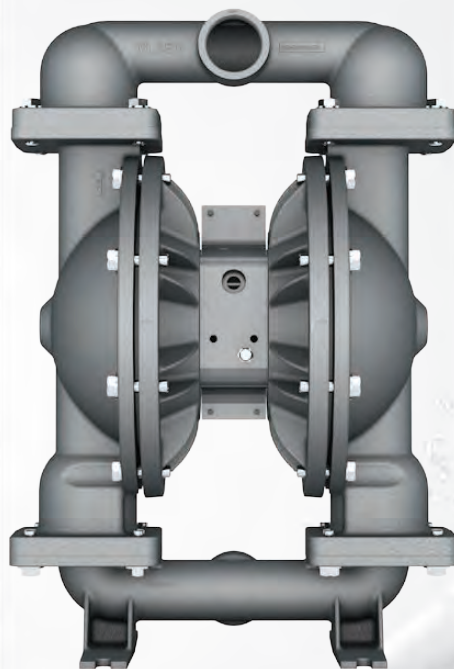


WILDEN®

EOM
Engineering
Operation &
Maintenance

Natural Gas-Operated
CSA-Certified
38 mm (1-1/2"), 51 mm (2")
and 76 mm (3") Metal Pumps



Where Innovation Flows

wildenpump.com



PSG
a **DOVER** company

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CAUTIONS—READ FIRST!

CAUTION: Do not apply pressurized gas to the exhaust port — pump will not function.

**TEMPERATURE LIMITS:**

Buna-N	−12°C to 82°C	10°F to 180°F
Wil-Flex™	−40°C to 107°C	−40°F to 225°F
PTFE ¹	4°C to 104°C	40°F to 220°F

¹4°C to 149°C (40°F to 300°F) - 13 mm (1/2") and 25 mm (1") models only.



CAUTION: Canadian Standards Association (CSA) configured pumps should not be used in temperatures lower than 0°C (32°F) or higher than 52°C (125°F).



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



WARNING: Prevent static sparking — If static sparking occurs, fire or explosion could result. Pump, valves and containers must be grounded to a proper grounding point when handling flammable fluids and whenever discharge of static electricity is a hazard. Pumps must be electrically grounded using the grounding conductor provided. Improper grounding can cause improper and dangerous operation.



CAUTION: Do not exceed 6.9 bar (100 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: Do not exceed 82°C (180°F) air inlet temperature for Pro-Flo® SHIFT models.



CAUTION: Pumps should be thoroughly flushed before installing into process lines.



CAUTION: Always wear safety glasses when operating pump. If diaphragm rupture occurs, material being pumped may be forced out air exhaust.



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.



CAUTION: Ensure that the gas supply line is clear of debris. Use an in-line air filter. A 5μ (micron) filter is recommended.



NOTE: When installing PTFE diaphragms, it is important to tighten the outer pistons simultaneously (turning in opposite directions) to ensure a tight fit. (See torque specifications in Section 7.)



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



CAUTION: All CSA-certified pump are fitted with a single-point exhaust to route all exhaust gas through the muffler exhaust port. The gas outlet must be vented to a safe location in accordance with local codes or, in the absence of local codes, an industry or nationally recognized code having jurisdiction over the specified installation.



CAUTION: Tighten all hardware prior to installation.



WILDEN PUMP DESIGNATION SYSTEM

CSA-CERTIFIED NATURAL GAS ADVANCED™ FIT PUMPS

Maximum Flow Rates:

38 mm (1-1/2")

460 lpm (122 gpm)

51 mm (2")

645 lpm (171 gpm)

76 mm (3")

933 lpm (246 gpm)

LEGEND

GPSXXXX / XXXXX / XXX / XX / XXX / XXXX

MODEL

WETTED PARTS & OUTER PISTON
AIR CHAMBERS
CENTER BLOCK
AIR VALVE

DIAPHRAGMS

VALVE BALLS

O-RINGS
VALVE SEATSPECIALTY
CODE
(if applicable)

MATERIAL CODES

MODEL

GPS420 = ATEX, CSA, PRO-FLO
SHIFT, THREADED
PORTSGPS430 = ATEX, CSA, PRO-FLO
SHIFT, FLANGED
PORTSGPS820 = ATEX, CSA, PRO-FLO
SHIFT, THREADED
PORTSGPS830 = ATEX, CSA, PRO-FLO
SHIFT, FLANGED
PORTSGPS1520 = ATEX, CSA, PRO-FLO
SHIFT, THREADED
PORTSGPS1530 = ATEX, CSA, PRO-FLO
SHIFT, FLANGED
PORTSWETTED PARTS / OUTER PISTON /
AIR CHAMBERAAA = ALUMINUM / ALUMINUM
/ ALUMINUMSSS = STAINLESS STEEL /
STAINLESS STEEL /
STAINLESS STEEL

CENTER BLOCK

A = ALUMINUM

S = STAINLESS STEEL

AIR VALVE

A = ALUMINUM

S = STAINLESS STEEL

DIAPHRAGMS

TWS = FULL-STROKE PTFE
w/WIL-FLEX™ BACK-UPZWS = WIL-FLEX™, EZ-INSTALL
(Orange Dot)

VALVE BALL

TF = PTFE (White)

WF = WIL-FLEX™ [Santoprene®
(Orange Dot)]

VALVE SEAT

A = ALUMINUM

S = STAINLESS STEEL

WF = WIL-FLEX™ [Santoprene®
(Orange Dot)]

VALVE SEAT O-RING

TF = PTFE

SPECIALTY CODES

0014 BSPT
0504 DIN Flange**NOTE:** Most elastomer materials use colored dots for identification.**NOTE:** Not all models are available with all material options.

HOW IT WORKS—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.

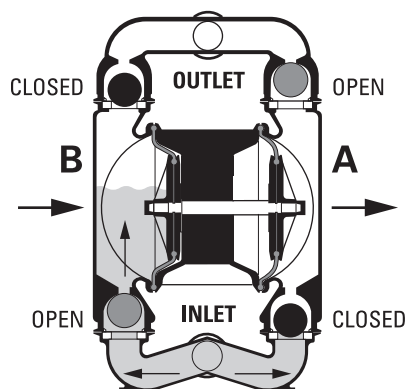


FIGURE 1 The air valve directs pressurized air to the back side of diaphragm A. The compressed air is applied directly to the liquid column separated by elastomeric diaphragms. The diaphragm acts as a separation membrane between the compressed air and liquid; a balanced load removes mechanical stress from the diaphragm. The compressed air moves the diaphragm away from the center 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 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).

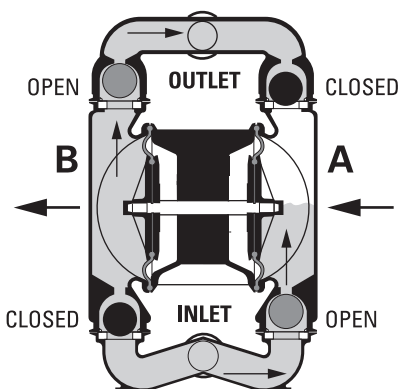


FIGURE 2 When the pressurized diaphragm, diaphragm A, reaches the limit of its discharge stroke, the air valve redirects pressurized air to the back side of diaphragm B. The pressurized air forces diaphragm B away from the center while pulling diaphragm A to the center. Diaphragm B is now on its discharge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

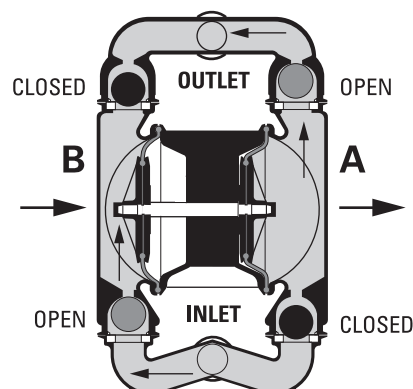
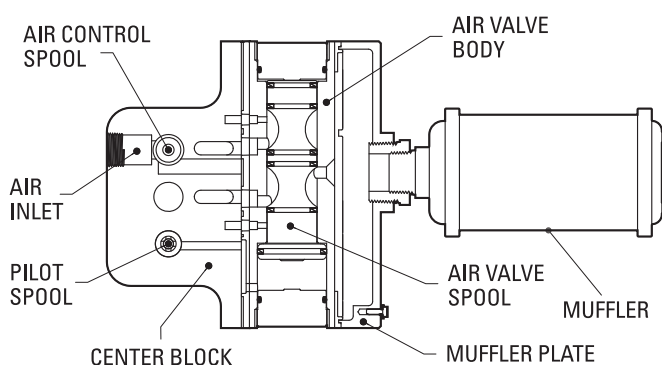
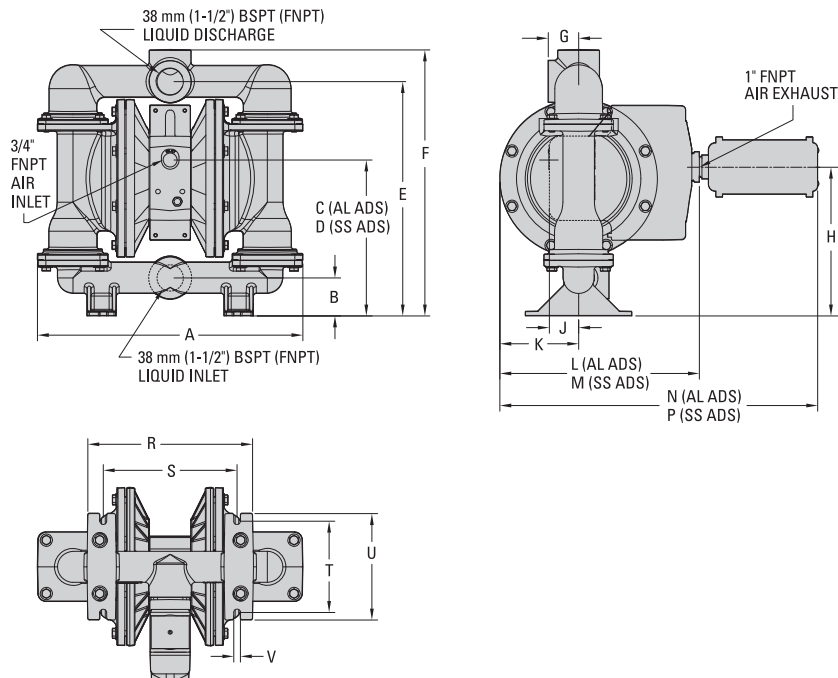


FIGURE 3 At completion of the stroke, the air valve again redirects air to the back side of diaphragm A, which starts diaphragm B on its exhaust stroke. As the pump reaches its original starting point, each diaphragm has gone through one exhaust and one discharge stroke. This constitutes one complete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

HOW IT WORKS—AIR DISTRIBUTION SYSTEM

The heart of the patented Pro-Flo® SHIFT Air Distribution System (ADS) is the air valve assembly. The air valve design incorporates an unbalanced spool with the small end of the spool being pressurized continuously while the large end of the spool is alternately pressurized, then exhausted to move the spool. The air valve spool directs pressurized air to one chamber while exhausting the other. The air forces the main shaft/diaphragm assembly to move to one side – discharging liquid on that side and pulling liquid in on the other side. When the shaft reaches the end of the stroke, the inner piston actuates the pilot spool, which controls the air to the large end of the air valve spool. The repositioning of the air valve spool routes the air to the other air chamber. The air control spool allows air to flow freely into the air chamber for the majority of each pump stroke, but it significantly restricts the flow of air into the air chamber when activated by the inner piston near the end of the each stroke.

GPS420 Metal

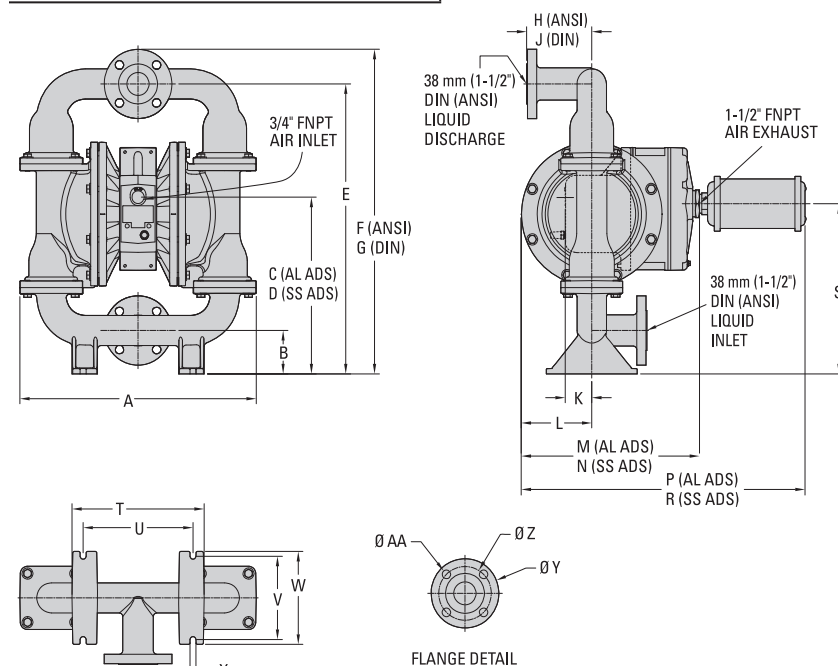


DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	442	17.4
B	64	2.5
C	261	10.3
D	266	10.5
E	391	15.4
F	445	17.5
G	51	2.0
H	249	9.8
J	49	1.9
K	132	5.2
L	333	13.1
M	321	12.6
N	531	20.9
P	518	20.4
R	274	10.8
S	224	8.8
T	152	6.0
U	178	7.0
V	11	0.4

