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

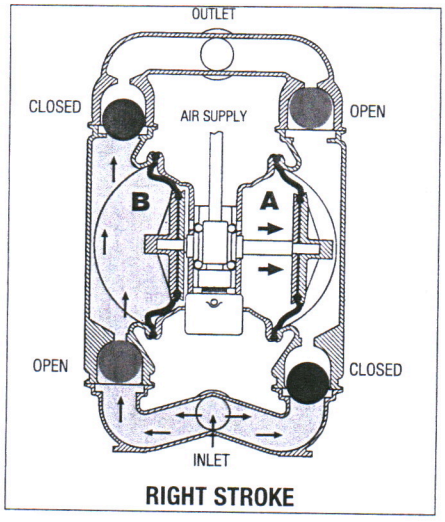


FIGURE 1 The air valve directs pressurized air to the back side of diaphragm A. The compressed air is applied directly to the liquid column separated by elastomeric diaphragms. The diaphragm acts as a separation membrane between the compressed air and liquid, balancing the load and removing mechanical stress from the diaphragm. 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 on its suction stroke; air behind the diaphragm has been forced out to the atmosphere through the exhaust port of the pump. 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 (see shaded area).

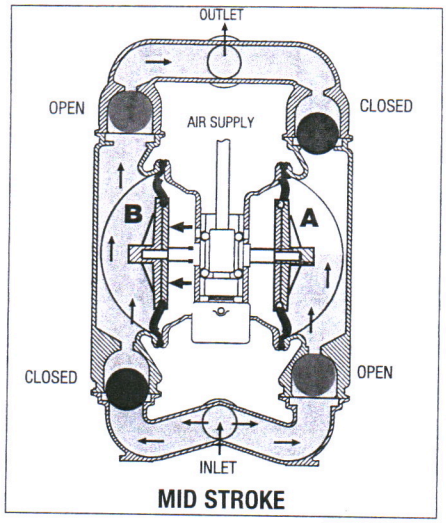


FIGURE 2 When the pressurized diaphragm, diaphragm A, reaches the limit of its discharge stroke, the air valve redirects pressurized air to the back side of diaphragm B. The pressurized air forces diaphragm B away from the center block while pulling diaphragm A to the center block. Diaphragm B is now 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 toward 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.

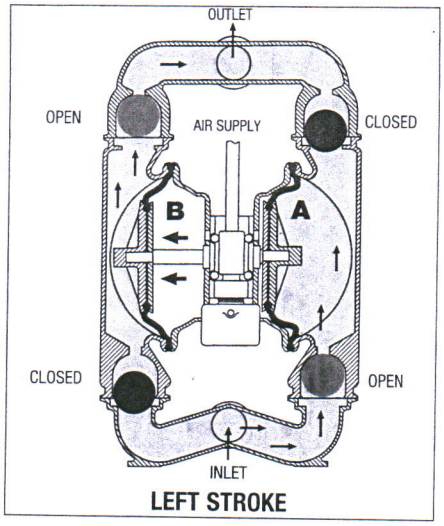
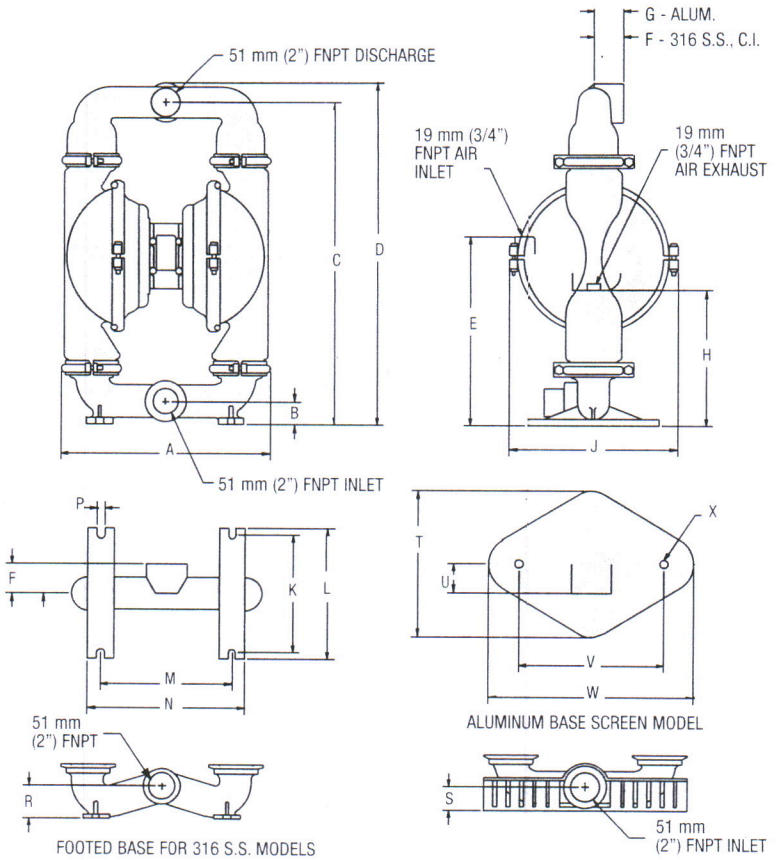


