7A).* Lubricate the center block bushing with a 5wt ISO grade 15 oil and insert the shaft through the bushing until the outer bead of the diaphragm just touches the circumference groove of the air chamber.



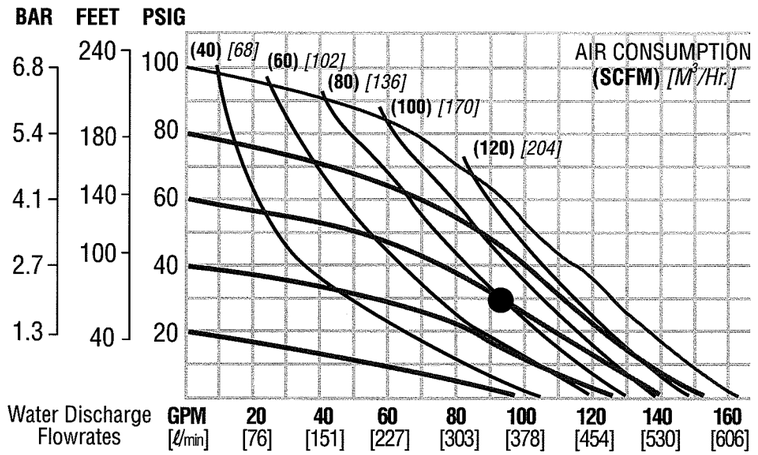
Exploded View *Figure 6B*

(Rubber Diaphragms)

MODEL M8 STALLION (TPE-Fitted) PUMP PERFORMANCE CURVE

Height.....27⅜"
Width.....16⅛"
Depth.....13⅝"
Weight.....73 lbs.
Air Inlet.....½" Female NPT
Inlet.....2" NPT*
Outlet.....2" NPT*
Suction Lift.....9' Dry
25' Wet
Max. Size Solids.....¾" Dia.

Example: To pump 92 gpm against a discharge pressure of 30 psig requires 60 psig and 80 scfm air consumption. (See dot on chart.)



Volumes indicated on chart were determined by actually pumping water in calibrated tanks.

*BSP threads available.

Torque Specifications for Model M8 (Metal and Plastic)

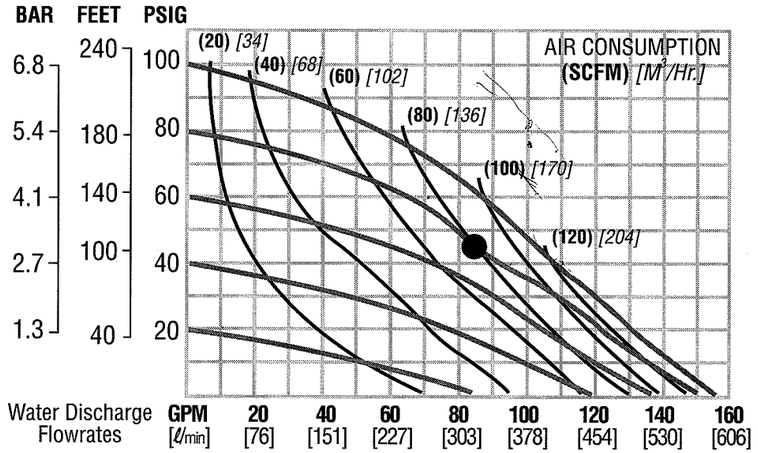
Item #	Description of Part	Required Torque	
		Metal	Plastic
1	Air Valve	85 in.-lbs. [9.6 m-N]	60 in.-lbs. [6.8 m-N]
2	Outer Piston (Teflon-Fitted)	78 ft.-lbs. [105.8 m-N]	58 ft.-lbs. [78.6 m-N]
3	Outer Piston (Rubber-Fitted)	78 ft.-lbs. [105.8 m-N]	58 ft.-lbs. [78.6 m-N]
4	Small Clamp Band (Teflon-Fitted)	58 in.-lbs. [6.6 m-N]	55 in.-lbs. [6.2 m-N]
5	Small Clamp Band (Rubber-Fitted)	25 in.-lbs. [2.8 m-N]	55 in.-lbs. [6.2 m-N]
6	Medium Clamp Band	—	90 in.-lbs. [10.2 m-N]
7	Large Clamp Band (All)	35 ft.-lbs. [47.4 m-N]	28 ft.-lbs. [40.0 m-N]
8	Center Block Assembly	23 ft.-lbs. [31.1 m-N]	23 ft.-lbs. [31.2 m-N]
9	Plastic Screen Base	20 in.-lbs. [2.3 m-N]	—
10	Metal Screen Base	80 in.-lbs. [9.0 m-N]	—
11	Inlet Cover	80 in.-lbs. [9.0 m-N]	—

WILDEN MODEL M8 METAL (Rubber/TPE-Fitted) PUMP PERFORMANCE CURVE

Height.....26 1/32"
Width.....15 29/32"
Depth.....13 1/2"
Ship Weight .....Aluminum 67 lbs.
Cast Iron 112 lbs.
Stainless Steel 102 lbs.
Hastelloy 112 lbs.
Air Inlet .....1/2" Female NPT
Inlet.....2" NPT*
Outlet.....2" NPT*
Suction Lift .....**Rubber 20' Dry**
25' Wet
TPE 13' Dry
25' Wet
Displacement per Stroke .... .725 gal.[1]
Max. Size Solids .....1/4" Dia.

Example: To pump 85 gpm against a discharge pressure of 45 psig requires 80 psig and 80 scfm air consumption. (See dot on chart.)

[1]Displacement per stroke was calculated at 70 psig air inlet pressure against a 30 psig head pressure.



Volumes indicated on chart were determined by actually pumping water in calibrated tanks.

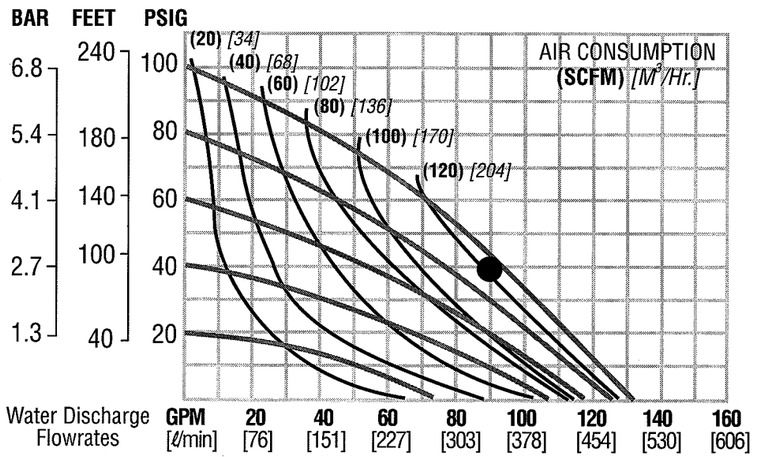
*BSP threads available.

WILDEN MODEL M8 METAL (Teflon®-Fitted) Pump Performance Curve

Height.....26 1/32"
Width.....15 29/32"
Depth.....13 1/2"
Ship Weight .....Aluminum 67 lbs.
Cast Iron 112 lbs.
Stainless Steel 102 lbs.
Hastelloy 112 lbs.
Air Inlet .....1/2" Female NPT
Inlet.....2" NPT*
Outlet.....2" NPT*
Suction Lift.....8' Dry
25' Wet
Displacement per Stroke .... .376 gal.[1]
Max. Size Solids .....1/4" Dia.

Example: To pump 90 gpm against a discharge pressure of 40 psig requires 95 psig and 122 scfm air consumption. (See dot on chart.)

[1]Displacement per stroke was calculated at 70 psig air inlet pressure against a 30 psig head pressure.



Volumes indicated on chart were determined by actually pumping water in calibrated tanks.

*BSP threads available.

Figure 7A

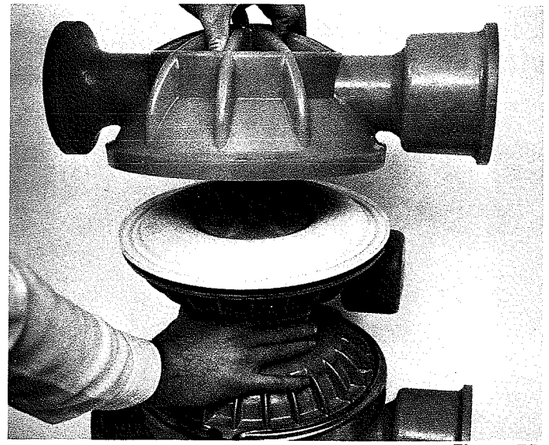


Figure 7B

Step 2

Install the opposite diaphragm and inner and outer pistons; hand-tighten. Now tighten both diaphragm outer pistons (we suggest two adjustable wrenches) simultaneously (turning in opposite directions) to the required torque specifications* (Item #2 or #3). Install water chambers over the diaphragms using the alignment marks that were made during disassembly as a guide. (Direction of flow through the pump is bottom to top.) Install and tighten clamp bands to the required torque specifications* (Item #7). *(Figures 7B* and *7C.)*

*Refer to page 7 for the required torque specifications.

