EOM

ENGINEERING OPERATION & MAINTENANCE MANUAL

A100 Accu-Flo Bolted Plastic Pump

a DOVER company

Where Innovation Flows

WILDEN®

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

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

Certifications

CONTENTS

SECTION 1: Precautions – Read First! **4**
SECTION 2: Wilden Pump Designation System **5**
SECTION 3: How It Works **6**
SECTION 4: Dimensional Drawings **7**
SECTION 5: Performance **8**
A100 Plastic Rubber-Fitted 8
A100 Plastic PTFE-Fitted 8
70/30 Operating Conditions 9
SECTION 6: Suggested Installation, Operation, Maintenance, and Troubleshooting **10**
SECTION 7: Exploded View and Parts List **13**
SECTION 8: Elastomer Options **15**
SECTION 9: Electrical Information **15**

SECTION 1

PRECAUTIONS – READ FIRST!

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

CAUTION: Do not apply compressed air to the exhaust port – pump will not function.

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

TEMPERATURE LIMITS:

Acetal	–29°C to 82°C	–20°F to 180°F
Buna-N	–12°C to 82°C	10°F to 180°F
Geolast®	–40°C to 82°C	–40°F to 180°F
Neoprene	–18°C to 93°C	0°F to 200°F
Nordel® EPDM	–51°C to 138°C	–60°F to 280°F
Nylon	–18°C to 93°C	0°F to 200°F
PFA	–7°C to 107°C	45°F to 225°F
Polypropylene	0°C to 79°C	32°F to 175°F
Polyurethane	–12°C to 66°C	10°F to 150°F
PVDF	–12°C to 107°C	10°F to 225°F
Saniflex™	–29°C to 104°C	–20°F to 220°F
SIPD PTFE with EPDM-backed	4°C to 137°C	40°F to 280°F
SIPD PTFE with Neoprene-backed	4°C to 93°C	40°F to 200°F
PTFE[1]	4°C to 104°C	40°F to 220°F
FKM	–40°C to 177°C	–40°F to 350°F
Wil-Flex™	–40°C to 107°C	–40°F to 225°F

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

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

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

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

CAUTION: All Wilden pumps are capable of passing solids. Use a strainer on the pump intake to ensure that the pump's rated solids capacity is not exceeded.

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

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

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

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

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

CAUTION: Accu-Flo pumps cannot be used in submersible applications.

CAUTION: Before installation, tighten all hardware.

CAUTION: Only explosion proof (NEMA 7) solenoid valves should be used in areas where explosion proof equipment is required.

NOTE: Materials of construction and elastomer material may influence suction lift parameters. Please refer to “Performance” for specifics.

NOTE: When installing PTFE diaphragms, it is important to tighten outer pistons simultaneously (turning in opposite directions) to ensure tight fit. (See “Maximum Torque Specifications”).

NOTE: Some PTFE-fitted pumps come standard from the factory with expanded PTFE gaskets installed in the diaphragm bead of the liquid chamber. PTFE gaskets cannot be re-used.

NOTE: In the event of a power failure, close the shut-off valve if you do not want the pump to restart when the power returns.

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

SECTION 2

WILDEN PUMP DESIGNATION SYSTEM

A100 PLASTIC
13 mm (1/2") Pump
Maximum Flow Rate:
42.4 lpm (11.2 gpm)

LEGEND A100 X / X X X X X / X X X / X X / X X X / X X X X

- MODEL
- AIR SYSTEM BASE TYPE
- WETTED PATHS
- OUTER PISTON
- CENTER SECTION
- AIR VALVE OR ADAPTER BLOCK MATERIAL
- DIAPHRAGMS
- VALVE BALL
- VALVE SEAT
- O-RING
- SPECIALTY CODE (if applicable)

MATERIAL CODES

MODEL
A100 = PLASTIC ACCU-FLO™

AIR SYSTEM BASE TYPE
P = PRO-FLO®
B = ADAPTER BLOCK

WETTED PATH
K = PVDF
P = POLYPROPYLENE

OUTER PISTON
K = PVDF
P = POLYPROPYLENE
Z = NO OUTER PISTON

CENTER SECTION
PP = POLYPROPYLENE

AIR VALVE
P = POLYPROPYLENE

DIAPHRAGMS
BNS = BUNA-N (RED DOT)
FSS = SANIFLEX™ [HYTREL® (CREAM)]
PUS = POLYURETHANE (CLEAR)
THU = PTFE W/HIGH-TEMP BUNA-N BACK-UP (WHITE)
TNL = PTFE W/NEOPRENE BACK-UP O-RING, IPD (WHITE)
TNU = PTFE W/NEOPRENE BACK-UP (WHITE)
VTS = FKM (WHITE DOT)
WFS = WIL-FLEX™ [SANTOPRENE® (THREE BLACK DOTS)]

VALVE BALLS
BN = BUNA-N (RED DOT)
FG = SANIFLEX™
PU = POLYURETHANE (BROWN)
TF = PTFE (WHITE)
VT = FKM (WHITE DOT)
WF = WIL-FLEX™ [SANTOPRENE® (THREE BLACK DOTS)]