LW0231 REV. C

GPS430 Aluminum

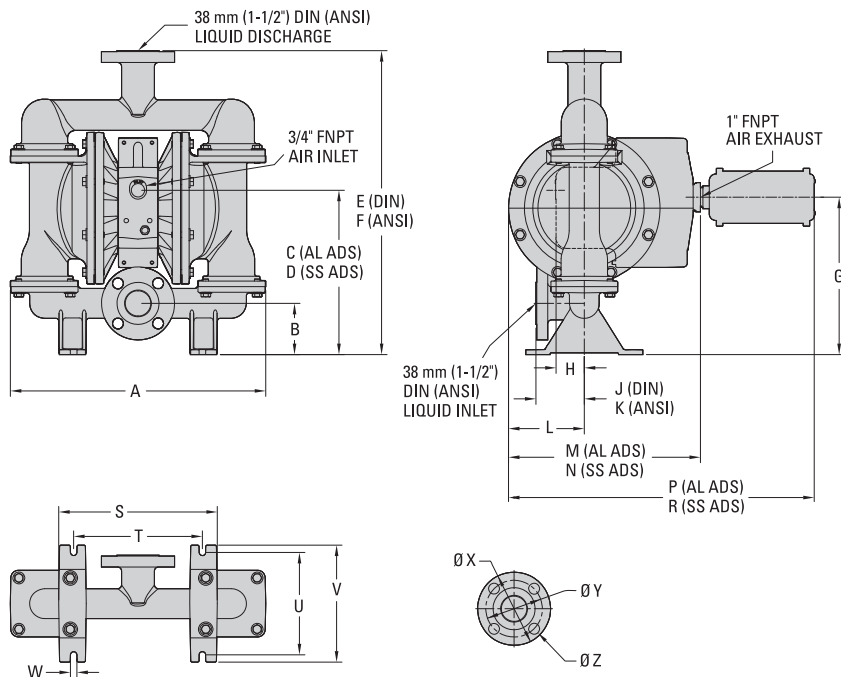


DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	442	17.4
B	80	3.1
C	324	12.7
D	330	13.0
E	531	20.9
F	594	23.4
G	606	23.9
H	122	4.8
J	122	4.8
K	50	2.0
L	132	5.2
M	334	13.1
N	321	12.7
P	531	20.9
R	519	20.4
S	312	12.3
T	247	9.7
U	206	8.1
V	152	6.0
W	170	6.7
X	11	0.4
	DIN (mm)	ANSI (inch)
X	150 DIA.	5.0 DIA.
Y	109 DIA.	4.3 DIA.
Z	16 DIA.	0.6 DIA.

LW0296 REV. A

GPS430 Stainless Steel

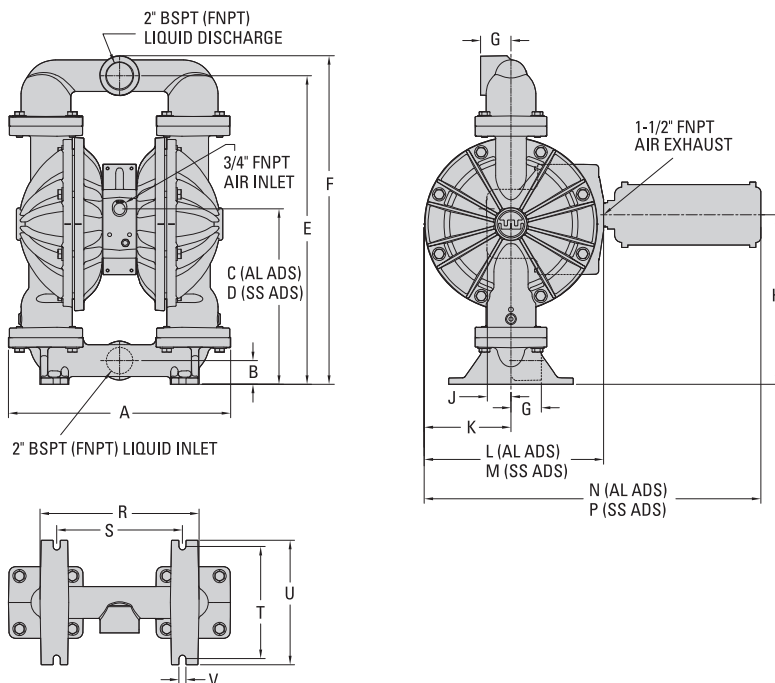


DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	443	17.5
B	89	3.5
C	285	11.2
D	291	11.5
E	529	20.8
F	528	20.8
G	273	10.8
H	49	1.9
J	86	3.4
K	84	3.3
L	132	5.2
M	333	13.1
N	321	12.6
P	531	20.9
R	518	20.4
S	274	10.8
T	224	8.8
U	178	7.0
V	203	8.0
W	11	0.4
	DIN (mm)	ANSI (inch)
X	150 DIA.	5.0 DIA.
Y	109 DIA.	4.3 DIA.
Z	16 DIA.	0.6 DIA.

LW0233 REV. B

GPS820 Aluminum

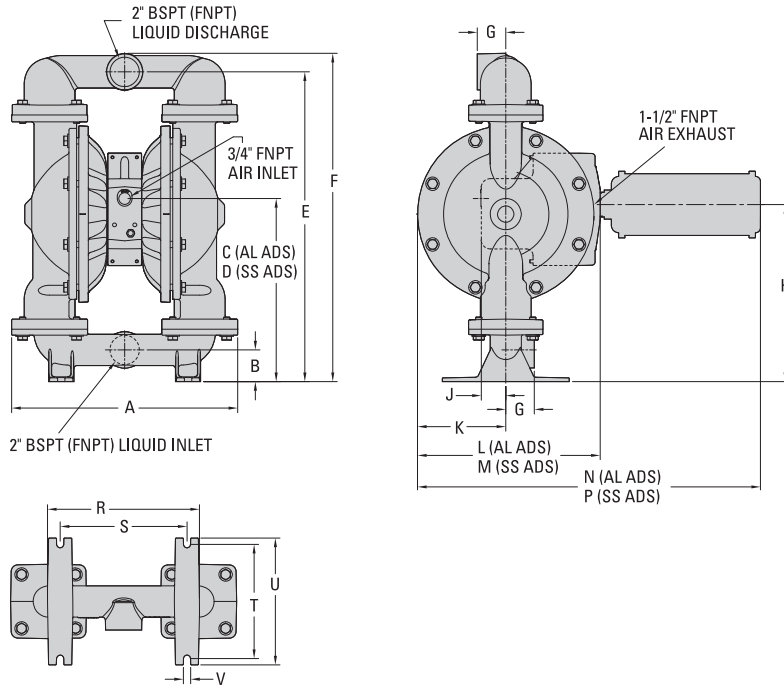


DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	453	17.9
B	48	1.9
C	358	14.1
D	364	14.3
E	630	24.8
F	670	26.4
G	62	2.4
H	346	13.6
J	48	1.9
K	177	7.0
L	366	14.4
M	354	13.9
N	687	27.1
P	675	26.6
R	324	12.8
S	257	10.1
T	229	9.0
U	254	10.0
V	14	0.6

LW0238 REV. A

GPS820 Stainless Steel

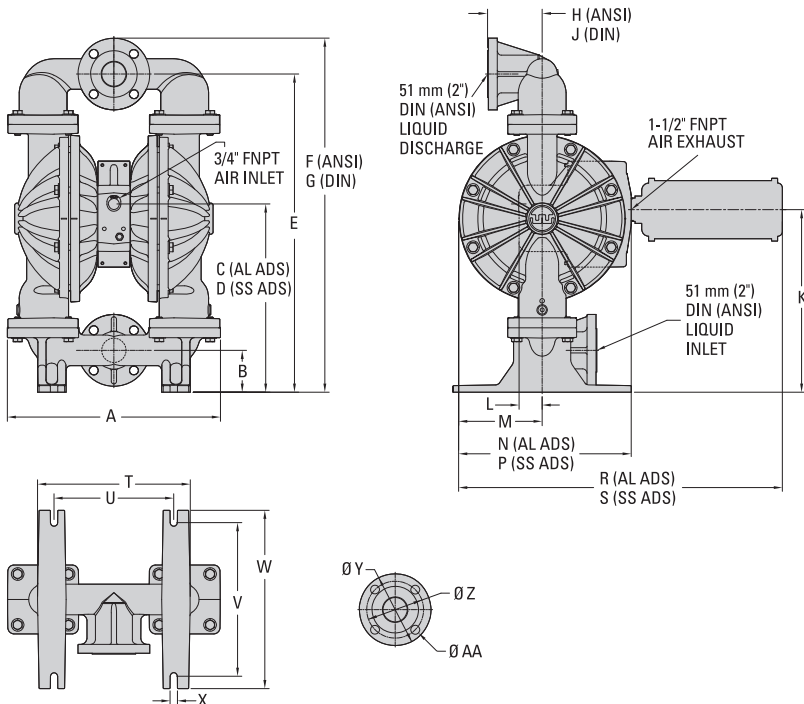


DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	452	17.8
B	64	2.5
C	367	14.3
D	372	14.7
E	620	24.4
F	658	25.9
G	58	2.3
H	354	14.0
J	48	1.9
K	178	7.0
L	366	14.4
M	353	13.9
N	687	27.0
P	674	26.5
R	305	12.0
S	254	10.0
T	229	9.0
U	254	10.0
V	15	0.6

LW0240 REV. A

GPS830 Aluminum

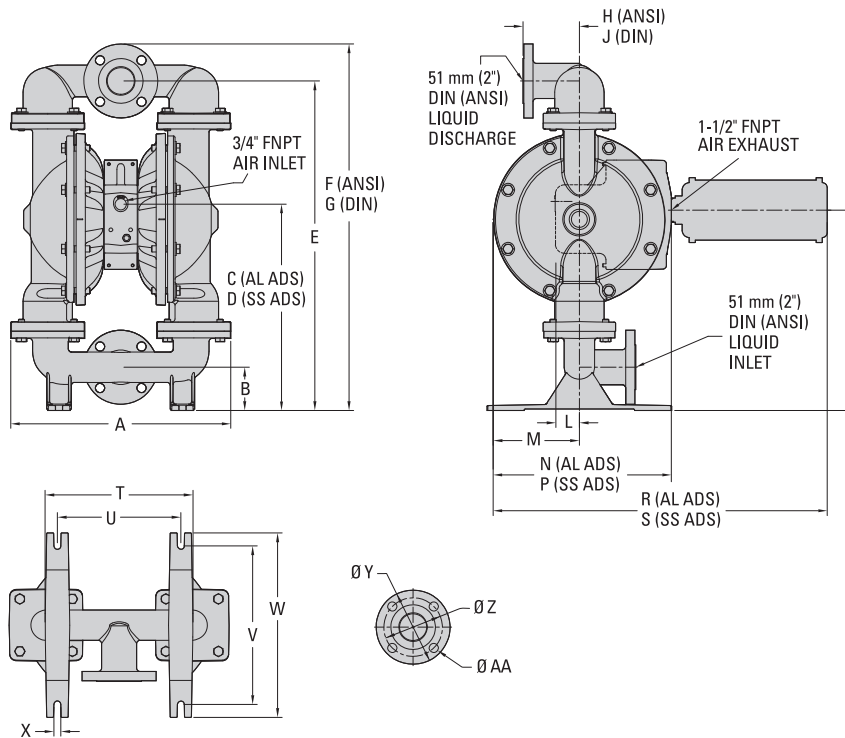


DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	452	17.8
B	89	3.5
C	400	15.7
D	405	16.0
E	675	26.6
F	752	29.6
G	758	29.8
H	116	4.6
J	117	4.6
K	387	15.3
L	48	1.9
M	177	7.0
N	366	14.4
P	354	13.9
R	687	27.1
S	675	26.6
T	324	12.8
U	254	10.0
V	326	12.8
W	378	14.9
X	16	0.6
	DIN (mm)	ANSI (inch)
Y	165 DIA.	6.0 DIA.
Z	125 DIA.	4.8 DIA.
AA	18 DIA.	0.8 DIA.

LW0239 REV. A

GPS830 Stainless Steel

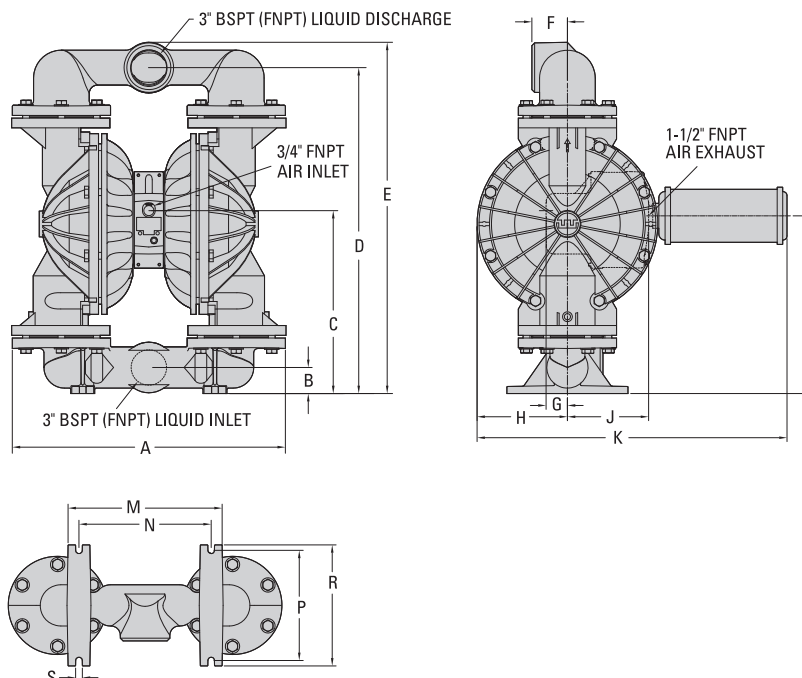


DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	452	17.8
B	89	3.5
C	424	16.7
D	429	16.9
E	678	26.7
F	754	29.7
G	760	29.9
H	116	4.6
J	115	4.5
K	412	16.2
L	48	1.9
M	177	7.0
N	366	14.2
P	354	13.9
R	677	27.1
S	675	26.6
T	304	12.0
U	254	10.0
V	325	12.8
W	379	14.9
X	14	0.6
	DIN (mm)	ANSI (inch)
Y	165 DIA.	6.0 DIA.
Z	125 DIA.	4.8 DIA.
AA	18 DIA.	0.8 DIA.