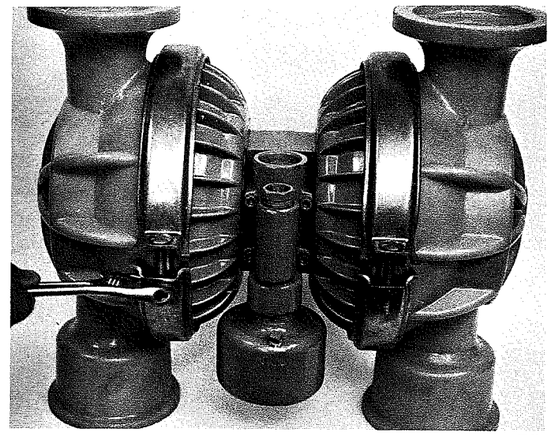


Figure 7C

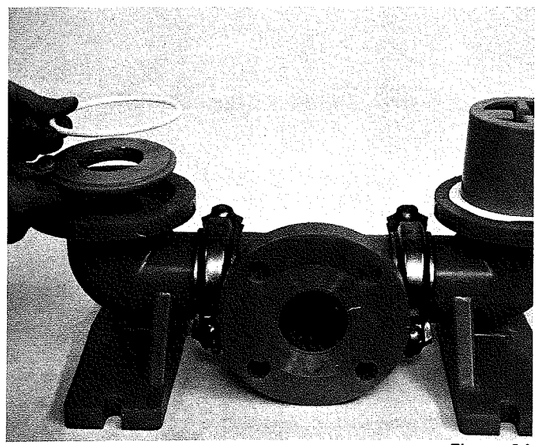


Figure 8A

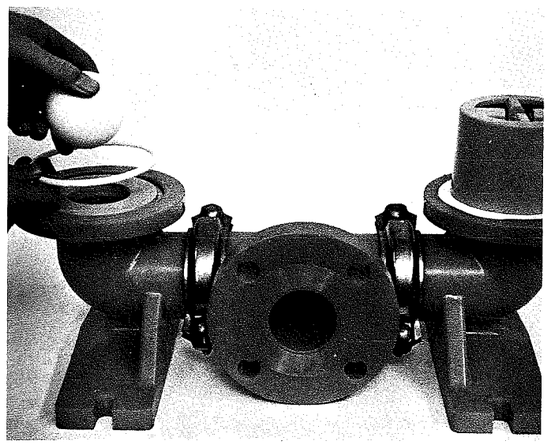


Figure 8B

Step 3

Install inlet ball valve, O-ring and seat in sequential order as shown in *Figures 8A* and *8B.*

Step 4 (Teflon® Elastomers only)

M8 "Champ" pumps with Teflon® elastomers require the use of a Teflon® gasket kit (P/N TF4/8GK). The Teflon® gasket material in this kit is an expanded type of Teflon® which is very strong, but soft. Its use assures a positive seal between the Teflon® diaphragm outer bead and its corresponding groove in the water chamber. This gasket material should be replaced each time the pump is disassembled.

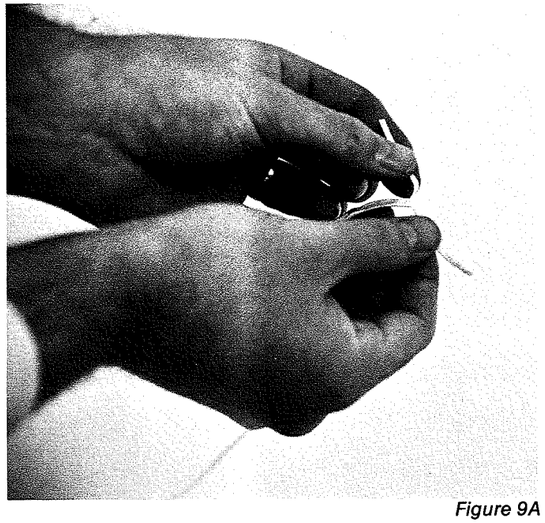


Figure 9A

Select a strip of 3/16"-wide material and carefully remove the covering from the adhesive strip (see *Figure 9A*). Ensure that the adhesive strip remains attached to the gasket material.

Figure 9B

Starting at any point, lay the gasket strip in the center of the diaphragm bead groove on the chamber and press lightly on the gasket to ensure that adhesive holds it in place during assembly *(Figure 9B)*. The ends of the gasket should overlap approximately ½".

Figure 9C

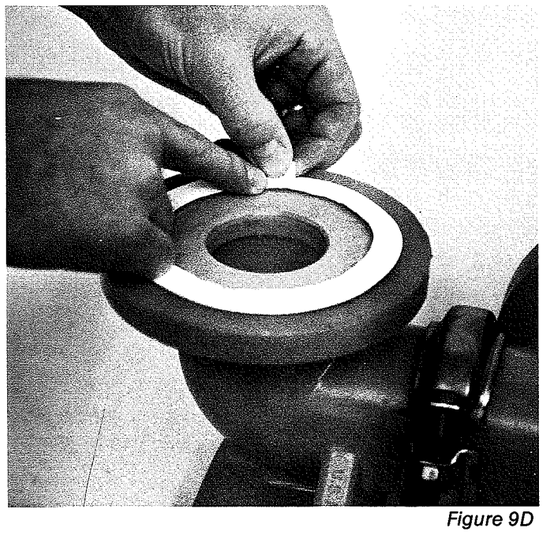


Figure 9D

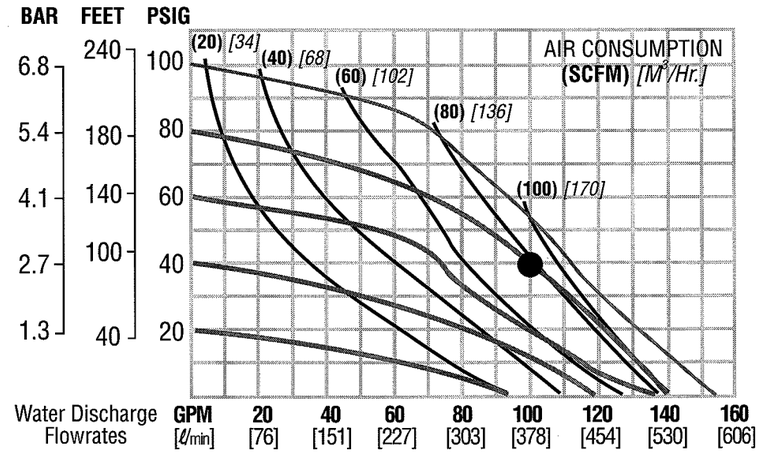
All PVDF pumps with Teflon® elastomers utilize gasket material around the seat area as well. If sealing is a problem, the gasket material can be used with polypropylene pumps as well. Notice that the adhesive strip for the inlet and discharge manifold is ½-inch, and that it, too, is wrapped in much the same way as in *Figure 9A* and *9B*. Make sure that adhesive strip covers the round O-ring completely.

WILDEN MODEL M8 CHAMP (Rubber/TPE-Fitted) PUMP PERFORMANCE CURVE

Height .....30 5/16"
Width .....19 11/32"
Depth .....13 3/32"
Ship Weight .....Polypropylene 74 lbs.
PVDF 96 lbs.
Air Inlet .....½" Female NPT
Inlet .....2"
Outlet .....2"
Suction Lift .....**Rubber 17' Dry**
25' Wet
TPE 12' Dry
25' Wet
Displacement per Stroke .... .741 gal.[1]
Max. Size Solids .....¼" Dia.

Example: To pump 100 gpm against a discharge pressure of 40 psig requires 80 psig and 80 scfm air consumption. (See dot on chart.)

[1]Displacement per stroke was calculated at 70 psig air inlet pressure against a 30 psig head pressure.



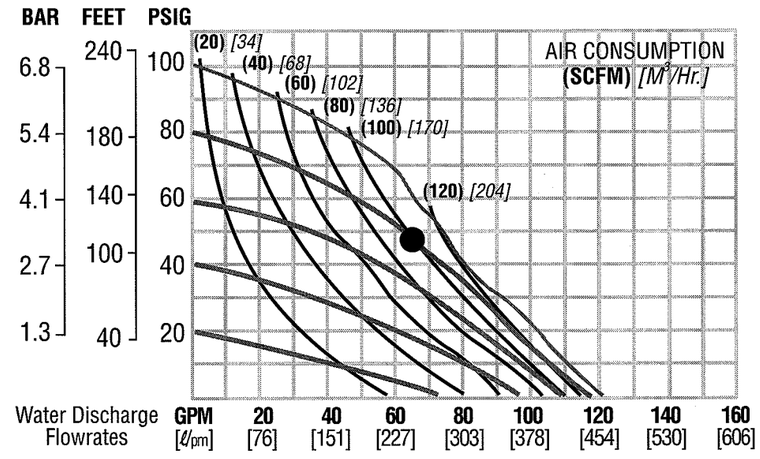
Volumes indicated on chart were determined by actually pumping water in calibrated tanks.

WILDEN MODEL M8 CHAMP (Teflon®-Fitted) PUMP PERFORMANCE CURVE

Height .....30 5/16"
Width .....19 11/32"
Depth .....13 3/32"
Ship Weight .....Polypropylene 74 lbs.
PVDF 96 lbs.
Air Inlet .....½" Female NPT
Inlet .....2"
Outlet .....2"
Suction Lift .....8' Dry
25' Wet
Displacement per Stroke .... .390 gal.[1]
Max. Size Solids .....¼" Dia.