VALVE SEATS
K = PVDF
P = POLYPROPYLENE

O-RINGS
BN = BUNA-N (RED DOT)
FS = SANIFLEX™ [HYTREL® (CREAM)]
PU = POLYURETHANE (BROWN)
TV = PTFE ENCAP. FKM®
WF = WIL-FLEX™ (SANTOPRENE®)

SPECIALTY CODES

0150 - Accu-Flo, 24V DC Coil
0151 - Accu-Flo, 24V AC / 12V DC coil
0154 - Accu-Flo, 24V DC x-proof coil
0155 - Accu-Flo, 110V AC coil
0160 - Accu-Flo, 24V DC coil, BSPT
0167 - Accu-Flo, 24V AC / 12V DC coil, Wil-Gard 110V
0184 - Accu-Flo, 24V DC coil, PFA coated
0512 - Adapter block, no muffler, Pro-Flo, center section
0554 - Adapter block, no muffler, Pro-Flo center section, BSPT
0682 – P100 with OEM manifold, Accu-Flo 24V DC coil

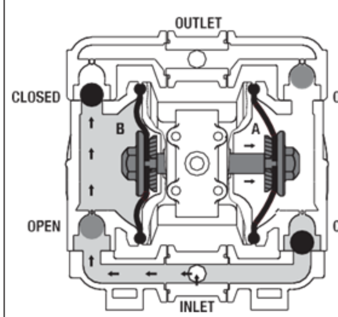
! **NOTE:** Most elastomeric materials use colored dots for identification.

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

SECTION 3

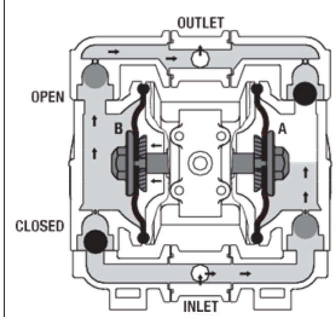
HOW IT WORKS – AIR-OPERATED DOUBLE-DIAPHRAGM PUMP

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.



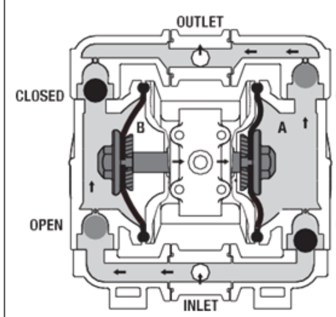
RIGHT STROKE

FIGURE 1 When the solenoid is energized, the air valve directs pressure 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 membrane between the compressed air and the liquid, balancing the load and removing mechanical stress from the diaphragm. The compressed air moves the diaphragm away from the center section 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. The movement of diaphragm B toward the center section of the pump creates a vacuum within chamber B. Atmospheric pressure forces fluid into the inlet manifold forcing the inlet valve ball off of its seat. Liquid is free to move past the inlet valve ball and fill the liquid chamber (see shaded area).



LEFT STROKE

FIGURE 2 When the solenoid valve is deenergized, the air valve redirects pressurized air to the back side of diaphragm B. The pressurized air forces diaphragm B away from the center section while pulling diaphragm A to the center section. 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 of 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 section 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 of its seat allowing the fluid being pumped to fill the liquid chamber.



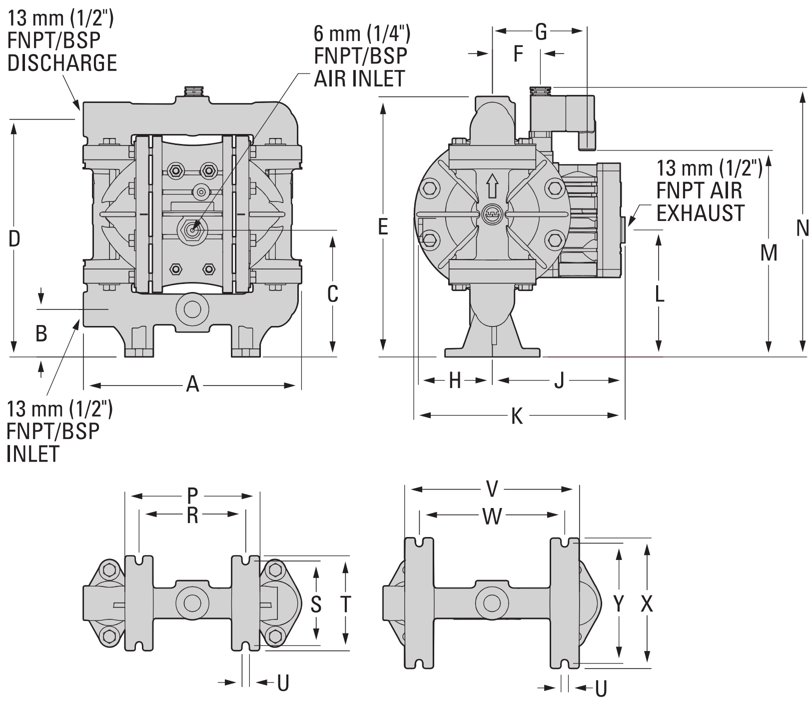
RIGHT STROKE

FIGURE 3 Once the solenoid valve is reenergized, the air is redirected 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 intake 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.