LW0241 REV. A

GPS1520 Aluminum

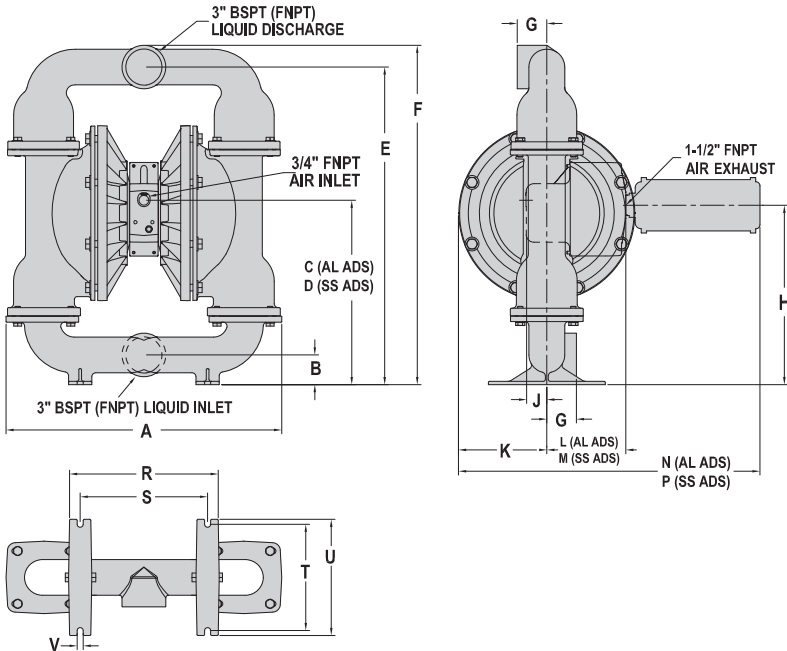


DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	635	25.0
B	61	2.4
C	426	16.8
D	759	29.9
E	818	32.2
F	84	3.3
G	50	2.0
H	210	8.3
J	189	7.4
K	722	28.4
L	414	16.3
M	358	14.1
N	307	12.1
P	257	10.1
R	282	11.1
S	15	0.6

LW0319 REV. A

GPS1520 Stainless Steel

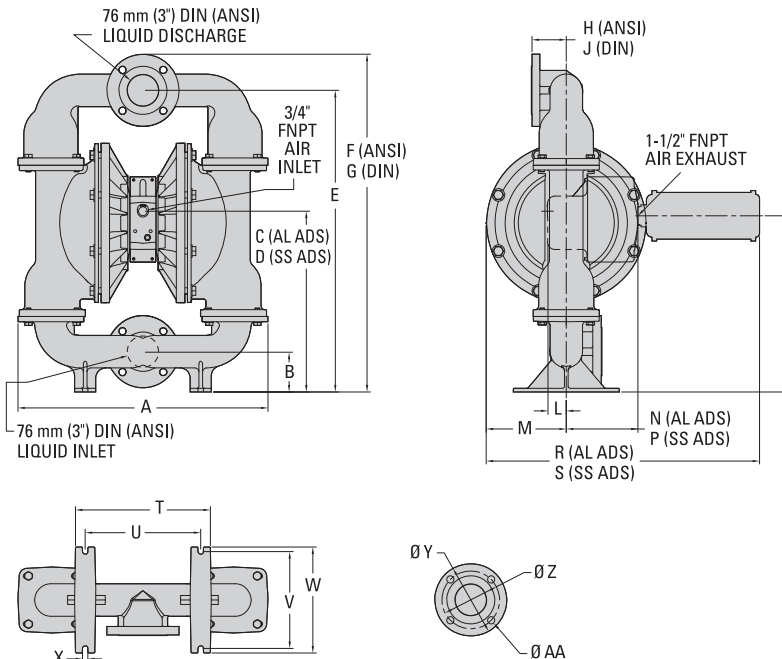


DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	650	25.6
B	71	2.8
C	443	17.5
D	449	17.7
E	765	30.1
F	815	32.1
G	71	2.8
H	431	17.0
J	48	1.9
K	211	8.3
L	189	7.4
M	177	7.0
N	721	28.4
P	709	27.9
R	356	14.0
S	305	12.0
T	257	10.1
U	279	11.0
V	15	0.6

LW0259 REV. B

GPS1530 Stainless Steel



DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	659	26.0
B	105	4.1
C	477	18.8
D	483	19.0
E	796	31.3
F	890	35.1
G	891	35.3
H	90	3.6
J	88	3.5
K	465	18.3
L	48	1.9
M	211	8.3
N	189	7.4
P	177	7.0
R	721	28.4
S	709	27.9
T	356	14.0
U	305	12.0
V	256	10.1
W	279	11.0
X	14	0.6
	DIN (mm)	ANSI (inch)
Y	200 DIA.	7.5 DIA.
Z	160 DIA.	6.0 DIA.
AA	18 DIA.	0.8 DIA.

LW0260 REV. A

WIL-17100-E-02

GPS420/GPS430 METAL EZ-INSTALL TPE-FITTED

Ship Weight 420 Threaded AL 26 kg (57 lb)
430 Flanged AL 28 kg (62 lb)
420 Threaded SS 50 kg (111 lb)
430 Flanged SS 53 kg (116 lb)

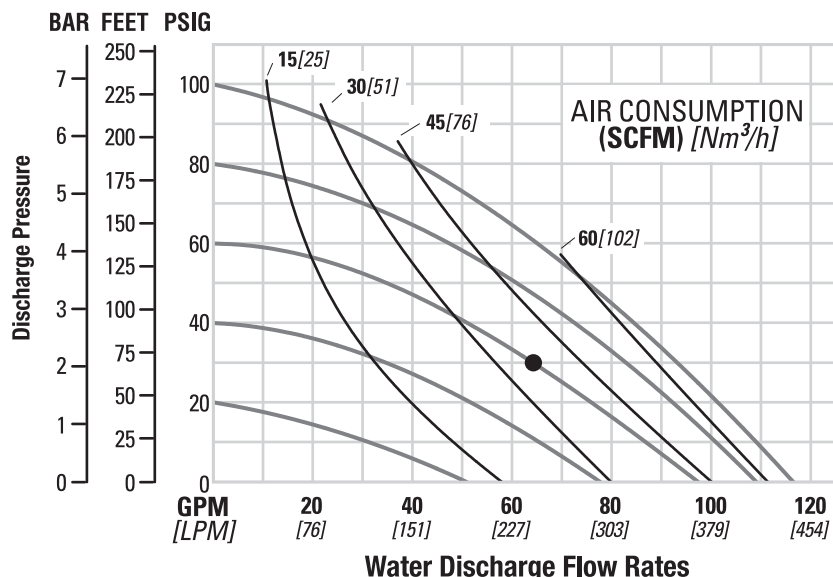
Air Inlet 19 mm (3/4")
Inlet 38 mm (1-1/2")
Outlet 38 mm (1-1/2")
Suction Lift 4.7 m Dry (15.3')
9.0 m Wet (29.5')

Disp. per Stroke¹ 0.8 L (0.22 gal)
Max. Flow Rate 441 lpm (117 gpm)
Max. Size Solids 6.4 mm (1/4")

¹Displacement 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 242 lpm (64 gpm) against a discharge head of 2.1 bar (30 psig) requires 4.1 bar (60 psig) and 63 Nm³/h (37 scfm) air consumption.

Caution: Do not exceed 6.9 bar (100 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's performance curve.

GPS420/GPS430 METAL FULL-STROKE PTFE-FITTED

Ship Weight 420 Threaded AL 26 kg (57 lb)
430 Flanged AL 28 kg (62 lb)
420 Threaded SS 50 kg (111 lb)
430 Flanged SS 53 kg (116 lb)

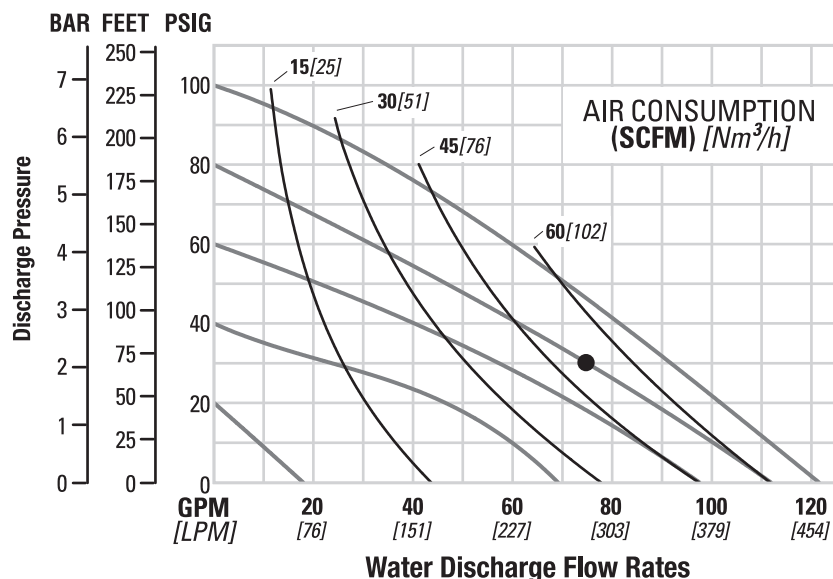
Air Inlet 19 mm (3/4")
Inlet 38 mm (1-1/2")
Outlet 38 mm (1-1/2")
Suction Lift 4.5 m Dry (14.8')
8.6 m Wet (28.4')

Disp. per Stroke¹ 0.9 L (0.24 gal)
Max. Flow Rate 460 lpm (122 gpm)
Max. Size Solids 6.4 mm (1/4")

¹Displacement 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 280 lpm (74 gpm) against a discharge head of 2.1 bar (30 psig) requires 5.5 bar (80 psig) and 88 Nm³/h (52 scfm) air consumption

Caution: Do not exceed 6.9 bar (100 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's performance curve.

GPS820/GPS830 METAL EZ-INSTALL TPE-FITTED

Ship Weight ...820 Threaded AL 47 kg (104 lb)
830 Flanged AL 54 kg (118 lb)
820 Threaded SS 73 kg (161 lb)
830 Flanged SS 81 kg (178 lb)

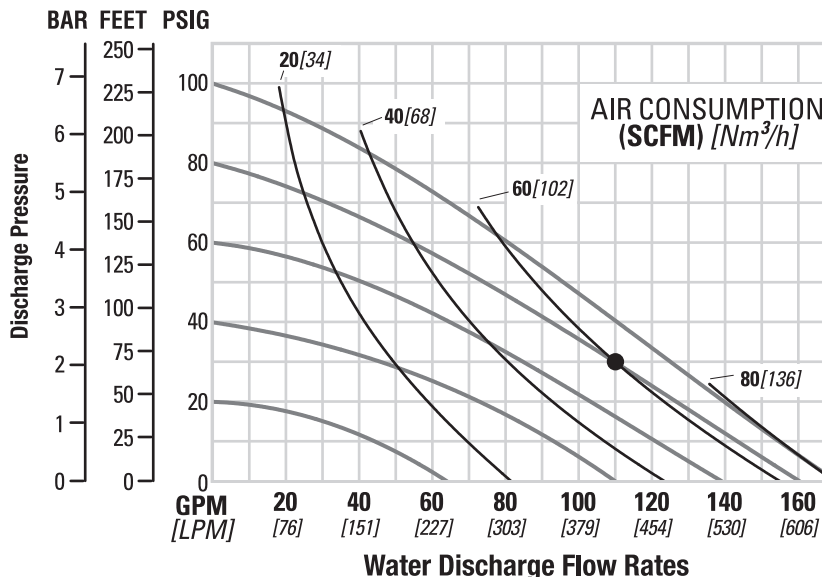
Air Inlet 19 mm (3/4")
Inlet 51 mm (2")
Outlet 51 mm (2")
Suction Lift 5.5 m Dry (18.2')
9.0 m Wet (29.5')

Disp. per Stroke¹ 2.1 L (0.55 gal)
Max. Flow Rate 645 lpm (171 gpm)
Max. Size Solids 6.4 mm (1/4")

¹Displacement 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 416 lpm (110 gpm) against a discharge head of 2.1 bar (30 psig) requires 5.5 bar (80 psig) and 102 Nm³/h (60 scfm) air consumption.

Caution: Do not exceed 6.9 bar (100 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's performance curve.