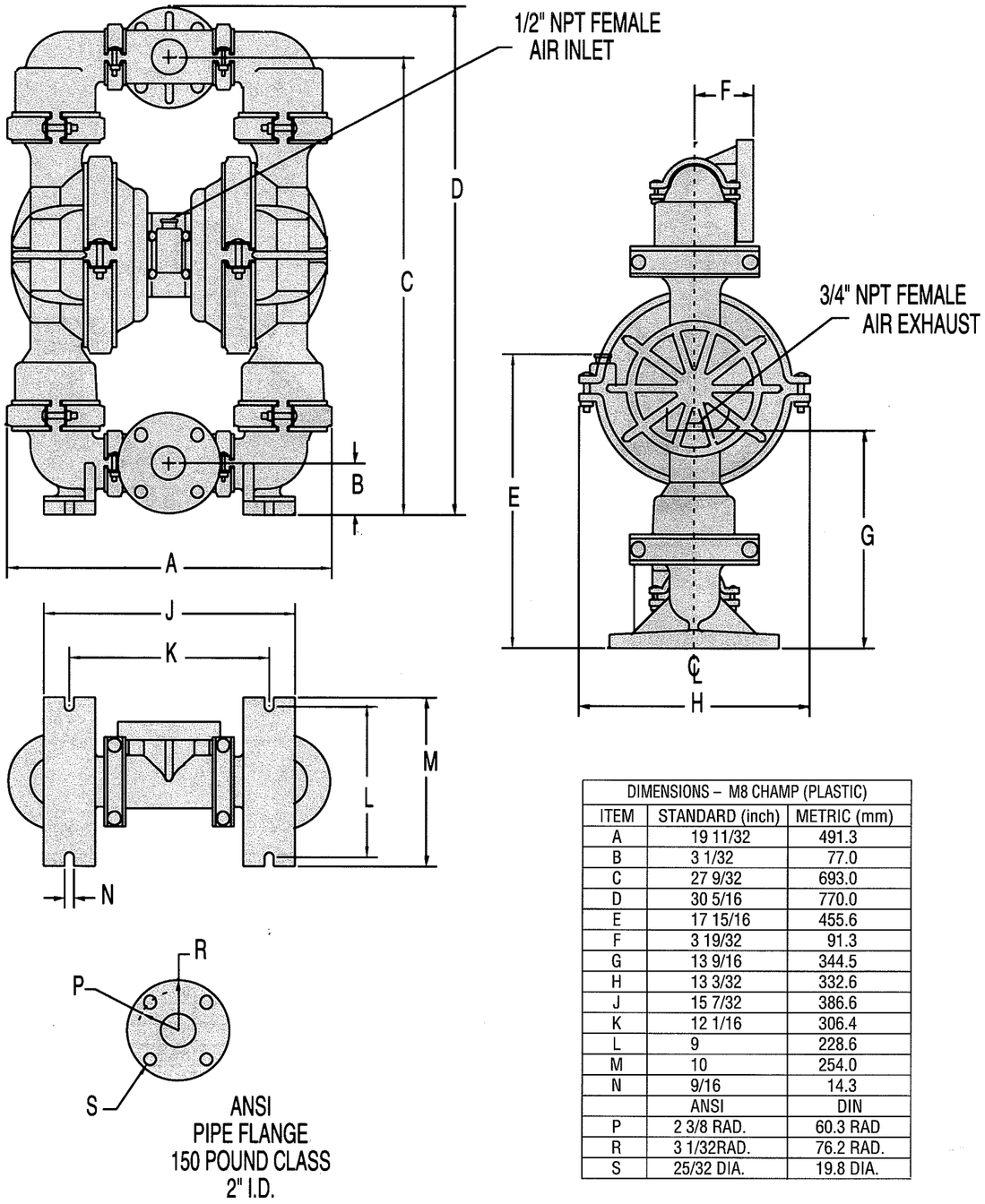
Example: To pump 66 gpm against a discharge pressure of 48 psig requires 80 psig and 100 scfm air consumption. (See dot on chart.)

[1]Displacement per stroke was calculated at 70 psig air inlet pressure against a 30 psig head pressure.



Volumes indicated on chart were determined by actually pumping water in calibrated tanks.

DIMENSIONAL DRAWING
MODEL M8 CHAMP PUMP (Plastic)



DIMENSIONS – M8 CHAMP (PLASTIC)		
ITEM	STANDARD (inch)	METRIC (mm)
A	19 11/32	491.3
B	3 1/32	77.0
C	27 9/32	693.0
D	30 5/16	770.0
E	17 15/16	455.6
F	3 19/32	91.3
G	13 9/16	344.5
H	13 3/32	332.6
J	15 7/32	386.6
K	12 1/16	306.4
L	9	228.6
M	10	254.0
N	9/16	14.3
	ANSI	DIN
P	2 3/8 RAD.	60.3 RAD
R	3 1/32RAD.	76.2 RAD.
S	25/32 DIA.	19.8 DIA.

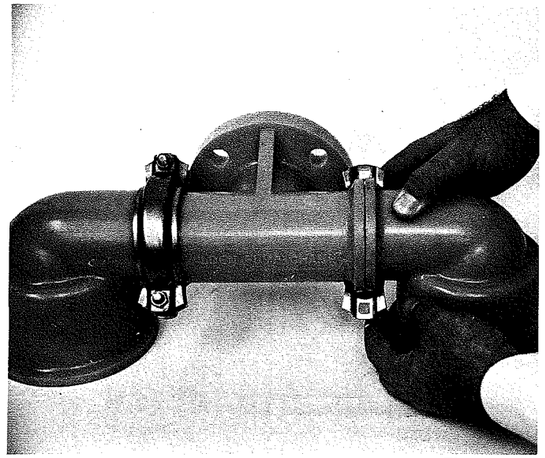


Figure 10A

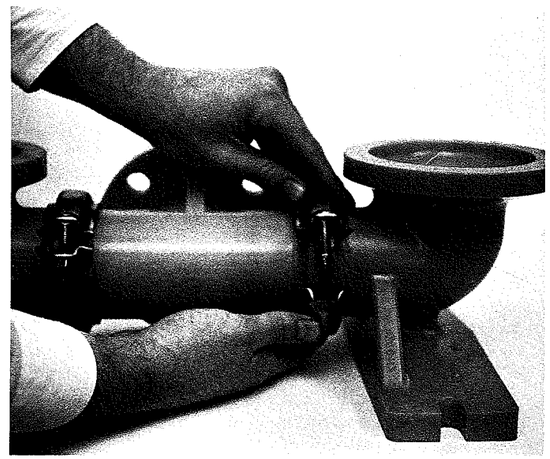


Figure 10B

Step 5

Manifold Assembly: If the inlet and/or discharge manifold was taken apart, it should be reassembled now. The easiest way to do this is to take one half clamp band and wedge it onto the flanges of the elbow and center T-section. (See *Figure 10A).* This holds the two parts together while the second half band is installed and the bolts are hand-tightened. Attach the other elbow to the center T-section and tighten to the required torque specifications* (Item #4 or #5). *(Figure 10B).* Align the manifold parts as in *Figure 10C,* and tighten the clamps to the required torque specifications* (Item #6). **NOTE:** On pumps equipped with Teflon® gaskets should be used between the flanges of the manifold. (See *Step 9D).*

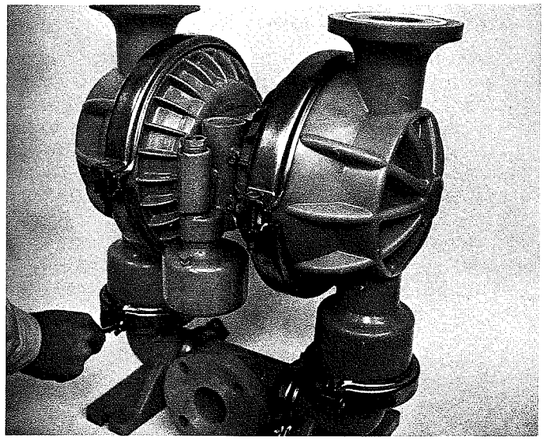


Figure 10C

Step 6

Next, install the valve seat, O-ring, and valve ball on top of the liquid chamber, place the ball valve cage over the valve ball, if previously removed. (See *Figures 11A* and *11B.)* Tighten clamps to the required torque specifications* (Item #6).

Figure 11A

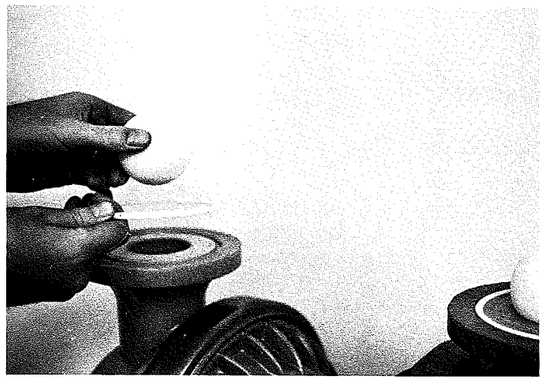


Figure 11B

Step 7

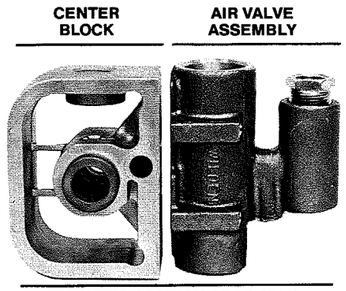
Retighten all clamp bands. **Blow out air line for 10 to 20 seconds to make sure all pipeline debris is clear.** connect air line to the pump and run it dry. The pump should shift evenly and good suction should be observed at the inlet. Refer to pages 5–7 for suction lift data.