SECTION 4

DIMENSIONAL DRAWING

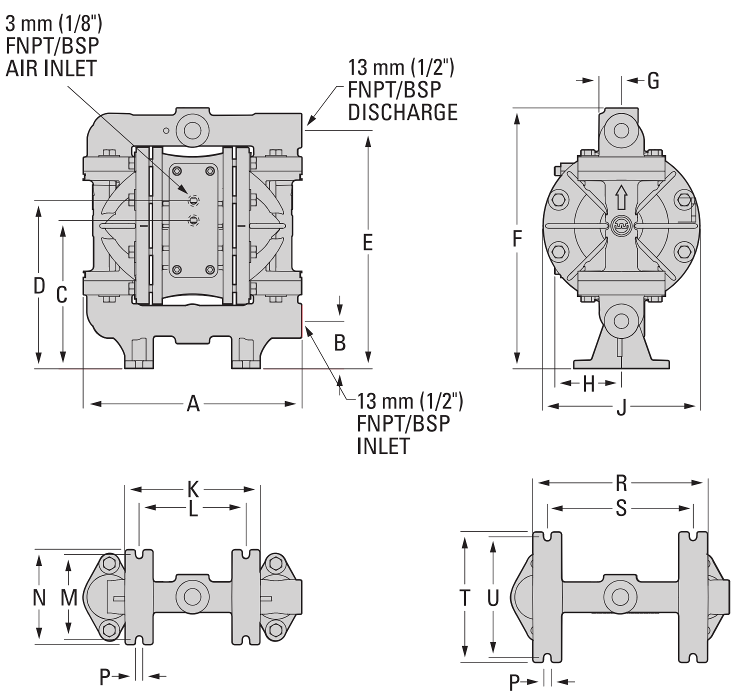
A100 Plastic



DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	234	9.2
B	51	2.0
C	135	5.3
D	254	10.0
E	279	11.0
F	51	2.0
G	102	4.0
H	79	3.1
J	142	5.6
K	226	8.9
L	137	5.4
M	224	8.8
N	277	10.9
P	145	5.7
R	114	4.5
S	91	3.6
T	102	4.0
U	8	0.3
V	188	7.4
W	155	6.1
X	140	5.5
Y	130	5.1

A1B Plastic Clamp (T-Series Center Section)



ALTERNATE FOOTPRINT

DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	234	9.2
B	51	2.0
C	157	6.2
D	180	7.1
E	254	10.0
F	279	11.0
G	25	1.0
H	66	2.6
J	168	6.6
K	145	5.7
L	114	4.5
M	91	3.6
N	102	4.0
P	8	0.3
R	188	7.4
S	155	6.1
T	140	5.5
U	130	5.1

SECTION 5

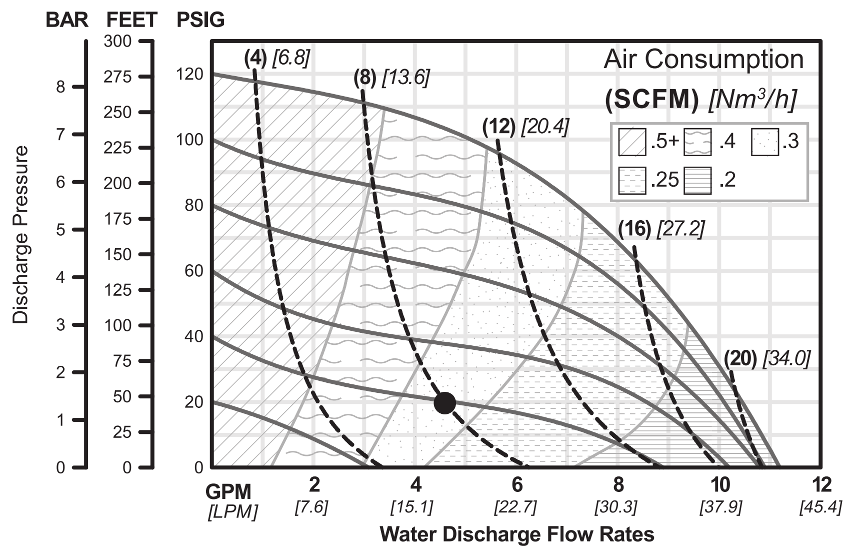
PERFORMANCE

A100 PLASTIC RUBBER-FITTED

Ship Weights……...Polypropylene 4 kg (8 lb)
PVDF 5 kg (10 lb)
Air Inlet……………………...………6 mm (1/4")
Inlet…...………………………………13 mm (1/2")
Outlet……………...………………13 mm (1/2")
Suction Lift……………………6.6 m Dry (21.5')
9.0 m Wet (29.5')
Disp. per Stroke[1]……....…....0.11 L (0.03 gal)
Max. Flow Rate…………..42.4 lpm (11.2 gpm)
Max. Size Solids………..………1.6 mm (1/16")

[1]Displacement per stroke was calculated at 4.8 bar (70 psig) air inlet pressure against a 2.0 bar (30 psig) head pressure.