GPS820/GPS830 METAL FULL-STROKE PTFE-FITTED

Ship Weight ...820 Threaded AL 47 kg (104 lb)
830 Flanged AL 54 kg (118 lb)
820 Threaded SS 73 kg (161 lb)
830 Flanged SS 81 kg (178 lb)

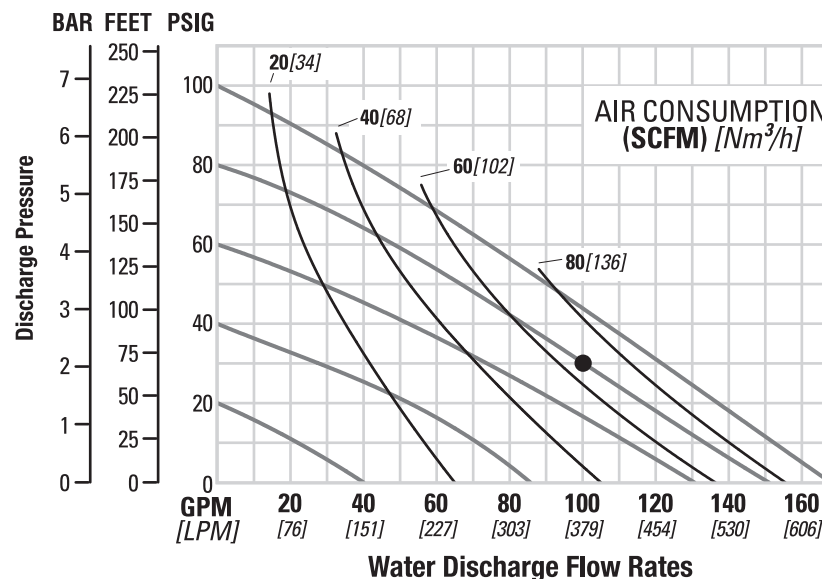
Air Inlet 19 mm (3/4")
Inlet 51 mm (2")
Outlet 51 mm (2")
Suction Lift 6.1 m Dry (20.0')
9.0 m Wet (29.5')

Disp. per Stroke¹ 2.4 L (0.63 gal)
Max. Flow Rate 636 lpm (168 gpm)
Max. Size Solids 6.4 mm (1/4")

¹Displacement 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 379 lpm (100 gpm) against a discharge head of 2.1 bar (30 psig) requires 5.5 bar (80 psig) and 112 Nm³/h (66 scfm) air consumption.

Caution: Do not exceed 6.9 bar (100 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's performance curve.

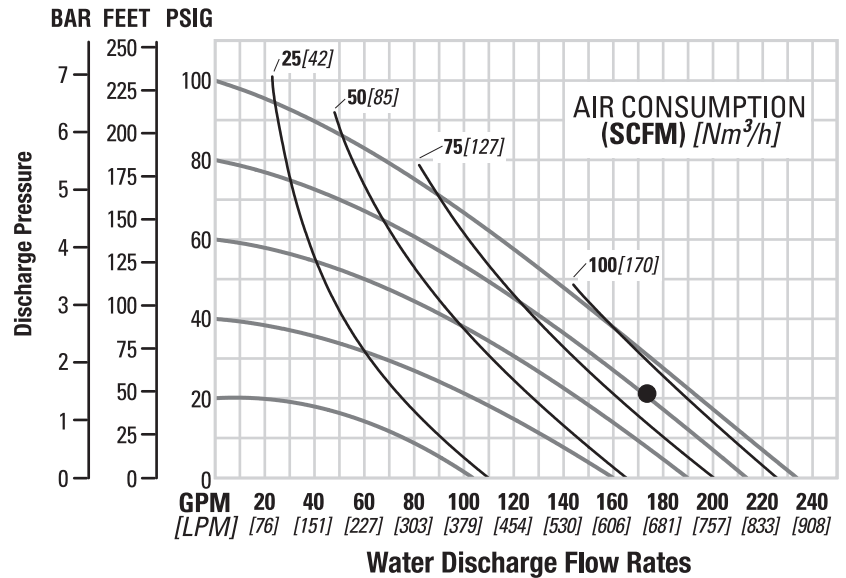
GPS1520/GPS1530 METAL EZ-INSTALL TPE-FITTED

Ship Weight1520 Threaded AL 69 kg (152 lb)
1520 Threaded SS 126 kg (278 lb)
1530 Flanged SS 136 kg (300 lb)
Air Inlet 19 mm (3/4")
Inlet 76 mm (3")
Outlet 76 mm (3")
Suction Lift 4.7 m Dry (15.3')
9.0 m Wet (29.5')
Disp. per Stroke¹ 4.2 L (1.11 gal)
Max. Flow Rate 884 lpm (234 gpm)
Max. Size Solids 12.7 mm (1/2")

¹Displacement 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 659 lpm (174 gpm) against a discharge head of 1.4 bar (20 psig) requires 5.5 bar (80 psig) and 143 Nm³/h (84 scfm) air consumption.

Caution: Do not exceed 6.9 bar (100 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's performance curve.

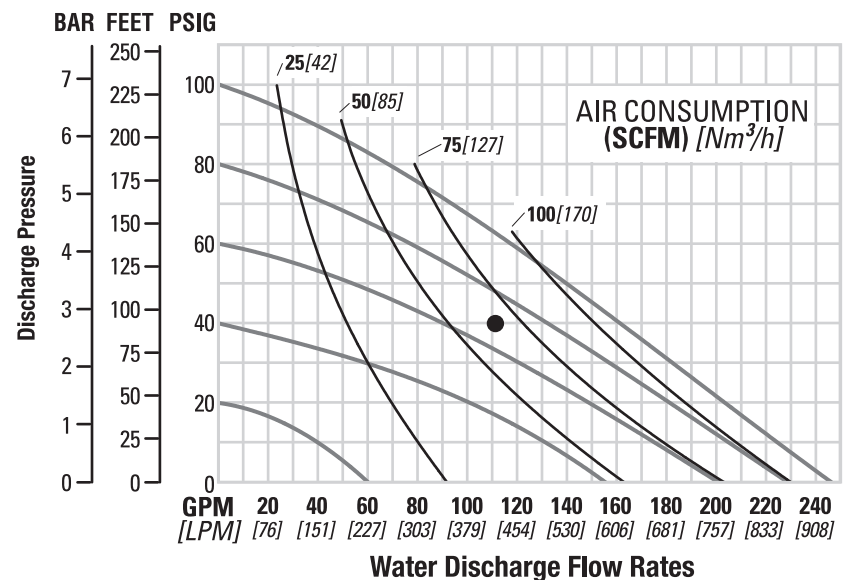
GPS1520/GPS1530 METAL FULL-STROKE PTFE-FITTED

Ship Weight1520 Threaded AL 69 kg (152 lb)
1520 Threaded SS 126 kg (278 lb)
1530 Flanged SS 136 kg (300 lb)
Air Inlet 19 mm (3/4")
Inlet 76 mm (3")
Outlet 76 mm (3")
Suction Lift 5.9 m Dry (19.3')
8.6 m Wet (28.4')
Disp. per Stroke¹ 5.0 L (1.32 gal)
Max. Flow Rate 993 lpm (246 gpm)
Max. Size Solids 12.7 mm (1/2")

¹Displacement 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 420 lpm (111 gpm) against a discharge head of 2.8 bar (40 psig) requires 4.8 bar (70 psig) and 110 Nm³/h (65 scfm) air consumption.

Caution: Do not exceed 6.9 bar (100 psig) air supply pressure.

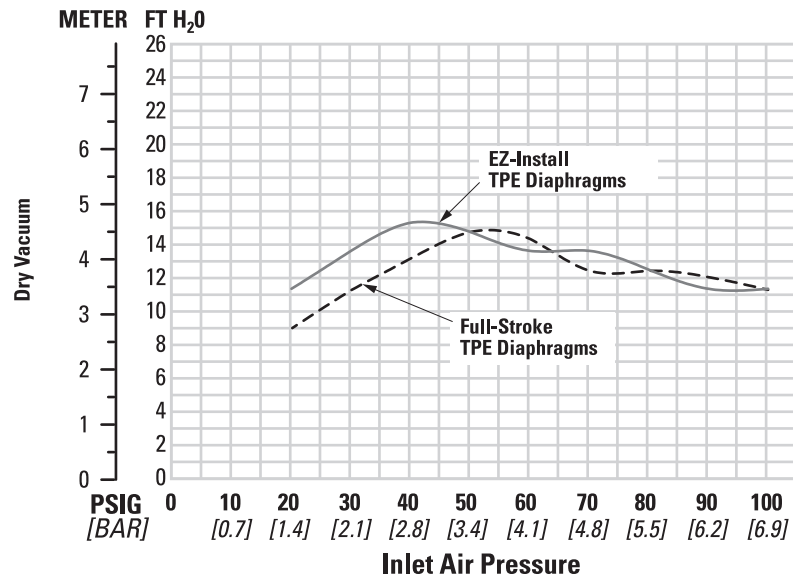


Flow rates indicated on chart were determined by pumping water.

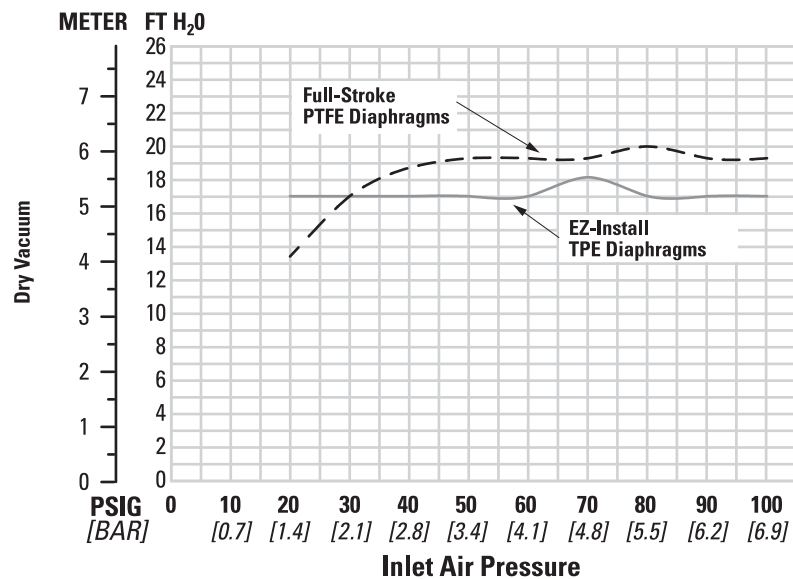
For optimum life and performance, pumps should be specified so that daily operation parameters will fall in the center of the pump's performance curve.

SUCTION-LIFT CURVES

GPS420/GPS430 METAL SUCTION-LIFT CAPABILITY



GPS820/GPS830 METAL SUCTION-LIFT CAPABILITY



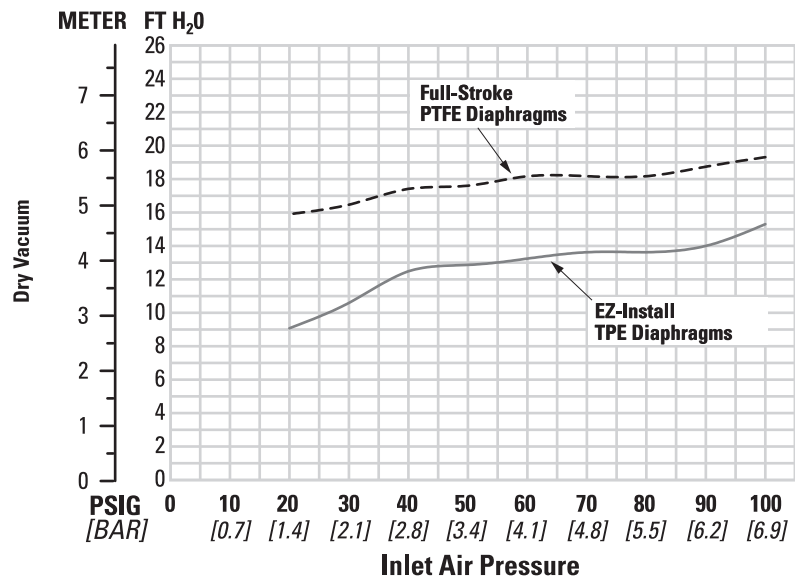
Suction lift curves are calibrated for pumps operating at 305 m (1,000') above sea level. This chart is meant to be a guide only. There are many variables which can affect your pump's operating characteristics. The

number of intake and discharge elbows, viscosity of pumping fluid, elevation (atmospheric pressure) and pipe friction loss all affect the amount of suction lift your pump will attain.

SUCTION-LIFT CURVES

GPS1520/GPS1530 METAL SUCTION-LIFT CAPABILITY

Suction lift curves are calibrated for pumps operating at 305 m (1,000') above sea level. This chart is meant to be a guide only. There are many variables which can affect your pump's operating characteristics. The number of intake and discharge elbows, viscosity of pumping fluid, elevation (atmospheric pressure) and pipe friction loss all affect the amount of suction lift your pump will attain.



NOTES



CSA-CERTIFIED PUMP SUGGESTED INSTALLATION

Prior to pump installation, ensure that the flow and suction lift requirements are within the pump model's capabilities. Refer to the Section 5, Performance of the Engineering, Operation and Maintenance (EOM) Manual for specific flow and suction-lift capabilities.

Before installation confirm that the pump materials of construction are compatible with pumping application. Refer to the Wilden Chemical Resistance Guide for assistance with wetted path and elastomer options.

PIPING: The pump should be located so that the length and complexity of the suction and discharge piping is minimized. Unnecessary elbows, bends and fittings can increase friction losses and should be avoided.

Pipe sizes should be selected to keep friction losses within practical limits. The suction pipe diameter should be equivalent or larger than the diameter of the suction inlet on your Wilden pump. The suction hose must be non-collapsible, reinforced type as these pumps are capable of pulling a high vacuum. Discharge piping should also be the equivalent or larger than the diameter of the pump discharge to help reduce friction losses.

All piping should be supported independently of the pump. In addition, the piping should be correctly aligned with the inlet and discharge connection of the pump 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 and will also assist in minimizing pump vibration.

GAS SUPPLY: The pump should have a supply line large enough (a 3/4" supply line is recommended for 1-1/2" and larger pumps) to supply the volume of air necessary to achieve the desired pumping rate. Gas pressure to the pump should be controlled by a pressure-regulating valve and should not exceed a maximum of 6.9 bar (100 psig). It is suggested that a needle valve be placed in the supply line to control the flow of gas to the pump. For best results, a 5µ (micron) filter should be installed before the gas inlet of the pump to eliminate the majority of compressed gas line contaminants.

TYPE OF GAS: Sweet gas is highly recommended for natural gas-powered pumps. Please consult the factory if considering using sour gas as levels of hydrogen sulfide (H₂S) may cause unacceptable corrosion and chemical attack.