*Refer to page 7 for the required torque specifications.

SECTION VII

AIR VALVE / CENTER BLOCK DISASSEMBLY / REASSEMBLY

The air valve assembly consists of both the air valve body and piston and the center block. The unique design of the air valve relies only on differential pressure to effect the diaphragm shift. It is reliable and simple to maintain. The bushing in the center block, along with the diaphragm shaft, provides the "trigger" to tell the air valve to shift. The following procedure will ensure that the air valve on your Wilden pump will provide long trouble-free service.



CENTER SECTION ASSEMBLY

AIR VALVE BODY AND PISTON ASSEMBLY AND DISASSEMBLY:

The air valve body and piston can be disconnected from the pump by removing the four socket head cap screws which attach it to the center block. The piston in the air valve is aluminum with a dark gray anodized coating. The piston should move freely and the ports in the piston should line up with the ports on the face of the air valvbe body (see below). The piston should also appear to be a dull, dark gray in color. If the piston appears to be a shiny aluminum color, the air valve is probably worn beyond working tolerance and should be replaced.

If the piston does not move freely in the air valve, the entire air valve should be immersed in a cleaning solution. [**NOTE:** Do not force the piston by inserting a metal object.] This soaking should remove any accumulation of sludge and grit which is preventing the air valve piston from moving freely. Also, remove and clean the air valve screen. If the air valve piston does not move freely after the above cleaning, the air valve should be disassembled as follows: remove the snap ring from the top end of the air valve cylinder and apply an air jet to the 3/16-inch hole on the opposite end of the air valve face. (See *Figure C.*) **CAUTION:** The air valve end may come out with considerable force. Hand protection such as a padded glove or rag should be used to capture the end cap.

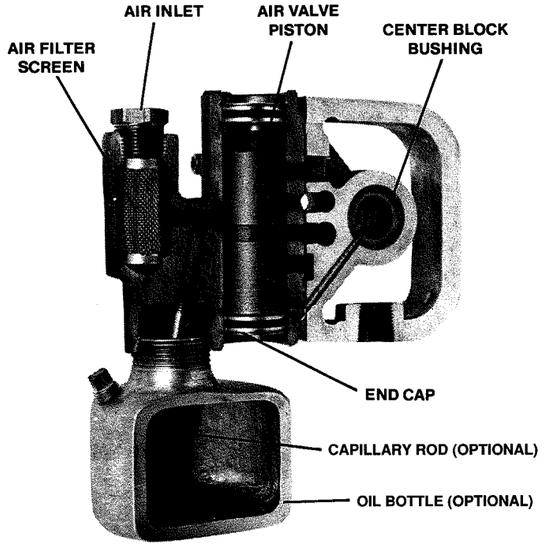


Figure B

NOTE: Air valve available with or without oil bottle and capillary rod.

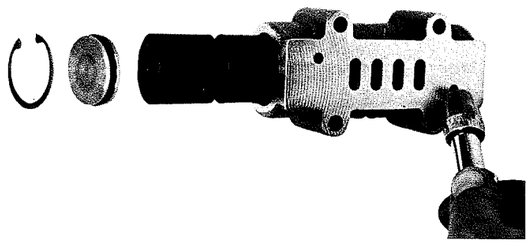


Figure C

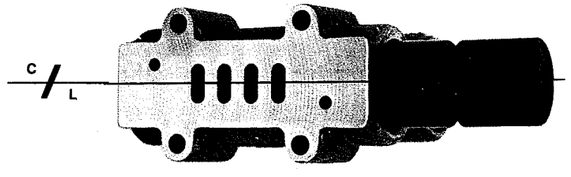
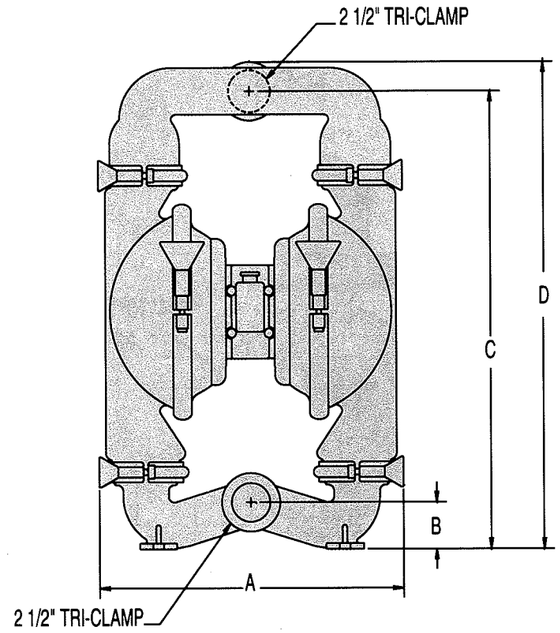
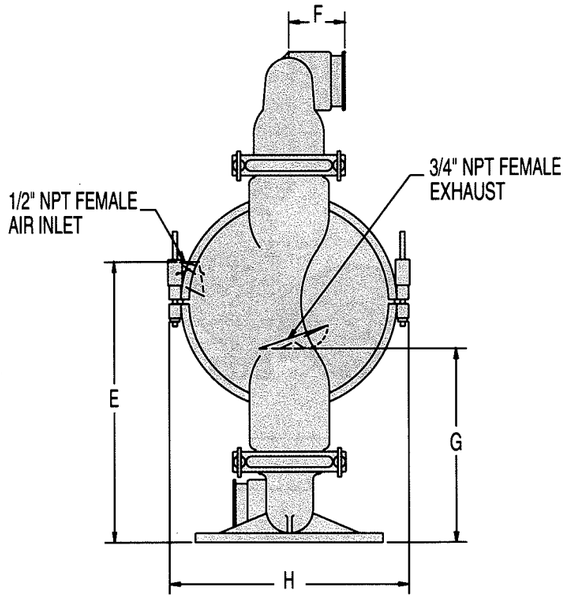
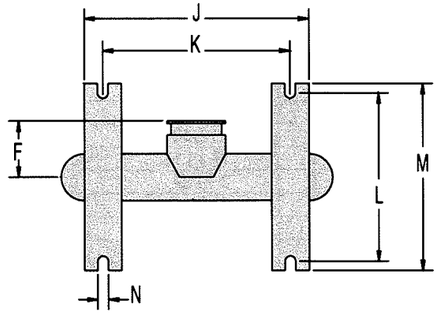


Figure D

DIMENSIONAL DRAWING MODEL M8 FOOD PROCESSING PUMP

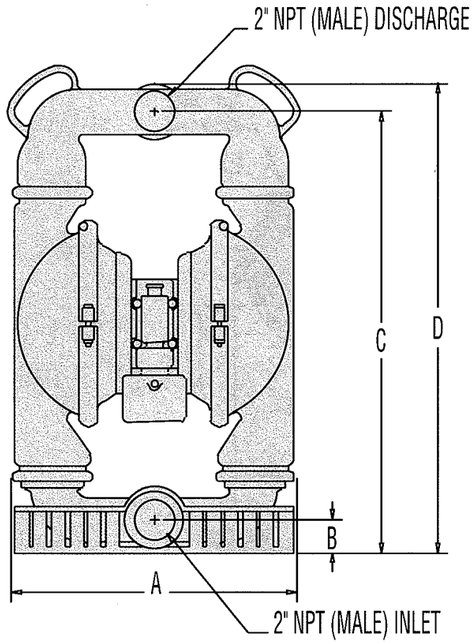


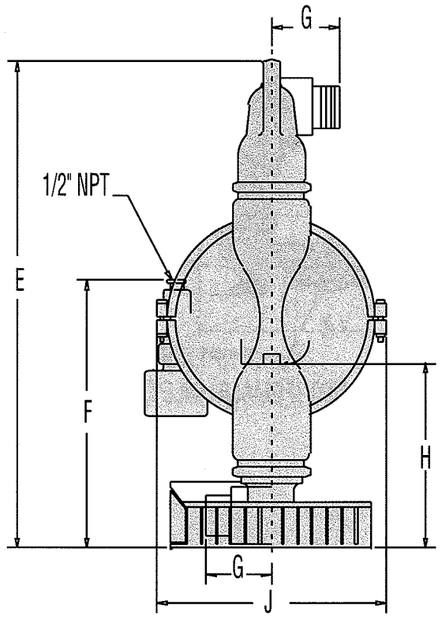


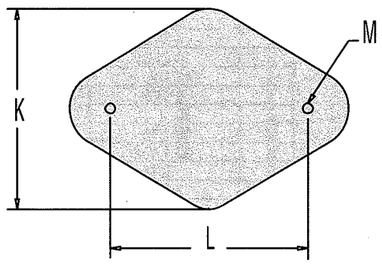


DIMENSIONS – M8 (FOOD GRADE)		
ITEM	STANDARD (inch)	METRIC (mm)
A	17 1/8	435.0
B	2 1/2	63.5
C	24 5/8	625.5
D	26 3/16	665.2
E	15	381.0
F	3	76.2
G	10 3/8	263.5
H	13 5/8	346.1
J	12	304.8
K	10	254.0
L	9	228.6
M	10	254.0
N	9/16	14.3

DIMENSIONAL DRAWING
MODEL M8 STALLION PUMP







Available in BSP threads.