FIGURE 3 At completion of the stroke, the air valve again redirects air to the back side of diaphragm A, which starts diaphragm B on its exhaust stroke. As the pump reaches its original starting point, each diaphragm has gone through one exhaust and one discharge stroke. This constitutes one complete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

DIMENSIONAL DRAWING

T8 Metal



DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	404	15.9
B	48	1.9
C	630	24.8
D	668	26.3
E	361	14.2
F	58	2.3
G	61	2.4
H	272	10.7
J	343	13.5
K	229	9.0
L	254	10.0
M	257	10.1
N	312	12.3
P	15	0.6
R	64	2.5
S	51	2.0
T	282	11.1
U	71	2.8
V	282	11.1
W	386	15.2
X	Ø15	Ø0.6

BSP threads available.

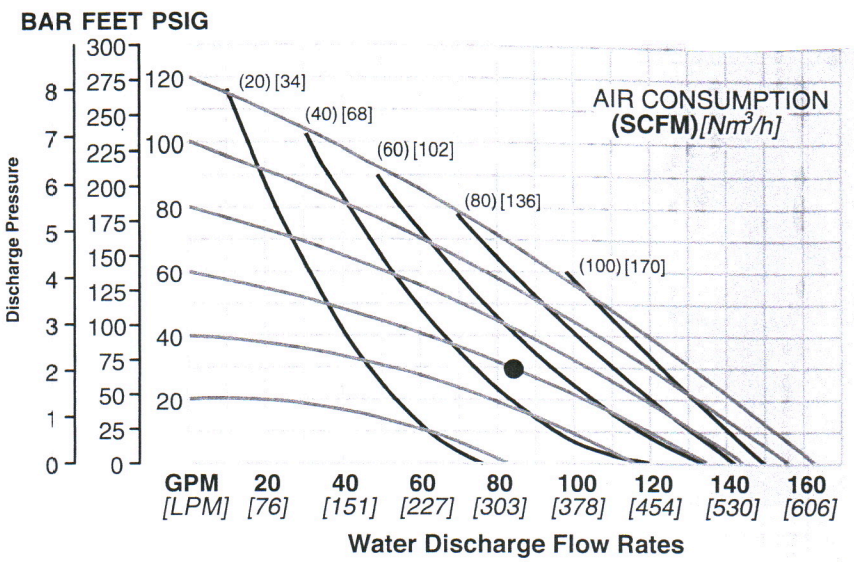
T8 METAL RUBBER-FITTED

Height..... 668 mm (26.3")
Width..... 404 mm (15.9")
Depth ..... 343 mm (13.5")
Est. Ship Weight.....Aluminum 33 kg (72 lbs)
Cast Iron 52 kg (114 lbs)
Air Inlet..... 19 mm (3/4")
Inlet..... 51 mm (2")
Outlet ..... 51 mm (2")
Suction Lift..... 6.4 m Dry (21')
9.5 m Wet (31')
Displacement/Stroke ..... 2.69 l (0.71 gal.)[1]
Max. Flow Rate..... 617 lpm (163 gpm)
Max. Size Solids ..... 6.4 mm (1/4")

[1]Displacement per stroke was calculated at 4.8 bar (70 psig) air inlet pressure against a 2 bar (30 psig) head pressure.