PUMP MOUNTING AND INSTALLATION: For simple installation and removal of the pump shut-off valves should be installed in the inlet and discharge plumbing.

If the pump is to be mounted in a fixed location, a mounting pad placed between the pump and the foundation will 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.

SOLIDS PASSAGE: All Wilden pumps are capable of passing solids. A strainer should be used at the inlet of the pump to ensure that the pump's rated solids capabilities are not exceeded. Refer to the Section 5 of this EOM manual for specific solids-passage capabilities.

FLOODED SUCTION: Pumps in service with a positive suction head are most efficient when the 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) or higher.

SUCTION LIFT: When used in self-priming applications, it is critical that all fittings and connections are airtight or a reduction or loss of pump suction capability will result.

GAS OUTLET: All CSA-certified pumps are fitted with the single point exhaust option so that all exhaust gases are routed through the muffler plate exhaust port. The gas outlet must be recaptured or vented to a safe location in accordance with locally, nationally and/or industry recognized codes. The standard Wilden muffler supplied with CSA-certified pumps will reduce sound levels below OSHA specifications but may not comply with regulatory codes for recapturing or venting exhaust gases.

GROUNDING: Pumps and accessories must be electrically grounded to a proper grounding point to prevent an accumulation of electro-static charge when used in potentially explosive areas. CSA-certified pumps come with a grounding strap and are fitted with a grounding screw for the purpose of electrically grounding the pump. Periodic inspection of the ground connection should be performed to ensure the equipment is properly grounded. Refer to the Wilden CE Safety Supplement and Safety Manual for additional ATEX-certified pump considerations.

FUNCTIONAL TESTING:

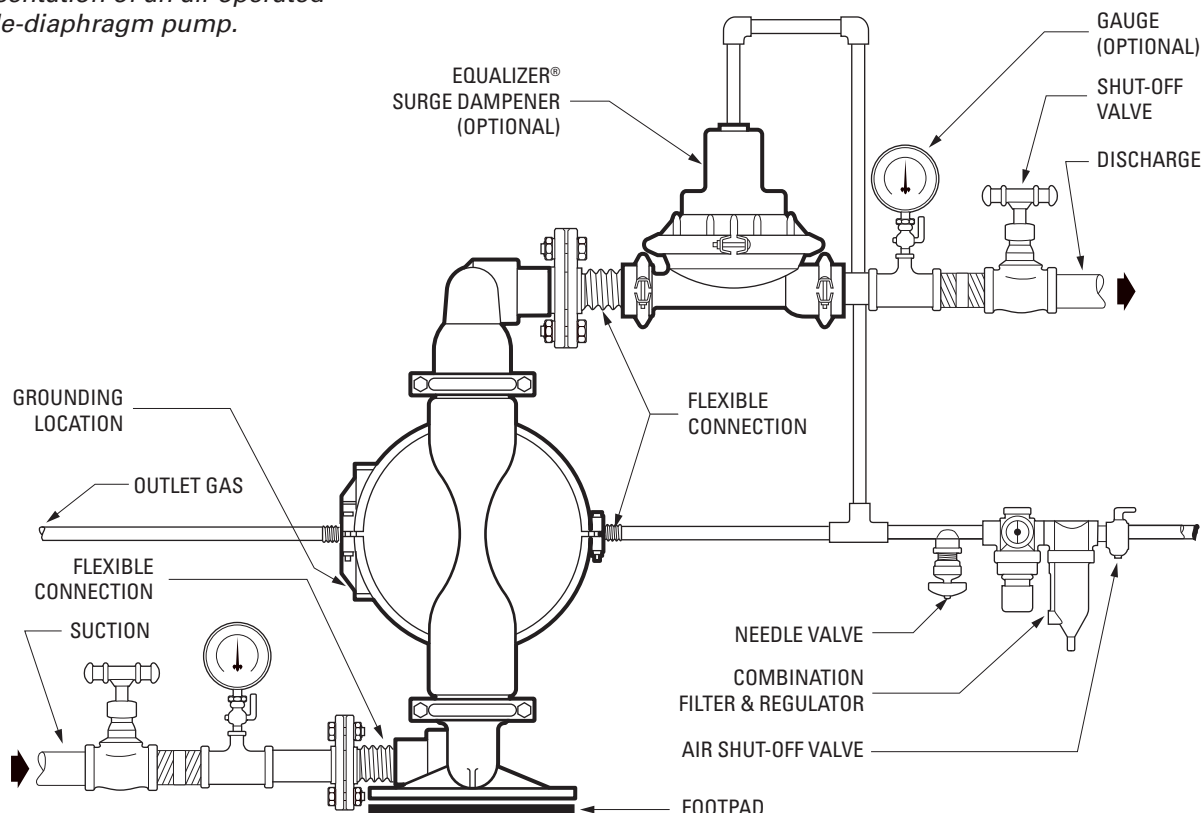
1. Tighten all hardware prior to initial start-up. Refer to Section 7, Reassembly Hints & Tips in the EOM manual for torque specifications.
2. Prior to pump installation connect compressed gas line [do not exceed rated pressure of 6.9 bar (100 psig)] to inlet of pump to ensure that pump cycles consistently.
3. Cycle pump for 2-3 minutes.
4. After pump installation, check piping connections for leaks.

PUMP OPERATION:

1. To avoid damage to the pump new installations should be checked for any debris in tank or piping system.
2. Once installation is complete, pump operation can be started. Confirm the shut-off valves in the inlet and discharge plumbing are open. Opening the gas shut-off valve [do not exceed the pump's maximum rated pressure of 6.9 bar (100 psig)]. The pressure regulating valve and needle valve can be used to adjust the speed of the pump.
3. Retighten all exposed fasteners after two (2) hours of operation. Refer to Section 7, Reassembly Hints & Tips in the EOM manual for torque specifications.

CSA-CERTIFIED PUMP SUGGESTED INSTALLATION

This illustration is a generic representation of an air-operated double-diaphragm pump.



EMERGENCY SHUT DOWN PROCEDURE: In the case of an emergency situation, the pump should be stopped immediately. To stop the pump's operation close the gas shut-off valve (user-supplied). A properly functioning valve will cut-off the gas supply, stopping the pump. The shut-off valve should be located far enough away from the pumping equipment such that it can be reached safely in an emergency situation.

In the event of pump or diaphragm failure, close shut-off valves at the inlet and discharge of pump to eliminate the possibility of medium leakage

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

Refer to the Wilden CE Safety Supplement, Safety Manual and EOM Manual for additional information.

PRIOR TO MAINTENANCE: Before any maintenance is performed, confirm pump is completely de-energized by shutting off the pump and disconnecting the gas supply line to the pump.

Refer to Section 7, Reassembly Hints & Tips and Section 8, Exploded View & Parts Listings in the EOM manual for maintenance and spare parts information.

CSA-CERTIFIED PUMP SUGGESTED OPERATION & MAINTENANCE

OPERATION: CSA-certified pumps are pre-lubricated, and do not require in-line lubrication. Additional lubrication will not damage the pump, however if the pump is heavily lubricated by an external source, the pump's internal lubrication may be washed away. If the pump is then moved to a non-lubricated location, it may need to be disassembled and re-lubricated as described in the DISASSEMBLY/REASSEMBLY.

Pump discharge rate can be controlled by limiting the volume and/or pressure of the air supply to the pump. An air regulator is used to regulate air pressure. A needle valve is used to regulate volume. Pump discharge rate can also be controlled by throttling the pump discharge by partially closing a valve in the discharge line of the pump. This action increases friction loss which reduces flow rate. (See Section 5.) This is useful when the need exists to control the pump from a remote location. 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. The pump has reached a "deadhead" situation and can be

restarted by reducing the fluid discharge pressure or increasing the air inlet pressure. CSA-certified pumps run solely on pressurized gas and do not generate heat, therefore your process fluid temperature will not be affected.

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 affect 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.

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.

TROUBLESHOOTING

Pump will not run or runs slowly.

1. 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).
2. Check air inlet filter for debris (see SUGGESTED INSTALLATION).
3. Check for extreme air leakage (blow by) which would indicate worn seals/bore in the air valve, pilot spool and main shaft.
4. Disassemble pump and check for obstructions in the air passageways or objects which would obstruct the movement of internal parts.
5. Check for sticking ball check valves. If material being pumped is not compatible with pump elastomers, swelling may occur. Replace ball check valves and seals with proper elastomers. 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.
6. Check for broken inner pistons which will cause the air valve spool to be unable to shift.
7. Remove plug from pilot spool exhaust.

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. If material being pumped is not compatible with pump elastomers, swelling may occur. Replace ball check valves and seats with proper elastomers. 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 compressed air. Either install a dryer or hot air generator for compressed air. Alternatively, a coalescing filter may be used to remove the water from the compressed air in some applications.

Air bubbles in pump discharge.

1. Check for ruptured diaphragm.
2. Check tightness of outer pistons (refer to Section 7).
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.

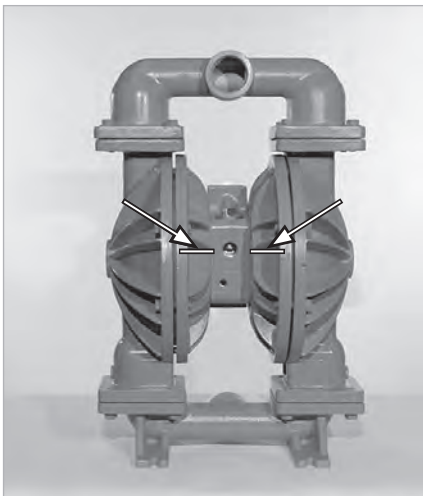
1. Check for diaphragm rupture.
2. Check tightness of outer pistons to shaft.

PUMP DISASSEMBLY**Tools Required:**

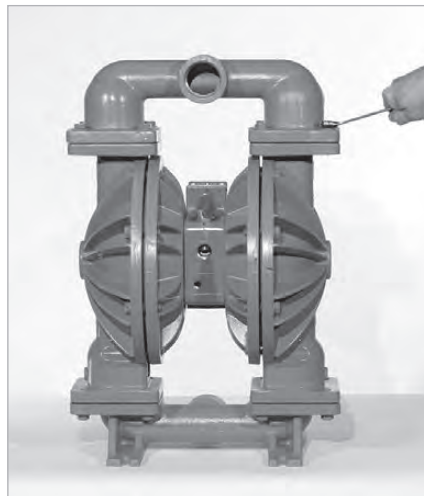
- Appropriate-sized Wrench
- Adjustable Wrench
- Vise equipped w/ soft jaws (such as plywood, plastic or other suitable material)

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 the pump. Disconnect all intake, discharge and air lines. Drain the pump by turning it upside down and allowing any fluid to flow into a suitable container. Be aware of any hazardous effects of contact with your process fluid.

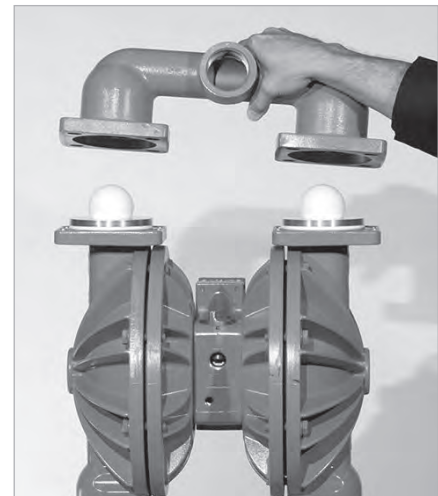
NOTE: The model photographed is an aluminum 51 mm (2") Advanced FIT pump. Your specific pump model may vary from configuration shown; however, pump disassembly procedure will be the same.

**Step 1**

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

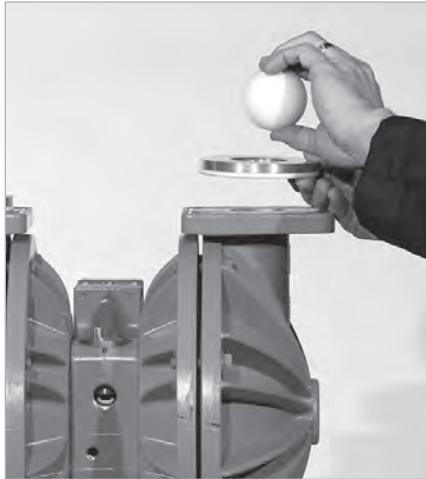
**Step 2**

Using the appropriate-sized wrench for your pump size, loosen the discharge manifold from the liquid chambers.

**Step 3**

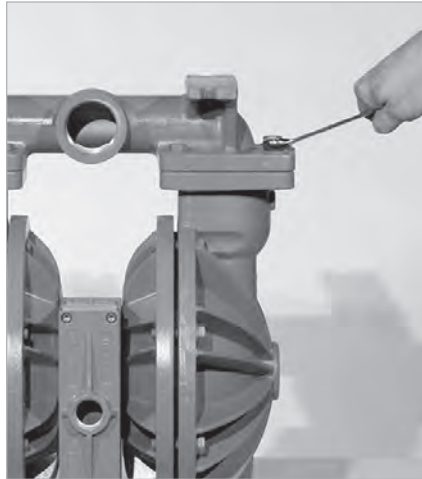
Lift the discharge manifold to expose discharge valve balls and valve seats. Inspect ball cage area of manifold for excessive wear or damage.

PUMP DISASSEMBLY



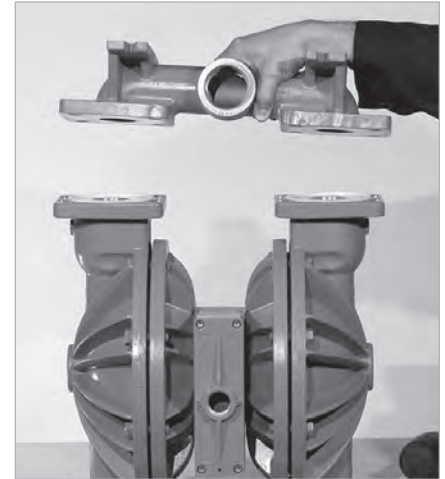
Step 4

Remove the discharge valve balls and valve seats from the liquid chambers and inspect for nicks, gouges, chemical attack or abrasive wear. Replace worn parts with genuine Wilden parts for reliable performance.