DIMENSIONS – M8 (STALLION)		
ITEM	STANDARD (inch)	METRIC (mm)
A	16 1/8	409.6
B	1 3/4	44.4
C	24 5/8	625.5
D	26 3/16	665.2
E	27 3/16	690.6
F	15 1/4	387.4
G	4	101.6
H	10 3/8	263.5
J	13 5/8	346.1
K	11 1/8	282.6
L	11	279.4
M	9/16 DIA.	14.3

1. Available in BSP threads.
2. Standard aluminum pumps are manufactured with mild steel nipples. Stainless steel nipples are available.

Small nicks can usually be dressed out and the piston returned to service. Make sure that the guide pin is straight and smooth or the piston will not move freely in the cylinder. New O-rings should be installed on the end caps. Lubricate the O-rings and install the end caps, assuring that proper alignment of the piston and cylinder ports is maintained. (See *Figure D).* Reinstall air valve to center block of pump. Tighten to the require torque specifications* (Item #1).

O-RING REPLACEMENT:

When the O-rings become worn or flat, they will no longer seal and must be replaced. This is most easily accomplished by using a tool called an O-ring pick, available through most industrial supply companies.

CENTER BLOCK ASSEMBLY

The pump's center block consists of a polypropylene or a die cast housing with a cast-in-bronze bushing. The bushing has eleven grooves cut on the inside diameter. There are seven O-rings that fit in these grooves (see *Figure E).* Since these O-rings form a part of the shifting function of the pump, it is necessary that they be located in the proper grooves. The bronze bushing is replaceable in cast iron or stainless steel center blocks only. When bushing wear becomes excessive, a new center block must be used.

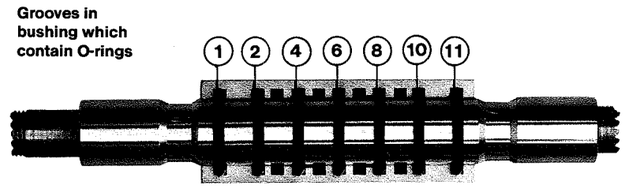


Figure E

Figure F (Side View)

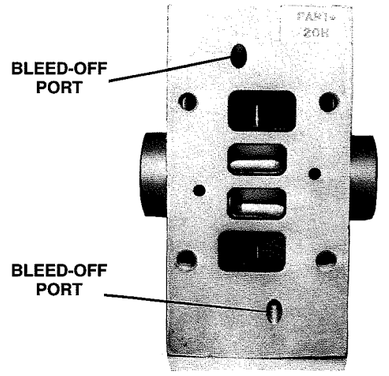
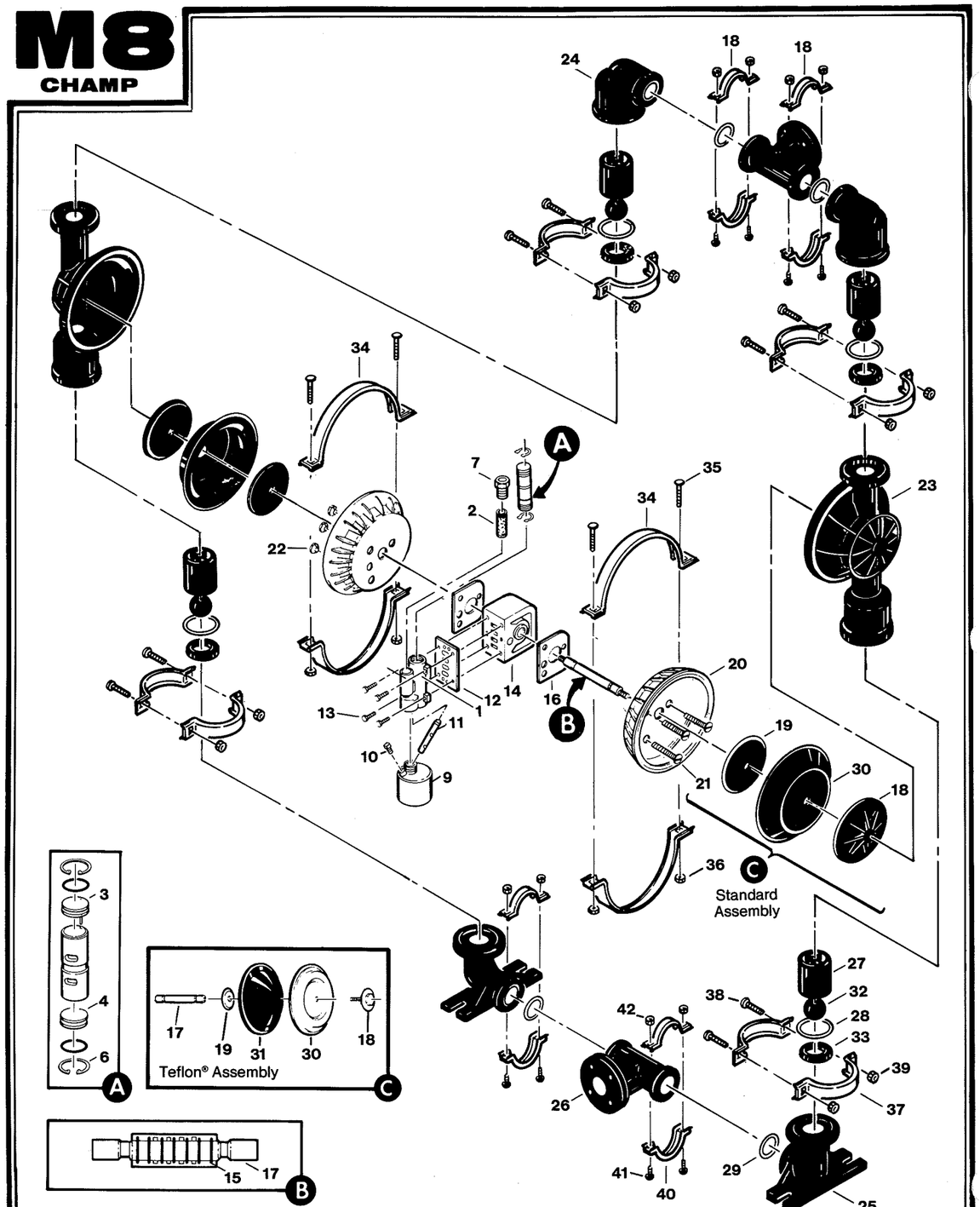


Figure G
Center Block
(Front View)

P/N 20N Bronze Bushing can be pressed into a stainless steel or cast iron center section. (See *Figure F*). When installing a new bushing, two bleeder holes which allow the pump to exhaust air must be drilled. A 7/32" drill should be used. (See *Figure G).*

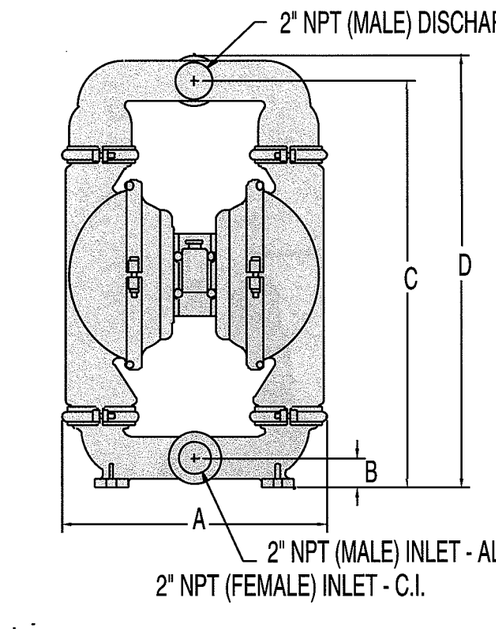
*Refer to page 7 for the required torque specifications.

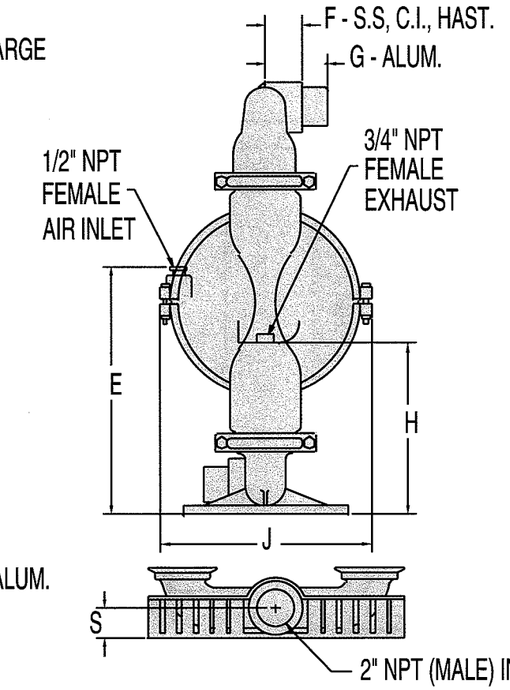
M8
CHAMP

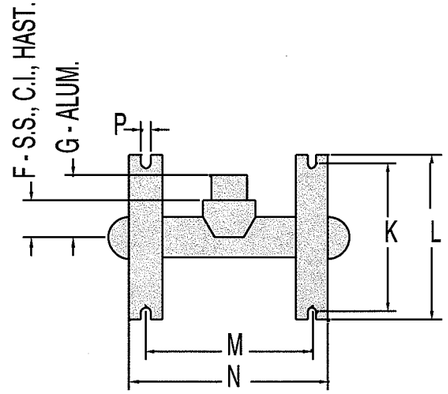


NOTE: Teflon® diaphragm models assembled with Teflon® gasket kit at factory (not shown).