Example: To pump 17.4 lpm (4.6 gpm) against a discharge head pressure of 1.4 Bar (20 psig) requires 2.8 Bar (40 psig) and 13.6 Nm³/h (8 scfm) air consumption.



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's performance curve.

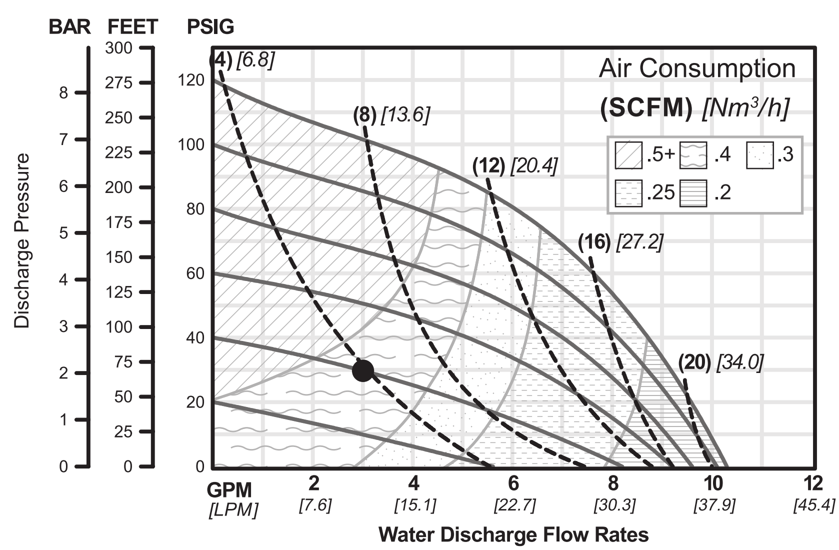
Caution: Do not exceed 8.6 bar (125 psig) air supply pressure.

A100 PLASTIC PTFE-FITTED

Ship Weights………...Polypropylene 4 kg (8 lb)
PVDF 5 kg (10 lb)
Air Inlet……………………...………6 mm (1/4")
Inlet…...………………………………13 mm (1/2")
Outlet……………...………………13 mm (1/2")
Suction Lift…………………...5.7 m Dry (18.7')
9.3 m Wet (30.6')
Disp. per Stroke[1]……....…....0.11 L (0.03 gal)
Max. Flow Rate…….……38.2 lpm (10.1 gpm)
Max. Size Solids………..………1.6 mm (1/16")

[1]Displacement per stroke was calculated at 4.8 bar (70 psig) air inlet pressure against a 2.1 bar (30 psig) head pressure.

Example: To pump 11.4 lpm (3.0 gpm) against a discharge head pressure of 2.1 Bar (30 psig) requires 2.8 Bar (40 psig) and 6.8 Nm³/h (4 scfm) air consumption.



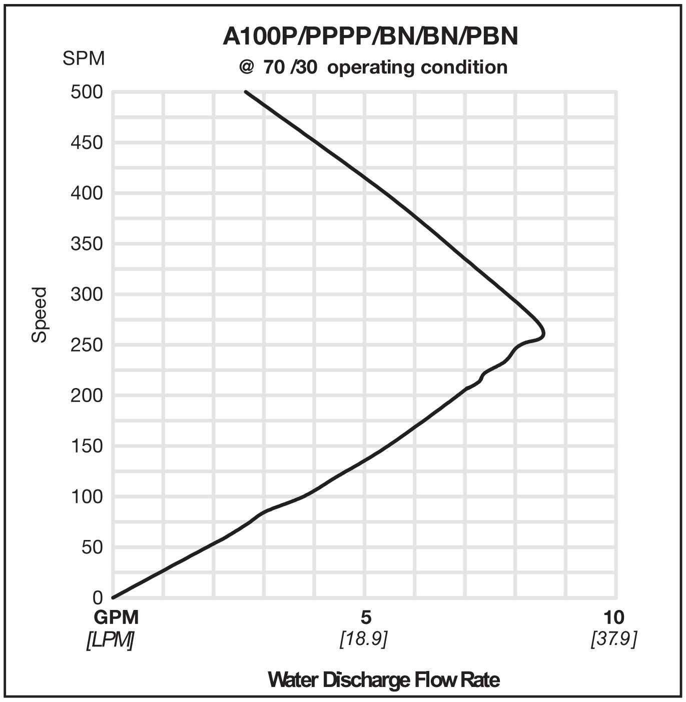
Flow rates indicated on chart were determined by pumping water. For optimum life and performance, pumps should be specified so that daily operation parameters will fall in the center of the pump's performance curve.