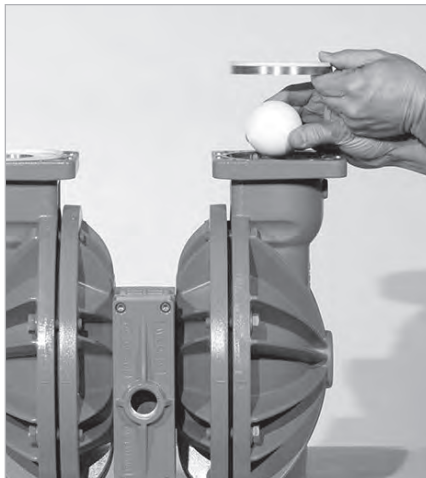
Step 5

Using the appropriate-sized wrench, loosen the inlet manifold from the liquid chambers. **NOTE:** Inverting the pump will facilitate removal of inlet manifold.



Step 6

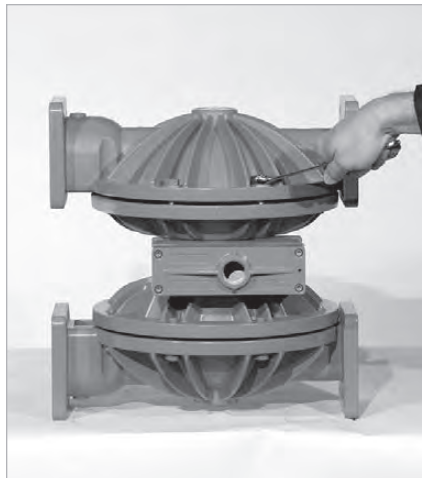
Remove the inlet manifold to expose the valve balls and valve seats.



Step 7

Remove the inlet valve balls and valve seats from the inlet manifold and liquid chambers and inspect for nicks, gouges, chemical attack or abrasive wear.

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



Step 8

Using the appropriate-sized wrench, remove the liquid chamber from the center section.



Step 9

The liquid chamber should be removed to expose the diaphragm and outer piston using an adjustable wrench. Remove the diaphragm assembly from the center section. Repeat for opposite side.

PUMP DISASSEMBLY



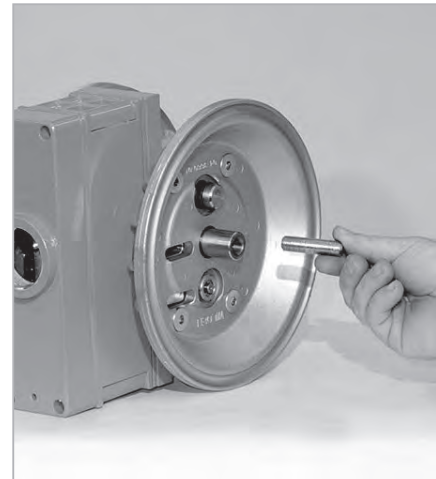
Step 10

Inspect the diaphragm assembly for wear, damage or chemical attack. Replace any damaged components with genuine Wilden parts for reliable performance.



Step 11

To remove diaphragm assembly from shaft, secure shaft with soft jaws (aluminum, plastic or plywood) to ensure the shaft is not damaged. Using an adjustable wrench, remove the diaphragm assembly from the shaft



Step 12

Remove outer piston and stud if equipped. Inspect for wear and replace if necessary.

GROUNDING STRAP FOR CSA PUMPS



Step 13

To remove diaphragm assembly from shaft, secure shaft with soft jaws (aluminum, plastic, or plywood) to ensure the shaft is not damaged. Using an adjustable wrench, remove the diaphragm assembly from the shaft.

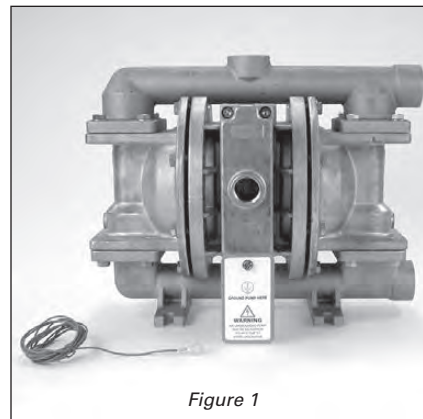


Figure 1

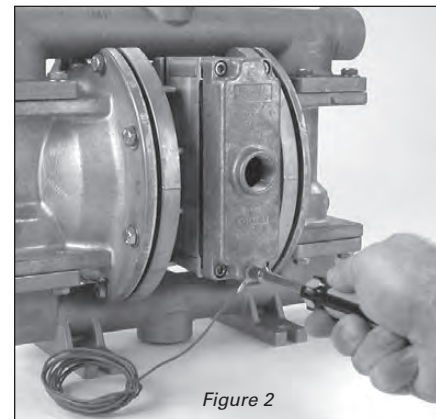


Figure 2

Canadian Standards Association (CSA) configured pumps must be electrically grounded using the grounding strap provided (Figure 1). Improper grounding can cause improper and dangerous operation. To properly attach the grounding strap to a CSA pump, identify the designated grounding location on the muffer plate; using the provided self-tapping screw and grounding wire, thread the grounding screw through the grounding wire lug, into the muffer plate and tighten securely (Figure 2). Completion of the pump grounding procedure must be done in accordance with local codes, or in the absence of local codes, an industrial or nationally recognized code having jurisdiction over the specified installation.

AIR VALVE / CENTER SECTION DISASSEMBLY

Tools Required:

- Appropriate-sized Wrenches
- Snap-Ring Pliers
- O-Ring Pick

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 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 hazardous effects of contact with your process fluid.

The Wilden Pro-Flo® SHIFT metal pumps utilize a revolutionary Pro-Flo® SHIFT air distribution system. Proprietary composite seals reduce the coefficient of friction and allow the Pro-Flo® SHIFT to run lube-free. The Pro-Flo® SHIFT air distribution system is designed to perform in on/off, non-freezing, non-stalling, tough duty applications.



Step 1

Using a pair of snap-ring pliers, remove the snap ring from pilot sleeve.



Step 2

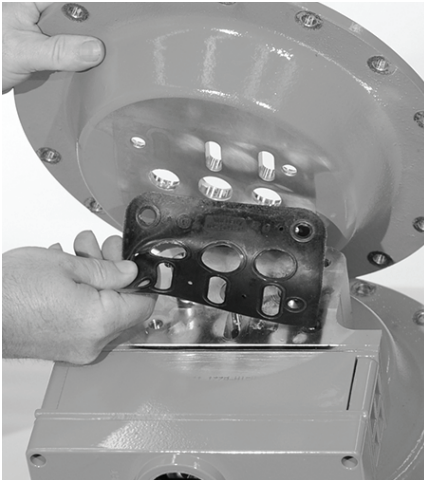
Using an O-ring pick, remove O-ring from modulator spool.



Step 3

Using the appropriate-sized wrench, loosen and remove the fasteners that attach the air chamber to center section.

AIR VALVE / CENTER SECTION DISASSEMBLY



Step 4

Lift away air chamber from center section and remove center block gasket. Replace gasket if necessary.



Step 5

Turn assembly over and remove the pilot spool sleeve from the center section.



Step 6

Using an O-ring pick, gently remove the O-ring from the opposite side of the dimpled end of the pilot spool.



Step 7

Gently remove the pilot spool from the sleeve and inspect for nicks, wear or damage. Replace the pilot spool assembly or sleeve O-rings if necessary. During reassembly, never insert the dimpled end of the pilot spool first, this will damage the single urethane O-ring by passing it over the ports in the pilot sleeve.

NOTE: Seals should not be removed from the assembly. Seals are not sold separately.



Step 8

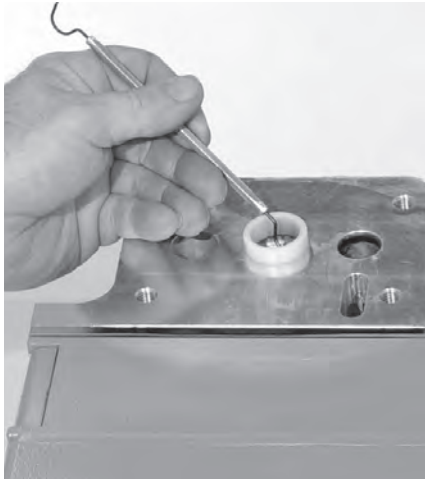
Remove modulator spool from center section. Check for wear to spool or O-rings and replace if necessary.



Step 9

Using the appropriate-sized wrench, loosen the fasteners and lift away remaining air chamber and center block gasket from center section. Replace gasket if necessary.

AIR VALVE / CENTER SECTION DISASSEMBLY



Step 10

Using an O-ring pick, remove the two (2) shaft bushings from center block. Inspect and replace if necessary. Using an O-ring pick, gently remove the two (2) Glyd™ rings from the center block. Inspect and replace if necessary.



Step 11

Using an O-ring pick, remove the two (2) Glyd™ rings from modulator spool bore. Inspect and replace if necessary.



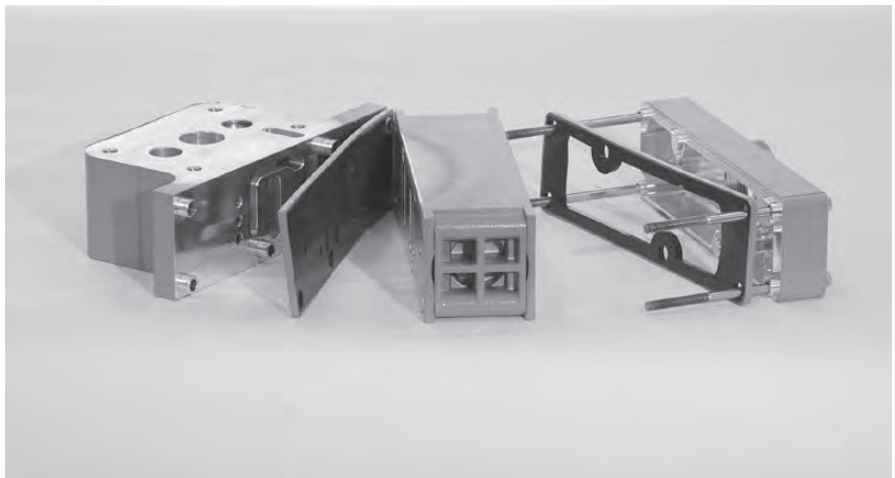
Step 12

Using an appropriate-sized wrench, remove the pilot exhaust muffler. Inspect for damage or contamination and replace if necessary.



Step 13

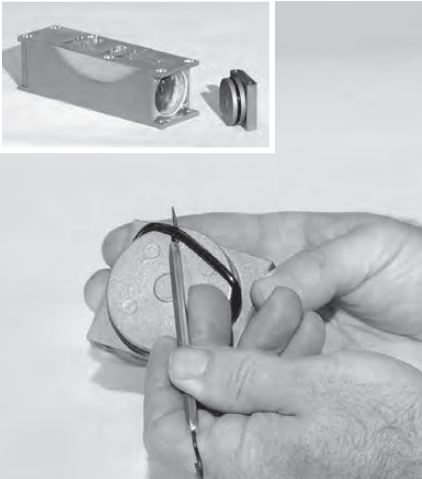
Using an appropriate-sized hex wrench, loosen and remove the four (4) air valve bolts from center section assembly.



Step 14

Lift away muffer plate and muffer plate gasket from center block. Inspect for wear and replace if necessary. Lift away the air valve assembly and remove air valve gasket. Inspect the gasket and replace if necessary.

AIR VALVE / CENTER SECTION DISASSEMBLY



Step 15

Remove air valve end cap to expose air valve spool by lifting up on end cap. Inspect O-ring on end cap using an O-ring pick. Replace O-ring(s) if necessary. **NOTE:** The Pro-Flo® SHIFT air valve incorporates an end cap at both ends of the air valve.



Step 16

Remove the air valve spool from the air valve body by threading one air valve bolt into the end of the air valve spool and gently sliding the spool out of the air valve body. Inspect seals for signs of wear and replace the entire air valve assembly if necessary. Re-insert the spool immediately into air valve body after inspection as the seals expand and cannot be reinserted after a length of time.

NOTE: Seals should not be removed from the assembly. Seals are not sold separately.

REASSEMBLY HINTS & TIPS

ASSEMBLY:

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

- Lubricate air valve bore, center section shaft and pilot spool bore with NLGI grade 2 white EP bearing grease or equivalent.
- Clean the inside of the center section shaft bore to ensure no damage is done to new shaft seals.
- A small amount of NLGI grade 2 white EP bearing grease can be applied to the muffler and air valve gaskets to lubricate gaskets during assembly.
- Make sure that the exhaust port on the muffler plate is centered between the two exhaust ports on the center section.
- Stainless bolts should be lubed to reduce the possibility of seizing during tightening.
- Use a mallet to tamp lightly on the large clamp bands to seat the diaphragm before tightening.