DIMENSIONAL DRAWING
MODEL M8 METAL PUMP



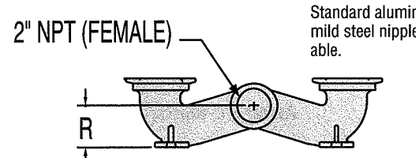




ALUMINUM BASE SCREEN MODEL

DIMENSIONS – M8 (METAL)		
ITEM	STANDARD (inch)	METRIC (mm)
A	15 29/32	404.0
B	1 7/8	47.6
C	24 3/4	628.7
D	26 11/32	669.2
E	14 21/32	372.3
F	2 3/8	60.3
G	4 3/32	104.0
H	10 21/32	270.7
J	13 1/2	342.9
K	9 1/32	229.4
L	10	254.0
M	10 1/16	255.6
N	12 11/32	313.5
P	9/16	14.3
R	2 1/2	63.5
S	2 1/32	51.6
T	11 3/32	281.8
U	4 5/32	105.6
V	11 1/32	280.2
W	15 17/32	394.5
X	Ø9/16	Ø14.3

BSP threads available.
Standard aluminum pumps are manufactured with mild steel nipples. Stainless steel nipples are available.



FOOTED BASE FOR STAINLESS STEEL & HASTELLOY MODELS

THE WILDEN PUMP — HOW IT WORKS

The Wilden diaphragm pump is an air-operated, positive displacement, self-priming pump. These drawings show flow pattern through the pump upon its initial stroke. It is assumed the pump has no fluid in it prior to its initial stroke.

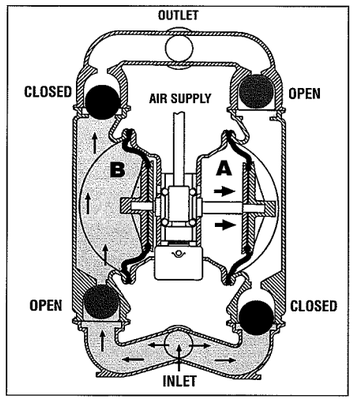


FIGURE 1 The air valve directs pressurized air to the back side of diaphragm A. The compressed air is applied directly to the liquid column separated by elastomer diaphragms. The diaphragm acts as a separation membrane between the compressed air and liquid, balancing the load and removing mechanical stress from the diaphragm which allows for millions of flex cycles. The compressed air moves the diaphragm away from the center block of the pump. The opposite diaphragm is pulled in by the shaft connected to the pressurized diaphragm. Diaphragm B is now on its suction stroke; air behind the diaphragm has been forced out to the atmosphere through the exhaust port of the pump. Diaphragm A is working against atmospheric air pressure. The movement of diaphragm B toward the center block of the pump creates a vacuum within chamber B. Atmospheric pressure forces fluid into the inlet manifold forcing the inlet valve ball off its seat. Liquid is free to move past the inlet valve ball and fill the liquid chamber.

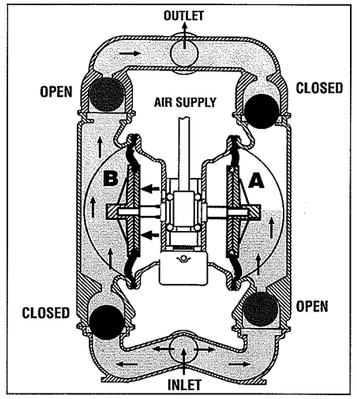


FIGURE 2 When the pressurized diaphragm, diaphragm A, reaches the limit of its discharge stroke, the air valve redirects pressurized air to the back side of diaphragm B. The pressurized air forces diaphragm B away from the center block while pulling diaphragm A to the center block. Diaphragm B is now on its discharge stroke. Diaphragm B forces the inlet valve ball onto its seat due to the hydraulic forces developed in the liquid chamber and manifold of the pump. These same hydraulic forces lift the discharge valve ball off its seat, while the opposite discharge valve ball is forced onto its seat, forcing fluid to flow through the pump discharge. The movement of diaphragm A to the center block of the pump creates a vacuum within liquid chamber A. Atmospheric pressure forces fluid into the inlet manifold of the pump. The inlet valve ball is forced off its seat allowing the fluid being pumped to fill the liquid chamber.

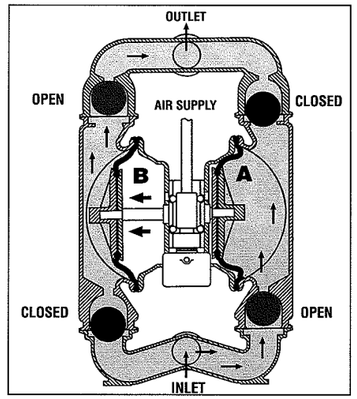


FIGURE 3 At completion of the stroke, the air valve again redirects air to the back side of diaphragm A, which starts diaphragm B on its exhaust stroke. As the pump reaches its original starting point, each diaphragm has gone through one exhaust and one discharge stroke. This constitutes one complete pumping cycle. The pump may take several cycles to completely prime depending on the conditions of the application.

WILDEN PUMP DESIGNATION SYSTEM

XX / XX / XX / XX / XX
1 2 3 4 5 6

1 MODEL (SIZE)
2 WETTED CONSTRUCTION
3 NON-WETTED CONSTRUCTION
4 DIAPHRAGMS
5 VALVE BALLS
6 VALVE SEATS (O-RINGS)

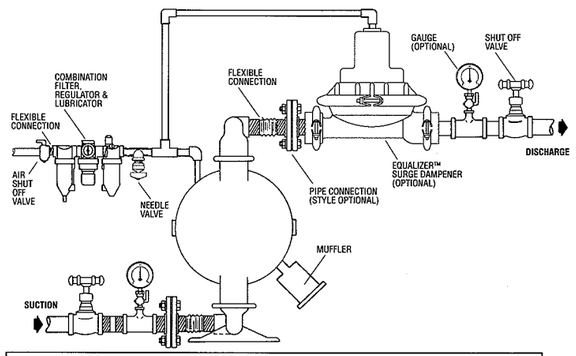
NOTE: UL-listed pumps must not exceed 50 psig air supply pressure.

Temperature Limits:

Polypropylene	**+32°F to 175°F**	**0°C to 79°C**
PVDF	**+10°F to +225°F**	**–12°C to 107°C**

CAUTION: Maximum temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures. Consult engineering guide for chemical compatibility and temperature limits.

SUGGESTED INSTALLATION



CAUTION: WEAR SAFETY GLASS. WHEN DIAPHRAGM RUPTURE OCCURS, MATERIAL BEING PUMPED MAY BE FORCED OUT AIR EXHAUST.

"Champ" series pumps are made of virgin plastic and are not UV stabilized. Direct sunlight for prolonged periods can cause deterioration of plastics.

NOTE: Pump must be lubricated. Wilden suggests an arctic 5 weight oil (ISO grade 15).

WARNING: Prevention of static sparking — If static sparking occurs, fire or explosion could result. Pump, valves, and containers must be grounded when handling flammable fluids and whenever discharge of static electricity is a hazard. To ground the Wilden "Champ," all clamp bands must be grounded to a proper grounding point.

®TEFLON IS A REGISTERED TRADEMARK OF E.I. DUPONT CORP.