Example: To pump 318 lpm (84 gpm) against a discharge pressure head of 2.1 bar (30 psig) requires 4.1 bar (60 psig) and 85 Nm^3/h (50 scfm) air consumption. (See dot on chart.)

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



Flow rates indicated on chart were determined by pumping water.

For optimum life and performance, pumps should be specified so that daily operation parameters will fall in the center of the pump performance curve.

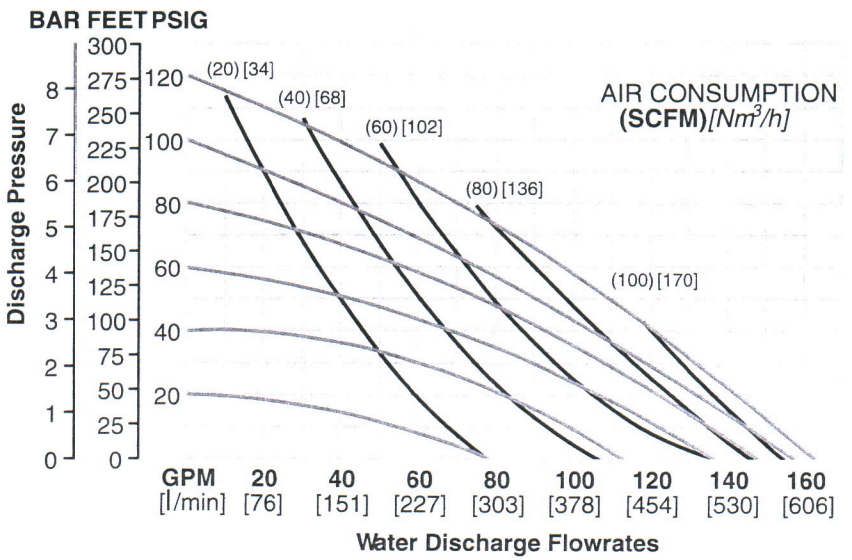
T8 METAL TPE-FITTED

Height..... 668 mm (26.3")
Width..... 404 mm (15.9")
Depth ..... 343 mm (13.5")
Ship Weight ..... Aluminum 33.1 kg (72 lbs.)
Cast Iron 52.4 kg (114 lbs.)
316 Stainless Steel 48.8 kg (106 lbs.)
Alloy C 53.4 kg (116 lbs.)
Air Inlet..... 19 mm (¾")
Inlet..... 51 mm (2")
Outlet ..... 51 mm (2")
Suction Lift..... 6.1 m Dry (20')
9.5 m Wet (31')
Displacement/Stroke ..... 2.80 L (0.74 gal.)[1]
Max. Flow Rate..... 613 lpm (162 gpm)
Max. Size Solids ..... 6.4 mm (¼")

[1]Displacement per stroke was calculated at 4.8 bar (70 psig) air inlet pressure against a 2 bar (30 psig) head pressure.

Example: To pump 341 lpm (90 gpm) against a discharge pressure head of 2.1 bar (30 psig) requires 4.1 bar (60 psig) and 85 Nm^3/h (50 scfm) air consumption. (See dot on chart.)

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



Flow rates indicated on chart were determined by pumping water.

For optimum life and performance, pumps should be specified so that daily operation parameters will fall in the center of the pump performance curve.

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 Glyd™ rings. If worn excessively, they will not seal and air will simply flow through pump and out air exhaust. Use only Wilden Glyd™ 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 an 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 check valves. If material being pumped is not compatible with pump elastomers, swelling may occur. Replace ball check valves and o-rings with the proper elastomers.
3. Check to make sure all suction connections are air tight, especially clamp bands around intake balls.

Pump air valve 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.