GPS420/430 MAXIMUM TORQUE SPECIFICATIONS

Description of Part	Torque
Air Valve (Aluminum, Stainless Steel)	13.6 N•m (120 in-lb)
Air Chamber/Center Block	27.1 N•m (20 ft-lb)
Outer Pistons	54.2 N•m (40 ft-lb)
Liquid Chamber to Air Chamber	47.5 N•m (35 ft-lb)
Manifolds to Liquid Chamber	47.5 N•m (35 ft-lb)

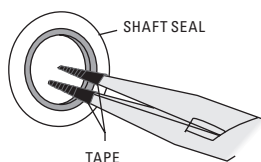
GPS820/830 MAXIMUM TORQUE SPECIFICATIONS

Description of Part	Torque
Air Valve (Aluminum, Stainless Steel)	13.6 N•m (120 in-lb)
Air Chamber/Center Block	27.1 N•m (20 ft-lb)
Manifold to Liquid Chamber	75.6 N•m (55 ft-lb)
Liquid Chamber to Air Chamber	75.6 N•m (55 ft-lb)
Outer Pistons with Aluminum Inner Pistons	109 N•m (80 ft-lb)
Outer Pistons with Stainless Steel Inner Pistons	119 N•m (88 ft-lb)

GPS1520/1530 MAXIMUM TORQUE SPECIFICATIONS

Description of Part	Torque
Air Valve (Aluminum, Stainless Steel)	13.6 N•m (120 in-lb)
Air Chamber/Center Block	27.1 N•m (20 ft-lb)
Inner Piston Ring	19.0 N•m (14 ft-lb)
Outer Piston	136 N•m (100 ft-lb)
Liquid Chamber to Air Chamber	149 N•m (110 ft-lb)
Manifolds to Air Chamber	149 N•m (110 ft-lb)

Figure A



SHAFT SEAL INSTALLATION:

PRE-INSTALLATION

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

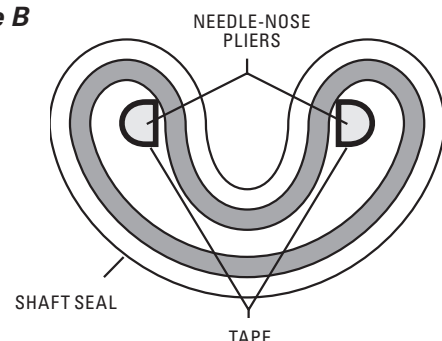
INSTALLATION

The following tools can be used to aid in the installation of the new seals:

Needle-Nose Pliers
Phillips Screwdriver
Electrical Tape

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

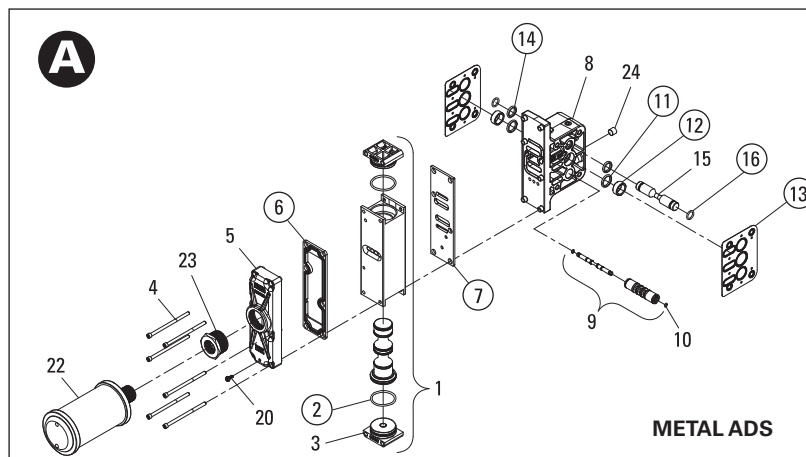
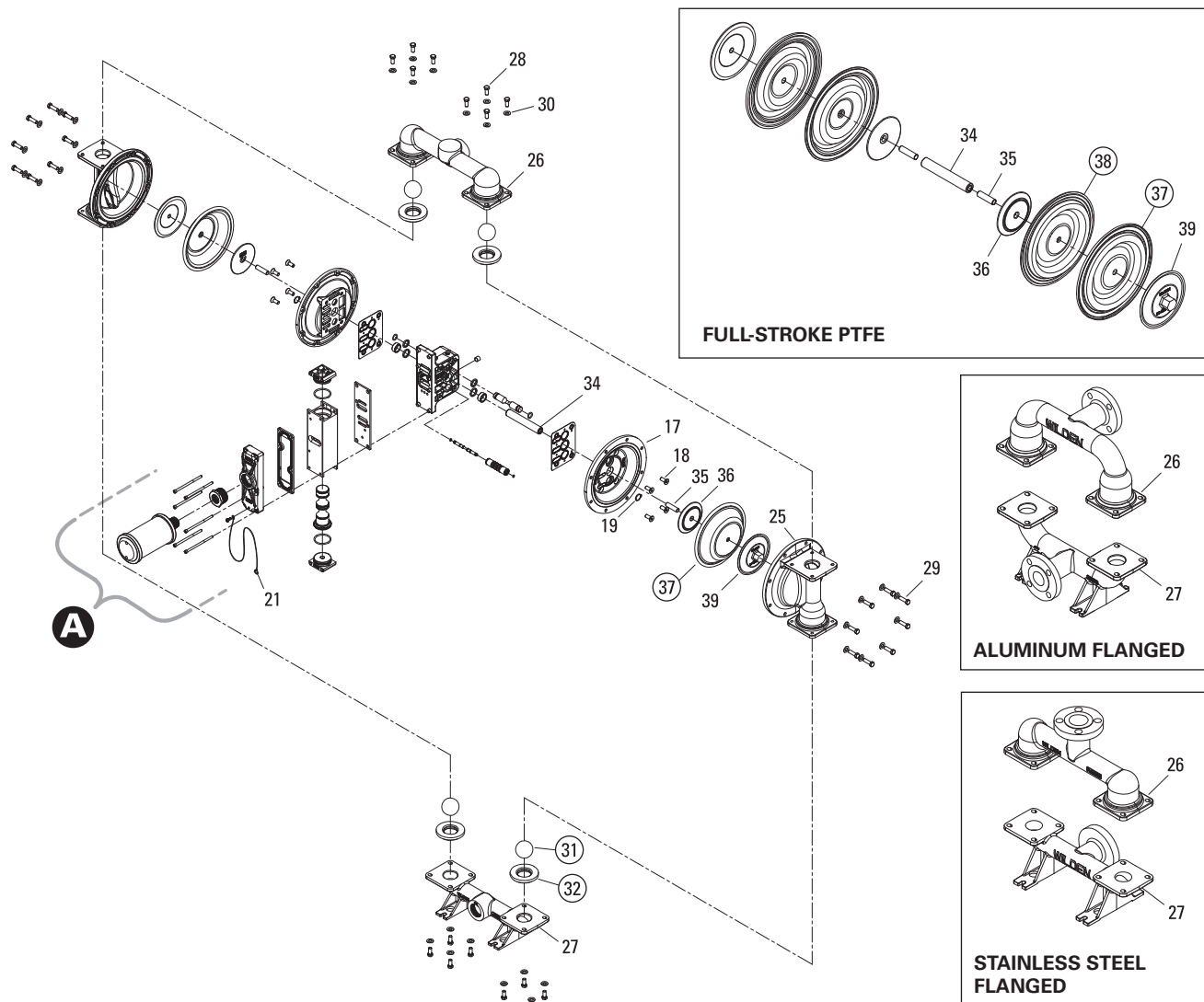
Figure B



EXPLODED VIEW & PARTS LISTING

GPS420/GPS430 METAL

EXPLODED VIEW



LW0299 Rev. E

ALL CIRCLED PART IDENTIFIERS ARE INCLUDED IN REPAIR KITS

EXPLODED VIEW & PARTS LISTING

GPS420/GPS430 METAL

PARTS LISTING

Item	Description	Qty.	GPS420/430/SSSAA/.../ P/N	GPS420/430/SSSSS/.../ P/N	GPS420/430/AAAAA/.../ P/N
AIR DISTRIBUTION COMPONENTS					
1	Air Valve Assembly, Pro-Flo® SHIFT¹	1	04-2039-01	04-2039-03	04-2039-01
2	O-Ring, End Cap (-225, Ø1.859" x Ø.139")	2	04-2390-52-700	04-2390-52-700	04-2390-52-700
3	End Cap	2	04-2340-01	04-2340-03	04-2340-01
4	Screw, SHC, Air Valve (1/4"-20 x 4 1/2")	4	N/A	01-6000-03	N/A
	Screw, SHC, Air Valve (1/4"-20 x 4 1/2")	6	01-6000-03	N/A	01-6000-03
5	Muffler Plate, Pro-Flo® SHIFT	1	04-3189-01	04-3189-03	04-3189-01
6	Gasket, Muffler Plate, Pro-Flo® SHIFT	1	04-3509-52	04-3509-52	04-3509-52
7	Gasket, Air Valve, Pro-Flo® SHIFT	1	04-2638-52	04-2638-52	04-2638-52
8	Center Block Assembly, Pro-Flo® SHIFT ²	1	04-3129-01	04-3129-03	04-3129-01
9	Pilot Sleeve Assembly	1	04-3880-99	04-3880-99	04-3880-99
10	Pilot Spool Retaining O-Ring (-009, Ø.208" x Ø.070")	2	04-2650-49-700	04-2650-49-700	04-2650-49-700
11	Seal, Shaft	2	08-3210-55-225	08-3210-55-225	08-3210-55-225
12	Bushing, Shaft	2	08-3306-13	08-3306-13	08-3306-13
13	Gasket, Center Block Pro-Flo® SHIFT	2	04-3529-56	04-3529-56	04-3529-56
14	O-Ring, (-210, Ø.734" x Ø.139")	2	04-3209-49	04-3209-49	04-3209-49
15	Air Control Spool	1	04-3859-03	04-3859-03	04-3859-03
16	Air Control Spool Retaining O-Ring (-114, Ø.612" x Ø.103")	2	04-3879-50	04-3879-50	04-3879-50
17	Air Chamber, Pro-Flo V™	2	04-3698-03	04-3698-03	04-3694-01
18	Screw, HSFHS (3/8"-16 x 1")	8	71-6250-08	71-6250-03	71-6250-08
19	Retaining Ring	2	04-3890-03	04-3890-03	04-3890-03
20	Grounding Screw, (10-32 x 1/2") Self Tapping	1	04-6345-08	04-6345-08	04-6345-08
21	Grounding Strap, CSA	1	01-8303-99	01-8303-99	01-8303-99
22	Muffler 1" MNPT	1	15-3510-99R	15-3513-99	15-3510-99R
23	Bushing Reducer 1-1/2" MNPT to 1" FNPT	1	04-6959-08	04-6959-03	04-6959-08
24	Plug, Pipe, 1/4" MNPT	1	00-7010-08	00-7010-03	00-7010-08
WETTED PATH COMPONENTS					
25	Liquid Chamber	2	04-5015-03	04-5015-03	04-5015-01
26	Manifold, Discharge, 1-1/2" (NPT)	1	04-5035-03	04-5035-03	04-5035-01
	Manifold, Discharge, 1-1/2" (BSPT)	1	04-5036-03	04-5036-03	04-5036-01
	Manifold, Discharge, 1-1/2" (ANSI)	1	04-5045-03	04-5045-03	04-5045-01
	Manifold, Discharge, 1-1/2" (DIN)	1	04-5046-03	04-5046-03	04-5046-01
27	Manifold, Inlet, 1-1/2" (NPT)	1	04-5095-03	04-5095-03	04-5095-01
	Manifold, Inlet, 1-1/2" (BSPT)	1	04-5096-03	04-5096-03	04-5096-01
	Manifold, Inlet, 1-1/2" (ANSI)	1	04-5125-03	04-5125-03	04-5125-01
	Manifold, Inlet, 1-1/2" (DIN)	1	04-5126-03	04-5126-03	04-5126-01
28	Screw, HHC (3/8"-16 x 1")	16	08-6130-03	08-6130-03	08-6130-08
29	Screw, HHC (3/8"-16 x 1-1/4")	16	04-6190-03	04-6190-03	04-6140-08
30	Washer, Flat, (Ø.406" x Ø.812" x .065")	32	04-6740-03	04-6740-03	15-6740-08-50
VALVE BALLS/VALVE SEATS/VALVE O-RINGS					
31	Ball, Valve	4	08-1080-58-50	08-1080-58-50	08-1080-58-50
	Ball, Valve, PTFE-Fitted	4	04-1085-55	04-1085-55	04-1085-55
32	Seat, Valve	4	04-1128-58	04-1128-58	04-1128-58
	Seat, Valve, PTFE-Fitted	4	04-1129-03	04-1129-03	04-1129-01
33	Valve Seat O-Ring, PTFE-Fitted (-338, Ø3.100" x Ø.210") (not shown)	4	71-1281-55	71-1281-55	71-1281-55
TPE/PTFE COMPONENTS					
34	Shaft, Stallion	1	04-3848-03	04-3848-03	04-3848-03
	Shaft, PTFE-Fitted	1	04-3800-03-700	04-3800-03-700	04-3800-03-700
35	Shaft Stud	2	08-6150-08	08-6150-08	08-6150-08
36	Piston, Inner	2	04-3700-01-700	04-3700-01-700	04-3700-01-700
37	Diaphragm, Primary	2	04-1022-58	04-1022-58	04-1022-58
	Diaphragm, Primary, PTFE-Fitted	2	04-1040-55-42	04-1040-55-42	04-1040-55-42
38	Diaphragm, Back-Up, PTFE-Fitted	2	04-1065-57	04-1065-57	04-1065-57
39	Piston, Outer	2	04-4550-03	04-4550-03	04-4552-01

¹Air Valve Assembly includes items 2 and 3.