Wilden Model M8 Plastic Pump Parts

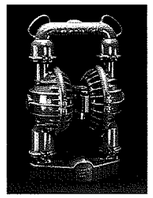
Item	Part Description	Qty.	M8 /PO P/N	M8 /PS P/N	M8 /PW P/N	M8 /PC P/N	M8 /PT P/N	M8 /PV P/N	M8 /PY P/N	M8 /PP P/N
1	Air Valve Assembly	1	20A	20A	20A	PCB20A	20A	20A	20A	PCB20A
2	Air Valve Screen	1	20E	20E	20E	20E	20E	20E	20E	20E
3	Air Valve End Cap w/Guide (top)	1	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23
4	Air Valve End Cap w/o Guide (bottom)	1	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23
5	End Cap Cover (not shown)	2	N/R	N/R	N/R	P20C	N/R	N/R	N/R	P20C
6	Air Valve Snap Ring	2	S20T	S20T	S20T	S20T	S20T	S20T	S20T	S20T
7	Air Valve Bushing	1	30AP	30AP	30AP	PC20AP	30AP	30AP	30AP	PS20AP
8	Air Valve Cap O-Ring	2	20U	20U	20U	20U	20U	20U	20U	20U
9	Oil Bottle (optional)	1	20D	20D	20D	20D	20D	20D	20D	20D
10	Plug (optional)	1	20DP	20DP	20DP	20DP	20DP	20DP	20DP	20DP
11	Capillary Rod (optional)	1	20C	20C	20C	20C	20C	20C	20C	20C
12	Air Valve Gasket — Buna	1	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52
13	Air Valve Screw	4	30AS	30AS	30AS	PC30AS	30AS	30AS	30AS	PC30AS
14	Center Block	1	P20H	S20H	P20H	P20H	P20H	S20H	P20H	P20H
15	Center Block O-Ring	7	20JH	20JH	20JH	20JH	20JH	20JH	20JH	20JH
16	Block Gasket — Buna	2	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52
17	Shaft	1	21A	21A	21A	21A	T21A	T21A	T21A	T21A
18	Piston, Outer	2	K21B	K21B	K21B	K21B	KT21B	KT21B	KT21B	KT21B
19	Piston, Inner	2	21B	S21C	21B	21B	T21C	T21C	T21C	T21C
20	Air Chamber, Counter Sunk	2	22B	S22B	W22B	PC22B	22B	S22B	W22B	PC22B
21	Air Chamber Screw	3	22C	S22C	22C	S22C	22C	S22C	22C	S22C
22	Air Chamber Cone Nut	3	22D	S22D	22D	S22D	22D	S22D	22D	S22D
23	Water Chamber	2	P35	P35	P35	P35	P35	P35	P35	P35
24	Discharge Elbow	2	P36	P36	P36	P36	P36	P36	P36	P36
25	Inlet Elbow	2	P37	P37	P37	P37	P37	P37	P37	P37
26	Manifold T-Section	2	P33	P33	P33	P33	P33	P33	P33	P33
27	Ball Guide Bushing	4	P41C	P41C	P41C	P41C	P41C	P41C	P41C	P41C
28	Valve Seat O-Ring[1]	4	—	—	—	—	TFE40B	TFE40B	TFE40B	TFE40B
29	Manifold O-Ring[1]	4	—	—	—	—	TF32B	TFE32B	TFE32B	TFE32B
30	Diaphragm[1]	2	—	—	—	—	TF24	TF24	TF24	TF24
31	Diaphragm, Backup	2	N/A	N/A	N/A	N/A	TF24B	TF24B	TF24B	TF24B
32	Valve Ball[1]	4	—	—	—	—	TF41	TF41	TF41	TF41
33	Valve Seat[1]	4	P40	P40	P40	P40	P40	P40	P40	P40
34	Large Clamp Band Half	4	P30B	P30B	P30B	PC30B	P30B	P30B	P30B	PC30B
35	Large Carriage Bolt	4	P30C	P30C	P30C	PC30C	P30C	P30C	P30C	PC30C
36	Large Hex Nut	4	S30D	S30D	S30D	PC30D	S30D	S30D	S30D	PC30D
37	Medium Clamp Band Half	8	P39B	P39B	P39B	PC39B	P39B	P39B	P39B	PC39B
38	Medium Carriage Bolt	8	S64C	S64C	S64C	PCS64C	S64C	S64C	S64C	PCS64C
39	Medium Hex Nut	8	S39C	S39C	S39C	PCS39C	S39C	S39C	S39C	PCS39C
40	Small Clamp Band Half	8	P32C	P32C	P32C	PC32C	P32C	P32C	P32C	PC32C
41	Small Hex Head Cap Screw	8	S32B	S32B	S32B	PCS32B	S32B	S32B	S32B	PCS32B
42	Small Square Nut	8	S39C	S39C	S39C	PCS39C	S39C	S39C	S39C	PCS39C
43	Muffler (optional — not shown)	1	70A	70A	70A	70A	70A	70A	70A	70A

Item	Part Description	Qty.	M8 /KO P/N	M8 /KS P/N	M8 /KW P/N	M8 /KC P/N	M8 /KT P/N	M8 /KV P/N	M8 /KY P/N	M8 /KK P/N
1	Air Valve Assembly	1	20A	20A	20A	PCB20A	20A	20A	20A	PCB20A
2	Air Valve Screen	1	20E	20E	20E	20E	20E	20E	20E	20E
3	Air Valve End Cap w/Guide (top)	1	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23	08-2340-23
4	Air Valve End Cap w/o Guide (bottom)	1	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23	08-2350-23
5	End Cap Cover (not shown)	2	N/R	N/R	N/R	P20C	N/R	N/R	N/R	P20C
6	Air Valve Snap Ring	2	S20T	S20T	S20T	S20T	S20T	S20T	S20T	S20T
7	Air Valve Bushing	1	30AP	30AP	30AP	PC20AP	30AP	30AP	30AP	PS20AP
8	Air Valve Cap O-Ring	2	20U	20U	20U	20U	20U	20U	20U	20U
9	Oil Bottle (optional)	1	20D	20D	20D	20D	20D	20D	20D	20D
10	Plug (optional)	1	20DP	20DP	20DP	20DP	20DP	20DP	20DP	20DP
11	Capillary Rod (optional)	1	20C	20C	20C	20C	20C	20C	20C	20C
12	Air Valve Gasket — Buna	1	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52	08-2600-52
13	Air Valve Screw	4	30AS	30AS	30AS	PC30AS	30AS	30AS	30AS	PC30AS
14	Center Block	1	P20H	S20H	P20H	P20H	P20H	S20H	P20H	P20H
15	Center Block O-Ring	7	20JH	20JH	20JH	20JH	20JH	20JH	20JH	20JH
16	Block Gasket — Buna	2	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52	08-3520-52
17	Shaft	1	21A	21A	21A	21A	T21A	T21A	T21A	T21A
18	Piston, Outer	2	K21B	K21B	K21B	K21B	KT21B	KT21B	KT21B	KT21B
19	Piston, Inner	2	21B	S21C	21B	21B	T21C	T21C	T21C	T21C
20	Air Chamber, Counter Sunk	2	22B	S22B	W22B	PC22B	22B	S22B	W22B	PC22B
21	Air Chamber Screw	3	22C	S22C	22C	S22C	22C	S22C	22C	S22C
22	Air Chamber Cone Nut	3	22D	S22D	22D	S22D	22D	S22D	22D	S22D
23	Water Chamber	2	K35	K35	K35	K35	K35	K35	K35	K35
24	Discharge Elbow	2	K36	K36	K36	K36	K36	K36	K36	K36
25	Inlet Elbow	2	K37	K37	K37	K37	K37	K37	K37	K37
26	Manifold T-Section	2	K33	K33	K33	K33	K33	K33	K33	K33
27	Ball Guide Bushing	4	K41C	K41C	K41C	K41C	K41C	K41C	K41C	K41C
28	Valve Seat O-Ring[1]	4	—	—	—	—	TFE40BV	TFE40BV	TFE40BV	TFE40BV
29	Manifold O-Ring[1]	4	—	—	—	—	TF32BV	TFE32BV	TFE32BV	TFE32BV
30	Diaphragm[1]	2	—	—	—	—	TF24	TF24	TF24	TF24
31	Diaphragm, Backup	2	N/A	N/A	N/A	N/A	TF24B	TF24B	TF24B	TF24B
32	Valve Ball[1]	4	—	—	—	—	TF41	TF41	TF41	TF41
33	Valve Seat[1]	4	K40	K40	K40	K40	K40	K40	K40	K40
34	Large Clamp Band Half	4	P30B	P30B	P30B	PC30B	P30B	P30B	P30B	PC30B
35	Large Carriage Bolt	4	P30C	P30C	P30C	PC30C	P30C	P30C	P30C	PC30C
36	Large Hex Nut	4	S30D	S30D	S30D	PC30D	S30D	S30D	S30D	PC30D
37	Medium Clamp Band Half	8	P39B	P39B	P39B	PC39B	P39B	P39B	P39B	PC39B
38	Medium Carriage Bolt	8	S64C	S64C	S64C	PCS64C	S64C	S64C	S64C	PCS64C
39	Medium Hex Nut	8	S39C	S39C	S39C	PCS39C	S39C	S39C	S39C	PCS39C
40	Small Clamp Band Half	8	P32C	P32C	P32C	PC32C	P32C	P32C	P32C	PC32C
41	Small Hex Head Cap Screw	8	S32B	S32B	S32B	PCS32B	S32B	S32B	S32B	PCS32B
42	Small Square Nut	8	S39C	S39C	S39C	PCS39C	S39C	S39C	S39C	PCS39C
43	Muffler (optional — not shown)	1	70A	70A	70A	70A	70A	70A	70A	70A

[1]Refer to corresponding elastomer chart on page 22.

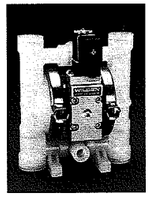
WILDEN'S SPECIALTY PUMPS

M8 STALLION



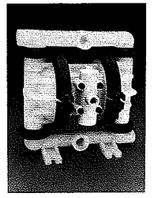
2" inlet. Solids clearance up to ¾". Built to handle rough treatment: cast-in handles for easy portability, reinforced shaft and high impact polyurethane base.

SOLENOID-OPERATED



Each stroke of this pump is controlled by electrical impulses making it ideal for batching, metering, and other electrically controlled dispensing applications.

M1 ULTRAPURE III

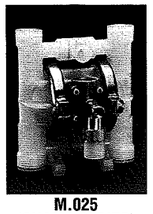


½" inlet. Teflon® PFA construction, temperatures to 300°F. Up to 14 GPM. Materials of construction have been selected to reduce contamination while providing a safer work environment.