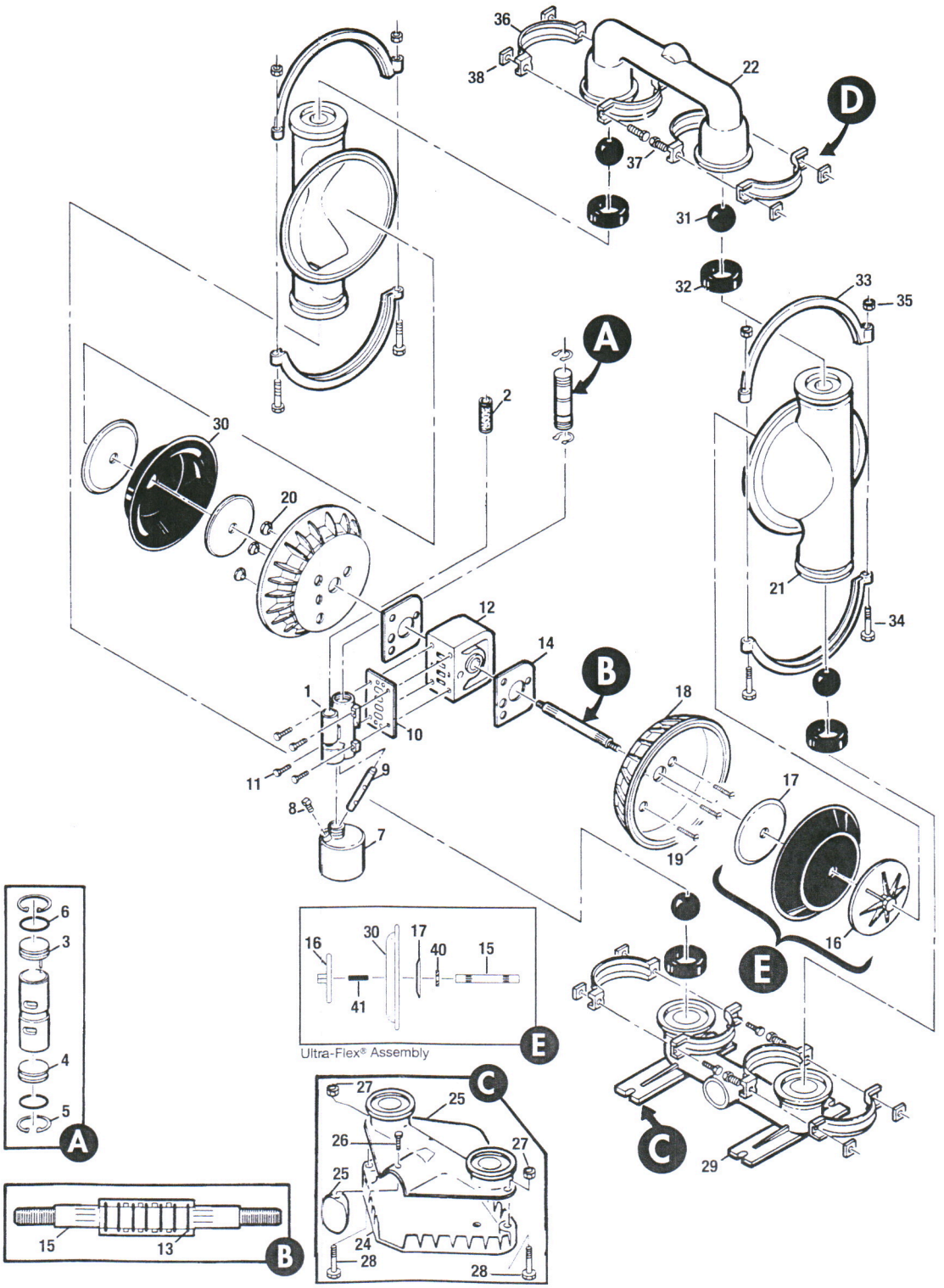
Product comes out air exhaust.

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

Pump rattles.