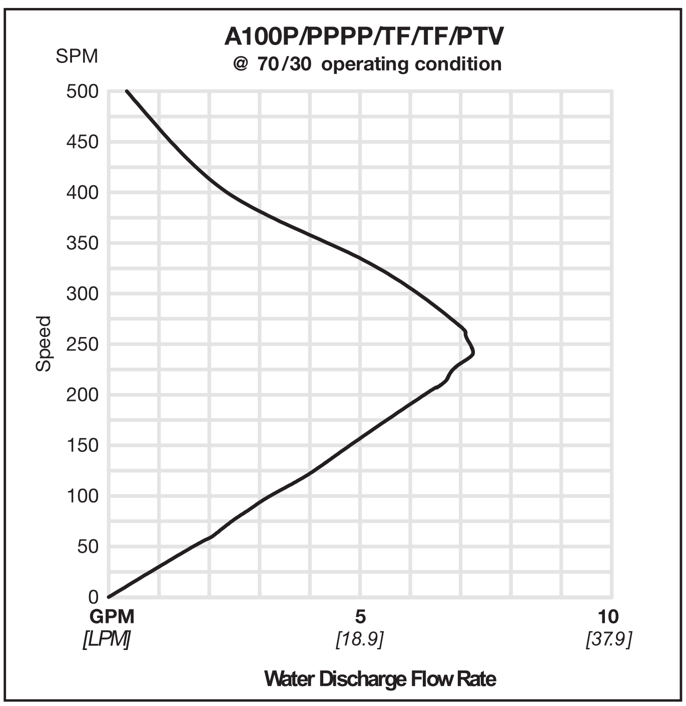
Caution: Do not exceed 8.6 bar (125 psig) air supply pressure.

70/30 OPERATING CONDITIONS

A100 PLASTIC ACCU-FLO

These curves demonstrate the flow created when the stroke rate is modified under static air and fluid pressure condition. This curve can be applied to different pressure conditions to estimate the change in flow due to stroke rate





SECTION 6

SUGGESTED INSTALLATION, OPERATION, MAINTENANCE AND TROUBLESHOOTING

Wilden pumps are designed to meet the performance requirements of even the most demanding pumping applications. They have been designed and manufactured to the highest standards and are available in a variety of liquid path materials to meet your chemical resistance needs. Refer to “Performance” for an in-depth analysis of the performance characteristics of your pump. Wilden offers the widest variety of elastomer options in the industry to satisfy temperature, chemical compatibility, abrasion resistance and flex concerns.

The suction pipe size should be at least equal to or larger than the diameter size of the suction inlet on your Wilden pump. The suction hose must be a non-collapsible, reinforced type because these pumps are capable of pulling a high vacuum. Discharge piping should also be equal to or larger than the diameter of the pump discharge, which will help reduce friction losses.

CAUTION: All fittings and connections must be airtight. Otherwise, pump suction capability will be reduced or lost.

Months of careful planning, study and selection efforts can result in unsatisfactory pump performance if installation details are left to chance. You can avoid premature failure and long-term dissatisfaction by exercising reasonable care throughout the installation process.

Location

Noise, safety and other logistical factors usually dictate where equipment will be situated on the production floor. Multiple installations with conflicting requirements can result in congestion of utility areas, leaving few choices for additional pumps.
Within the framework of these and other existing conditions, locate every pump in such a way that the following six key factors are balanced against each other to maximum advantage:

- **Access:** First, the location should be accessible. If it’s easy to reach the pump, maintenance personnel will be able to perform routine inspections and adjustments more easily. If major repairs become necessary, ease of access can play a key role in speeding the repair process and reducing total downtime.
- **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. For best results, the pumps should use a 5μ (micron) air filter, needle valve and regulator. The use of an air filter before the pump will ensure that the majority of any pipeline contaminants will be eliminated.
- **Solenoid Operation:** When operation is controlled by a solenoid valve in the air line, three-way valves should be used. This valve allows trapped air between the valve and the pump to bleed off, which improves pump performance. You can estimate pumping volume by counting the number of strokes per minute, and then multiplying that figure by the displacement per stroke.
- **Muffler:** Using the standard Wilden muffler, sound levels are reduced below OSHA specifications. You can use other mufflers to reduce sound levels farther, but they usually reduce pump performance.
- **Elevation:** Selecting a site that is well within the pump’s dynamic lift capability will assure that loss-of-prime issues will be eliminated. In addition, pump efficiency can be adversely affected if proper attention is not given to site location.
- **Piping:** Final determination of the pump site should not be made until the piping challenges 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 straightest hook-up of suction and discharge piping. Unnecessary elbows, bends and fittings should be avoided. Pipe sizes should be selected to keep friction losses within practical limits. All piping should be supported independently of the pump. In addition, the piping should be aligned to avoid placing stress on the pump fittings.

Flexible hose 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 location, a mounting pad placed between the pump and the 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 (SD Equalizer) should be installed to protect the pump, piping and gauges from surges and water hammer.

If the pump is to be used in a self-priming application, make sure that all connections are airtight and that the suction lift is within the model’s ability.

NOTE: Materials of construction and elastomer material have an effect on suction lift parameters. Please refer to “Performance” for specifics.

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.

Pumps in service with a positive suction head are most efficient when inlet pressure is limited to 0.5–0.7 bar (7–10 psig). Premature diaphragm failure may occur if positive suction is 0.7 bar (10 psig) and higher.

CAUTION: All Wilden pumps are capable of passing solids. Use a strainer on the pump intake to ensure that the pump's rated solids capacity is not exceeded.

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

CAUTION: Pro-Flo® and Accu-Flo™ pumps do not have single-point exhaust option and are not submersible.