FOOD PROCESSING

Constructed with FDA approved materials: bead blasted 316 Stainless Steel construction with tri-clamp porting and wing-nut fasteners. Foodmaster™ (pictured) is USDA accepted.

THE WILDEN PUMP LINE



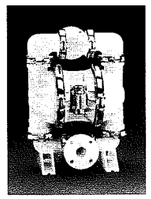
M.025 (CHAMP SERIES)

MODEL M.025

- ¼" Inlet
- Up To 4.5 GPM
- 125 Max. PSIG
- Max. Particle Size: 1/64"

Materials of Construction:
PVDF, Acetal, Polypropylene, Carbon-filled Acetal

Suction Lift:		
(Rubber)	Dry:	4.5'
	Wet:	25'
(Teflon®)	Dry:	4.5'
	Wet:	25'



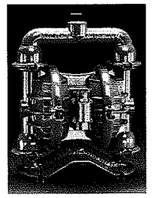
M4 PLASTIC (CHAMP SERIES)

MODEL M4

- 1½" Inlet
- Up To 73 GPM
- 125 Max. PSIG
- Max. Particle Size: 3/16"

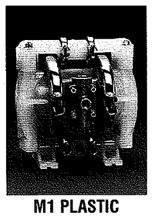
Materials of Construction:
Aluminum, Cast Iron, Stainless Steel, Hastelloy, Polypropylene, PVDF, Teflon® PFA

Suction Lift:	Plastic	Metal
(Rubber)	Dry: 17'	21'
	Wet: 25'	25'
(Teflon®)	Dry: 7'	7'
	Wet: 25'	25'



M4 METAL

LUBE-FREE AVAILABLE



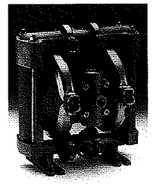
M1 PLASTIC (CHAMP SERIES)

MODEL M1

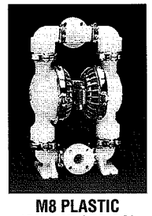
- ½" Inlet
- Up To 14 GPM
- 110 Max. PSIG
- Max. Particle Size: 1/16"

Materials of Construction:
Polypropylene, PVDF, Teflon®, Graphite-filled Polypropylene, Aluminum, Stainless Steel

Suction Lift:	Plastic	Metal
(Rubber)	Dry: 10'	10'
	Wet: 25'	25'
(Teflon®)	Dry: 7'	8'
	Wet: 25'	25'



M1 METAL



M8 PLASTIC (CHAMP SERIES)

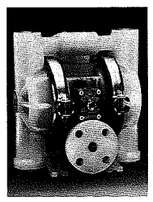
MODEL M8

- 2" Inlet
- Up To 155 GPM
- 125 Max. PSIG
- Max. Particle Size: ¼"

Materials of Construction:
Aluminum, Cast Iron, Stainless Steel, Hastelloy, PVDF, Polypropylene

Suction Lift:	Plastic	Metal
(Rubber)	Dry: 17'	20'
	Wet: 25'	25'
(Teflon®)	Dry: 8'	8'
	Wet: 25'	25'

M8 METAL



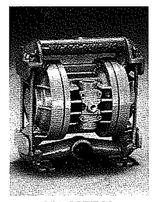
M2R PLASTIC (CHAMP SERIES)

MODEL M2

- 1" Inlet
- Up To 37 GPM
- 125 Max. PSIG
- Max. Particle Size: ⅛"

Materials of Construction:
Aluminum, Stainless Steel, Hastelloy, Polypropylene, PVDF

Suction Lift:	Plastic	Metal
(Rubber)	Dry: 17'	19'
	Wet: 25'	25'
(Teflon®)	Dry: 7'	8'
	Wet: 25'	25'



M2 METAL

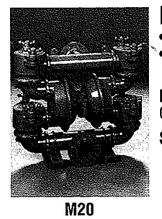
M15

MODEL M15

- 3" Inlet
- Up To 230 GPM
- 125 Max. PSIG
- Max. Particle Size: ⅜"

Materials of Construction:
Aluminum, Cast Iron, Stainless Steel, Hastelloy

Suction Lift:	
(Rubber)	Dry: 17'
	Wet: 25'
(Teflon®)	Dry: 14'
	Wet: 25'



M20

MODEL M20

- 4" Inlet
- Up To 304 GPM
- 125 Max. PSIG
- Max. Particle Size: 1⅜"

Materials of Construction:
Cast Iron

Suction Lift:
Dry: 13'
Wet: 25'

For further information contact your local Wilden distributor:

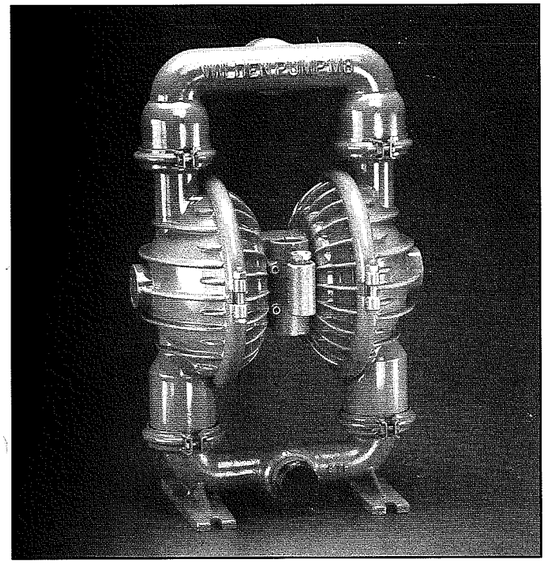
WILDEN PUMP & ENGINEERING COMPANY
22069 Van Buren St., Colton, CA 92324
(909) 422-1730 • FAX (909) 783-3440

WILDEN®

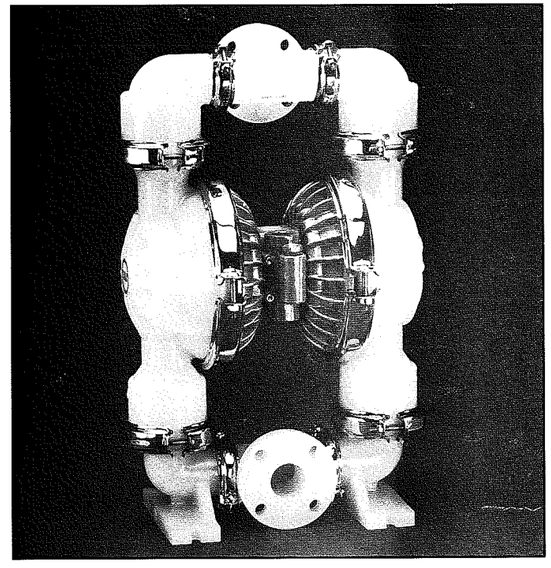
AIR OPERATED DOUBLE DIAPHRAGM PUMPS

M8 Engineering Operation and Maintenance

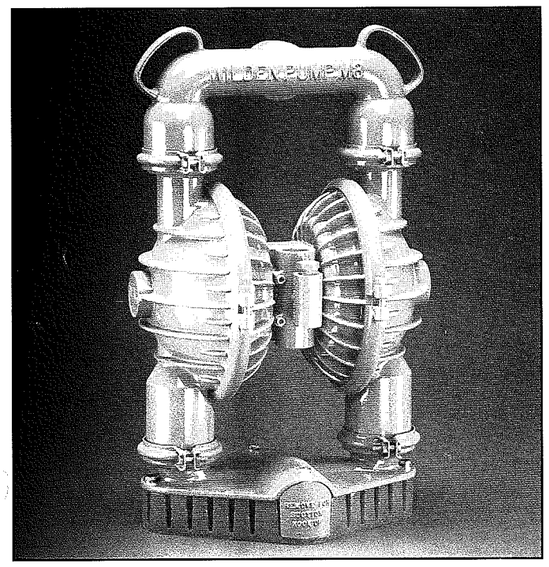
MODEL M8 METAL
MODEL M8 CHAMP
MODEL M8 STALLION
MODEL M8 FOOD PROCESSING



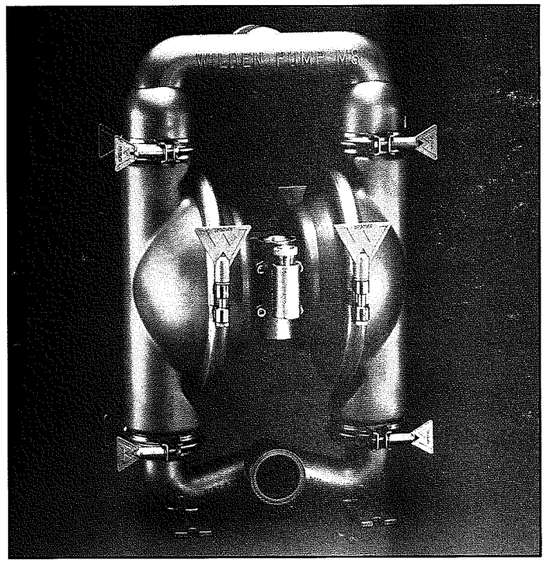
M8 METAL



M8 CHAMP



M8 STALLION



M8 FOOD PROCESSING

RBG P/S-08 5/94
REPLACES 11/93