1. See E9 Troubleshooting Guide.
2. Create false discharge head or suction lift.

T8 METAL | Rubber/TPE-Fitted | EXPLODED VIEW



T8 METAL | Rubber/TPE-Fitted | PARTS LISTING

Item	Part Description	Qty.	T8/AAAPB/0030 P/N	T8/AAAPB P/N	T8/AAAAB P/N
1	**Air Valve Assembly[1]**	**1**	**08-2000-07**	**08-2000-07**	**08-2000-07**
2	Air Valve Screen	1	08-2500-07	08-2500-07	08-2500-07
3	Air Valve End Cap w/Guide (Top)	1	08-2300-23	08-2300-23	08-2300-23
4	Air Valve End Cap w/o Guide (Bottom)	1	08-2330-23	08-2330-23	08-2330-23
5	Air Valve Snap Ring	2	08-2650-03	08-2650-03	08-2650-03
6	Air Valve Cap O-Ring	2	08-2390-52	08-2390-52	08-2390-52
7	Oil Bottle (Optional) w/Air Valve 08-2050-07	1	08-2850-01	08-2850-01	08-2850-01
8	Plug (Optional)	1	08-7000-07	08-7000-07	08-7000-07
9	Capillary Rod (Optional)	1	08-2900-99	08-2900-99	08-2900-99
10	Air Valve Gasket — Buna-N	1	08-2600-52	08-2600-52	08-2600-52
11	Air Valve Screw 5/16"-18 x 2-1/4"	4	08-6000-08	08-6000-08	08-6000-08
12	Center Block	1	08-3100-20-225	08-3100-20-225	08-3100-01-225
13	**Center Block Glyd™ Ring**	**7**	**08-3210-55-225**	**08-3210-55-225**	**08-3210-55-225**
14	Block Gasket — Buna-N	2	08-3520-52	08-3520-52	08-3520-52
15	Shaft	1	08-3800-09-07	08-3800-09-07	08-3800-09-07
	Shaft, Ultra-Flex™	1	08-3820-09-07	08-3820-09-07	08-3820-09-07
16	Piston, Outer	2	08-4550-01	08-4550-01	08-4550-01
	Piston, Outer, Ultra-Flex™	2	04-4552-01	04-4552-01	04-4552-01
17	Piston, Inner	2	08-3700-01	08-3700-01	08-3700-01
	Piston, Inner, Ultra-Flex™	2	04-3700-08	04-3700-08	04-3700-08
18	Air Chamber, Counter Sunk	2	08-3650-01	08-3650-01	08-3650-01
19	Air Chamber Screw 3/8"-16 x 3-9/16"	3	08-6200-08	08-6200-08	08-6200-08
20	Air Chamber Cone Nut 3/8"-16	3	08-6550-08	08-6550-08	08-6550-08
21	Liquid Chamber	2	08-5000-01	08-5000-01	08-5000-01
22	Discharge Manifold	1	08-5020-01	08-5020-01	08-5020-01
23	Inlet Housing for Screened Base	1	08-5080-01-30	N/A	N/A
24	Screen Base for Item 24	1	08-5620-01	N/A	N/A
25	Suction Hook Up Cover for Item 24	1	08-5660-01	N/A	N/A
26	Cap Screw for Item 24 3/8"-16 x 7/8"	1	08-6140-08	N/A	N/A
27	Cap Screw Nut 3/8"-16	2	02-6430-03	N/A	N/A
28	Cap Screw 3/8"-16 x 3"	2	08-6120-08	N/A	N/A
29	Inlet Housing for Footed Base	1	N/A	08-5080-01	08-5080-01
30	**Diaphragm***	**2**	*	*	*
31	**Valve Ball***	**4**	*	*	*
32	**Valve Seat***	**4**	*	*	*
33	Large Clamp Band Assy.	2	08-7300-08	08-7300-08	08-7300-08
34	Large Carriage Bolt 3/8"-16 x 3"	4	08-6120-08	08-6120-08	08-6120-08
35	Large Hex Nut 3/8"-16	4	08-6450-08	08-6450-08	08-6450-08
36	Small Clamp Band Assy.	4	08-7100-08	08-7100-08	08-7100-08
37	Small Hex Head Cap Screw 5/16"-18 x 1-3/8"	8	08-6050-08	08-6050-08	08-6050-08
38	Small Hex Nut 5/16"-18	8	04-6420-08	04-6420-08	04-6420-08
39	Muffler (not shown)	1	08-3510-99	08-3510-99	08-3510-99
40	Spacer, Ultra-Flex™	2	08-3860-08	08-3860-08	08-3860-08
41	Stud, Ultra-Flex™	1	08-6150-08	08-6150-08	08-6150-08

[1]Air Valve Assembly includes parts through 08-2390-52.
[2]T8 Stallion pumps utilize only four (4) of P/N's 08-6100-03 and 08-6408-08 on the bottom manifold and water chambers.
*Refer to elastomer options in Section 9.
NOTE: BSP threads available.

All boldface items are primary wear parts.

0030 Specialty Code = Screen Base
0050 Specialty Code = Stallion