SUGGESTED INSTALLATION, OPERATION, MAINTENANCE AND TROUBLESHOOTING

Operating Principles Behind Accu-Flo™ Pumps

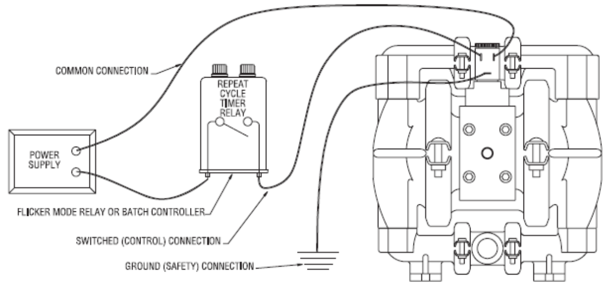
When the solenoid is unpowered, one air chamber is pressurized with air, while the opposite chamber is exhausted. When electric power is applied, the solenoid shifts, and the pressurized air chamber is exhausted while the opposite chamber is pressurized. By alternately applying and removing power, the solenoid-operated pump runs like a standard Wilden pump.

The speed of the pump is controlled electrically. Since each stroke is controlled by an electrical signal, the pump is ideal for batching and other electrically controlled dispensing applications.

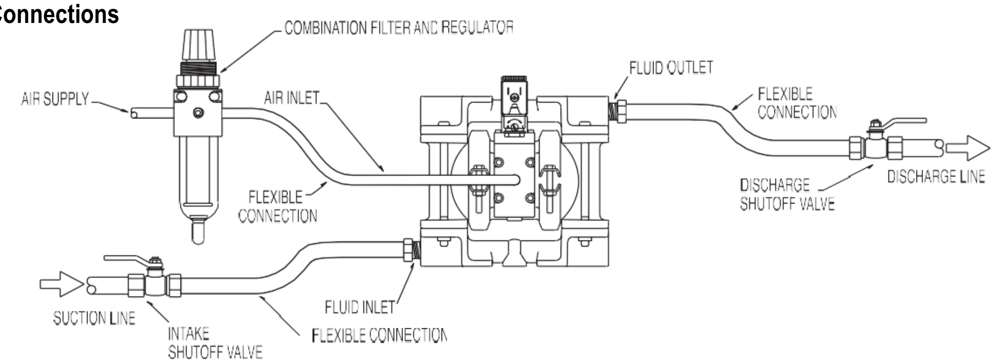
Although the speed of the pump is controlled electrically, the air pressure is important. Air pressure displaces the fluid, and if the pressure is insufficient to complete the physical stroke before an electronic impulse signals the pump to shift, the stroke will not be completed, and the displacement per stroke will be reduced. This does not harm the unit in any way, but it may cause inaccuracy when attempting to batch specific quantities with high precision if this effect is not taken into account.

There are three coil voltage options available. One coil allows for 24V DC operation. The second coil option allows for operation with either 12V DC or 24V AC at 60 Hz and the third coil option allows for 110V AC operation.

Electrical Connections



Plumbing Connections



Operation

A red button on the side of the air valve is a manual override; when actuated it will shift the valve as if an electric current had actuated the solenoid.

A muffler can be installed to reduce the amount of noise generated by the pump. Use of the specified Wilden muffler will reduce noise levels below OSHA specifications.

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.

Maintenance and Inspections

Since each application is unique, maintenance schedules may be different for every pump. Frequency of use, line pressure, viscosity and abrasiveness of process fluid all effect the parts life of a Wilden pump. Periodic inspections have been found to offer the best means for preventing unscheduled pump downtime. Personnel familiar with the pump's construction and service should be informed of any abnormalities that are detected during operation. Internal maintenance is not recommended for Accu-Flo™ solenoid air valves. When worn or damaged, a new air valve body, coil or terminal connector must be purchased. Please consult section 9 for part numbers.

SUGGESTED INSTALLATION, OPERATION, MAINTENANCE AND TROUBLESHOOTING

Troubleshooting

Pump will not run or runs slowly.

1. Remove plug from pilot spool exhaust.
2. Ensure that the air inlet pressure is at least 0.4 bar (5 psig) above startup pressure and that the differential pressure (the difference between air inlet and liquid discharge pressures) is not less than 0.7 bar (10 psig).
3. Check air inlet filter for debris (see "Suggested Installation, Operation, Maintenance and Troubleshooting").
4. Check for extreme air leakage (blow by) that would indicate worn seals/bores in the air valve, pilot spool and main shaft.
5. Disassemble the pump and check for obstructions in the air passageways or objects that would obstruct the movement of internal parts.
6. Check for sticking ball check valves.
   a. If material being pumped is not compatible with pump elastomers, swelling may occur. Replace ball check valves and seals with proper elastomers.
   b. Also, as the check valve balls wear out, they become smaller and can become stuck in the seats. In this case, replace balls and seats.
7. Check for any broken inner piston that would cause the air valve spool to be unable to shift.

Pump runs, but little or no product flows.

1. Check for pump cavitation. Slow pump speed down to allow thick material to flow into liquid chambers.
2. Verify that vacuum required to lift liquid is not greater than the vapor pressure of the material being pumped (cavitation).
3. Check for sticking ball check valves.
   a. If material being pumped is not compatible with pump elastomers, swelling may occur. Replace ball check valves and seals with proper elastomers.
   b. Also, as the check valve balls wear out, they become smaller and can become stuck in the seats. In this case, replace balls and seats.

Pump air valve freezes.

1. Check for excessive moisture in the compressed air.
   a. Either install a dryer or a hot air generator for compressed air.
   b. Alternatively, you may use coalescing filter to remove the water from the compressed air in some applications.

Air bubbles in pump discharge.

1. Check for a ruptured diaphragm.
2. Check tightness of outer pistons (see "Disassembly/Reassembly").
3. Check tightness of fasteners and integrity of O-rings and seals, especially at intake manifold.
4. Ensure pipe connections are airtight.

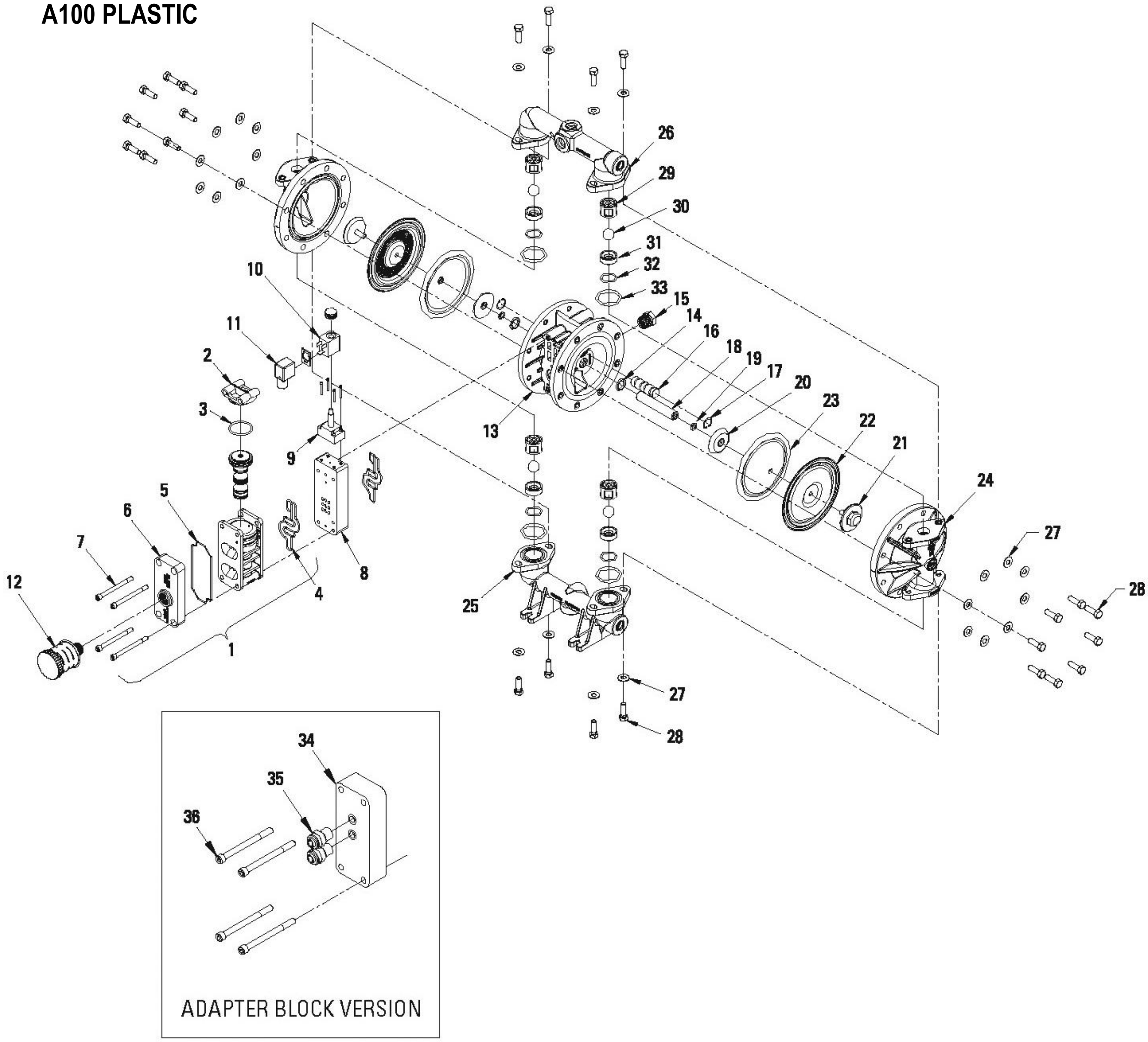
Product comes out air exhaust.

1. Check for a diaphragm rupture.
2. Check the tightness of the outer pistons to the shaft.

Solenoid Troubleshooting

- ***Solenoid buzzes or solenoid burnout.***
  Incorrect voltage, faulty or dirty solenoid.
- ***Solenoid valve fails to shift electrically but shifts with manual override.***
  Incorrect voltage, defective coil or wiring.
- ***Valve shifts but fails to return.***
  Broken spring, mechanical binding.
- ***Excessive leaking from air valve vent.***
  Worn seals in air valve.

A100 PLASTIC



EXPLODED VIEW AND PARTS LIST

Item	Part Description	Qty.	A100P/PKPPP/0151 P/N	A100P/KKPPP/0151 P/N
1	Air Valve Assembly1	1	01-2010-20	01-2010-20
2	End Cap	1	01-2332-20	01-2332-20
3	O-ring, (.103 x 1.362)	1	01-2395-52	01-2395-52
4	Gasket, Air Valve	2	01-2615-52	01-2615-52
5	Gasket, Muffler Plate	1	01-3505-52	01-3505-52
6	Muffler Plate	1	01-3181-20	01-3181-20
7	Air Valve Screws, SHC, 1/4-20 x 4.5	4	01-6000-03	01-6000-03
8	Solenoid Spacer Plate	1	01-2160-20	01-2160-20
9	Operator, Solenoid, Nema 4	1	00-2120-99	00-2120-99
10	Coil	1	00-2110-99-151	00-2110-99-151
11	Terminal Connector	1	00-2130-99	00-2130-99
12	Muffler, 1/2”	1	02-3510-99	02-3510-99
13	Center Section	1	01-3141-20	01-3141-20
14	**Glyd-Ring II, (.618 x .136)**	**2**	**01-3220-55**	**01-3220-55**
15	Reducer Bushing	1	01-6950-20	01-6950-20
16	Pilot Plug Assy	1	01-2285-99	01-2285-99
17	Retaining Ring	2	00-2650-03	00-2650-03
18	Shaft	1	01-3810-03	01-3810-03
19	Disc Spring (.331 x .512)	2	01-6802-08	01-6802-08
20	Piston, Inner, (Combo)	2	01-3711-08	01-3711-08
21	Piston, Outer, (Combo)	2	01-4570-21-500	01-4570-21-500
22	**Diaphragm, Primary, PTFE**	**2**	**01-1010-55**	**01-1010-55**
23	**Diaphragm, Back-Up, Neoprene**	**2**	**01-1060-51**	**01-1060-51**
24	Liquid Chamber	2	01-5005-20	01-5005-21
25	Inlet Manifold	1	01-5095-20	01-5095-21
26	Discharge Manifold	1	01-5035-20	01-5035-21
27	Washer (.343 x .750 x .05)	24	01-6732-03	01-6732-03
28	Screw, HHC, 5/16-18 x 1.13	24	01-6191-03	01-6191-03
29	Ball Cage	4	01-5355-20	01-5355-21
30	**Valve Ball**	**4**	**01-1080-55**	**01-1080-55**
31	**Valve Seat**	**4**	**01-1125-20**	**01-1125-21**
32	**Valve Seat O-ring (.924 x .103)**	**4**	**01-1205-60**	**01-1205-60**
33	**Manifold O-ring (1.484 x .139)**	**4**	**05-1370-60**	**05-1370-60**
34	Adapter Block	1	01-2155-20	01-2155-20
35	Adapter Block Air Fittings	2	00-2170-20	00-2170-20
36	Air Valve Screws, SHC, 1/4-20 x 2	4	04-6000-03	04-6000-03
	Alternate OEM Manifold (not shown)	1	01-5097-20	01-5097-21
	Drum Pump Manifold (not shown)	1	01-5094-20	01-5094-21
	Pipe Plug (not shown)	1	01-7101-20	01-7101-21

[1]Air valve assembly includes items 2, 3 and 4.

All boldface items are primary wear parts.

SECTION 8

ELASTOMER OPTIONS

A100 PLASTIC

Material	Diaphragm P/N	Valve Ball P/N	Valve Seat* P/N	Valve Seat O-Ring P/N	Manifold O-Ring P/N
Polyurethane	01-1010-50	01-1080-50		01-1200-50	02-1230-50
Buna-N	01-1010-52	01-1080-52		00-1260-52	02-1230-52
FKM	01-1010-53	01-1080-53			
Wil-Flex™	01-1010-58	01-1080-58		00-1260-58	01-1370-58
Saniflex™	01-1010-56	01-1080-56		01-1200-56	01-1370-56
PTFE	01-1010-55	01-1080-55			
PTFE with Integral Piston	01-1030-55				
Encapsulated/FKM				01-1205-60	05-1370-60
PVDF			01-1125-21		
Polypropylene			01-1125-20		

Coil Options

Pump Models Designating Specialty Code #	Part Number	Description
150	00-2110-99-150	24V DC
154	00-2110-99-154	24V DC, NEMA 7
157	00-2110-99-157	24V DC, International
151	00-2110-99-151	24V AC/12V DC
153	00-2110-99-153	24V AC/12V DC, NEMA 7
155	00-2110-99-155	110V AC
156	00-2110-99-156	110V AC, NEMA 7

Adapter Block Options

Part Number	Description
01-2155-13	Acetal
01-2155-20	Polypropylene

Operator Options

Part Number	Description
00-2120-99	Nema 4
00-2121-99	Nema 7

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