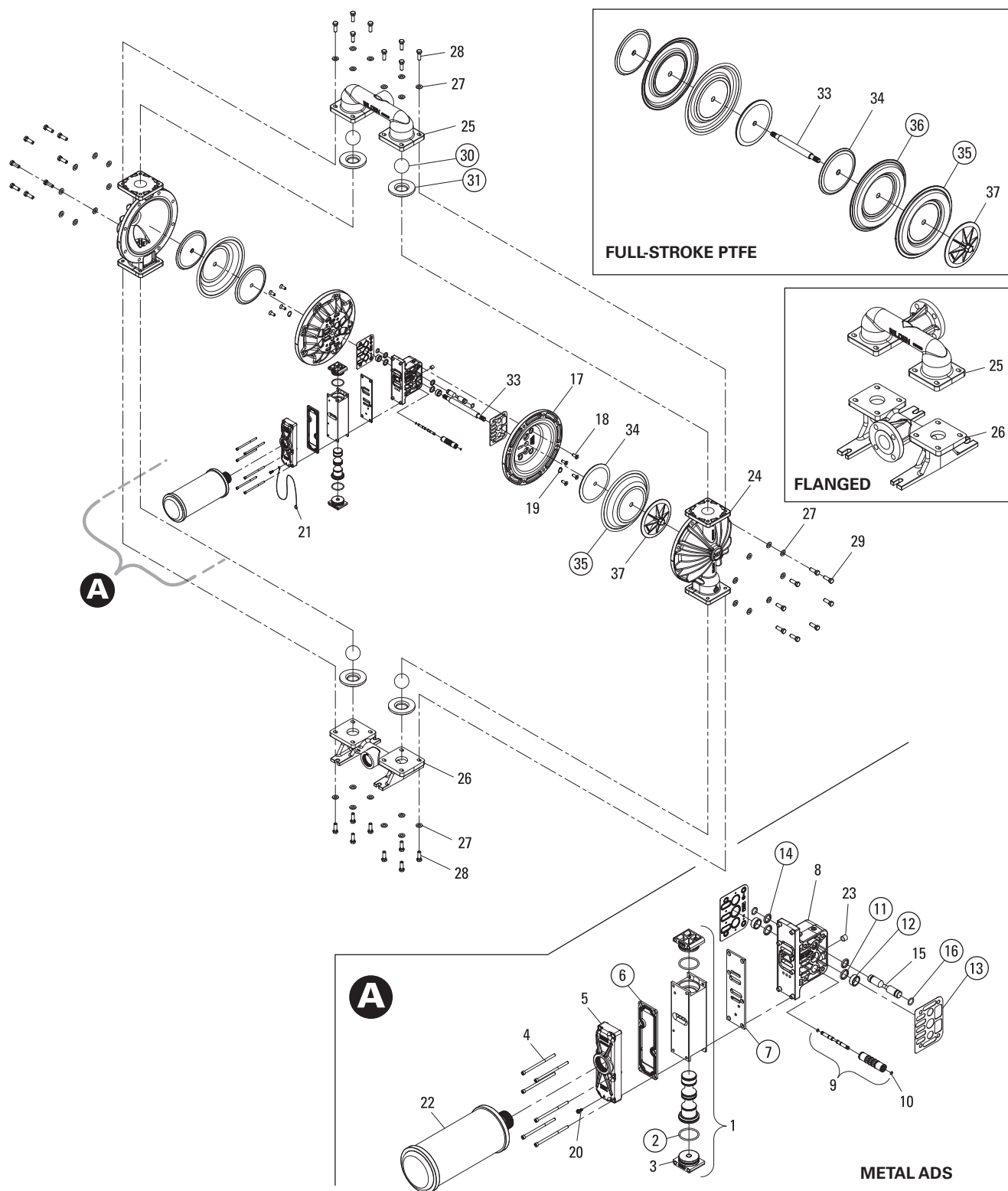
²Metal Center Block Assembly includes items 11, 12 and 14.

All boldface items are primary wear parts.

EXPLODED VIEW & PARTS LISTING

GPS820/GPS830 ALUMINUM

EXPLODED VIEW



LW0301 Rev. D

ALL CIRCLED PART IDENTIFIERS ARE INCLUDED IN REPAIR KITS

EXPLODED VIEW & PARTS LISTING

GPS820/GPS830 ALUMINUM

PARTS LISTING

Item	Description	Qty.	GPS820/830/AAAAA/.../ P/N
AIR DISTRIBUTION COMPONENTS			
1	Air Valve Assembly, Pro-Flo® SHIFT¹	1	04-2039-01
2	O-Ring, End Cap (-225, Ø1.859" x Ø.139")	2	04-2390-52-700
3	End Cap	2	04-2340-01
4	Screw, SHC, Air Valve (1/4"-20 x 4-1/2")	6	01-6000-03
5	Muffler Plate, Pro-Flo® SHIFT	1	04-3189-01
6	Gasket, Muffler Plate, Pro-Flo® SHIFT	1	04-3509-52
7	Gasket, Air Valve, Pro-Flo® SHIFT	1	04-2638-52
8	Center Block Assembly, Pro-Flo® SHIFT ²	1	04-3129-01
9	Pilot Sleeve Assembly	1	04-3880-99
10	O-Ring, Pilot Spool Retaining (-009, Ø.208" x Ø.070")	2	04-2650-49-700
11	Seal, Shaft	2	08-3210-55-225
12	Bushing, Shaft	2	08-3306-13
13	Gasket, Center Block Pro-Flo V™	2	04-3529-56
14	O-Ring, (-210, Ø.734" x Ø.139")	2	04-3209-49
15	Air Control Spool	1	04-3859-03
16	O-Ring, Air Control Spool Retaining (-114, Ø.612" x Ø.103")	2	04-3879-50
17	Air Chamber, Pro-Flo X™ Drop-In	2	08-3694-01
18	Screw, HSFHS (3/8"-16 x 1")	8	71-6250-08
19	Retaining Ring	2	04-3890-03
20	Grounding Screw, (10-32 x 1/2") Self Tapping	1	04-6345-08
21	Grounding Strap, CSA	1	01-8303-99
22	Muffler 1-1/2" MNPT	1	04-3518-99R
23	Plug, Pipe, 1/4" MNPT	1	00-7010-08
WETTED PATH COMPONENTS			
24	Liquid Chamber, Bolted	2	08-5015-01
25	Manifold, Discharge (NPT)	1	08-5035-01
	Manifold, Discharge (BSPT)	1	08-5036-01
	Manifold, Discharge (ANSI)	1	08-5045-01
	Manifold, Discharge (DIN)	1	08-5046-01
26	Manifold, Inlet (NPT)	1	08-5095-01
	Manifold, Inlet (BSPT)	1	08-5096-01
	Manifold, Inlet (ANSI)	1	08-5125-01
	Manifold, Inlet (DIN)	1	08-5126-01
27	Washer, Flat (Ø.531" x Ø1.062" x .095")	32	04-6730-08
28	Screw, HHC (1/2"-13 x 1-3/4")	16	08-6190-08
29	Screw, HHC (1/2"-13 x 2")	16	04-6210-08
VALVE BALLS/VALVE SEATS/VALVE O-RINGS			
30	Ball, Valve	4	08-1080-58
	Ball, Valve, PTFE-Fitted	4	08-1080-55
31	Seat, Valve	4	08-1128-58
	Seat, Valve, PTFE-Fitted	4	08-1129-01
32	O-Ring, Valve Seat PTFE-Fitted, (-347, Ø4.225 x Ø.210) (not shown)	4	08-1209-55
TPE/PTFE COMPONENTS			
33	Shaft, Stallion	1	08-3848-03
	Shaft, PTFE-Fitted	1	08-3812-03
34	Piston, Inner	2	08-3700-01
35	Diaphragm, Primary	2	08-1022-58
	Diaphragm, Primary, PTFE-Fitted	2	08-1040-55-42
36	Diaphragm, Back-Up, PTFE-Fitted	2	08-1065-57
37	Piston, Outer	2	08-4550-01

¹Air Valve Assembly includes items 2 and 3.

LW0302 Rev. E

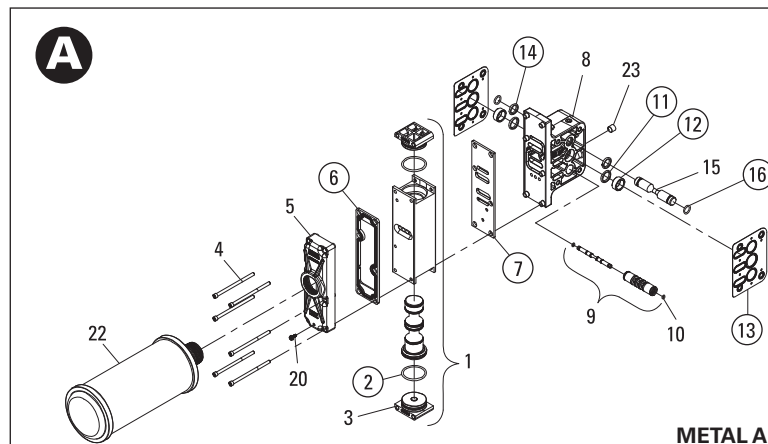
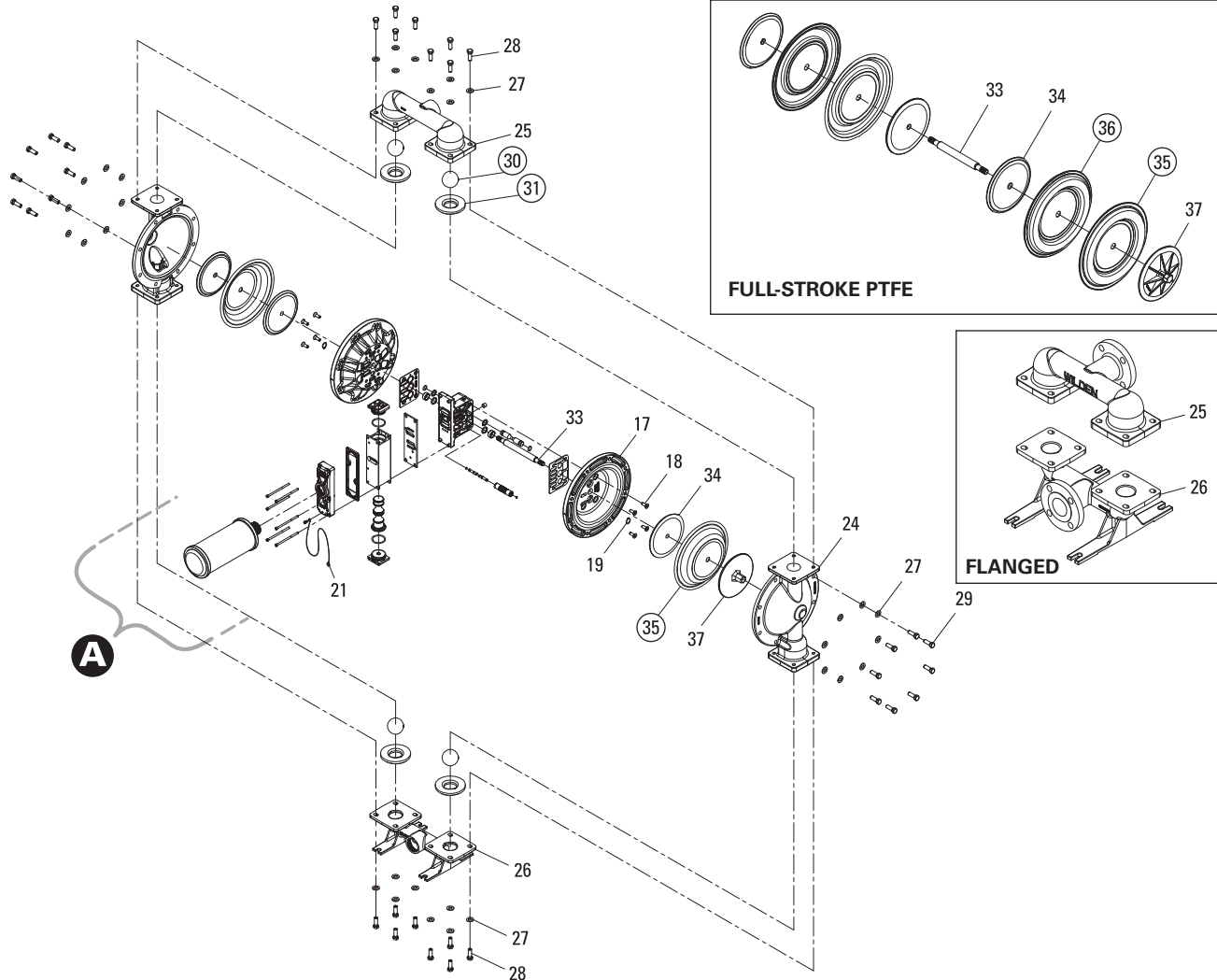
²Metal Center Block Assembly includes items 11, 12, 14, 15 and 16.

All boldface items are primary wear parts.

EXPLODED VIEW & PARTS LISTING

GPS820/GPS830 STAINLESS STEEL

EXPLODED VIEW



METAL ADS

LW0303 Rev. C

ALL CIRCLED PART IDENTIFIERS ARE INCLUDED IN REPAIR KITS

EXPLODED VIEW & PARTS LISTING

GPS820/GPS830 STAINLESS STEEL

PARTS LISTING

Item	Description	Qty.	GPS820/830/SSSAA/.../ P/N	GPS820/830/SSSSS/.../ P/N
AIR DISTRIBUTION COMPONENTS				
1	Air Valve Assembly, Pro-Flo® SHIFT¹	1	04-2039-01	04-2039-03
2	O-Ring, End Cap (-225, Ø1.859" x Ø.139")	2	04-2390-52-700	04-2390-52-700
3	End Cap	2	04-2340-01	04-2340-03
4	Screw, SHC, Air Valve (1/4"-20 x 4-1/2")	4	N/A	01-6000-03
	Screw, SHC, Air Valve (1/4"-20 x 4-1/2")	6	01-6000-03	N/A
5	Muffler Plate, Pro-Flo® SHIFT	1	04-3189-01	04-3189-03
6	Gasket, Muffler Plate, Pro-Flo® SHIFT	1	04-3509-52	04-3509-52
7	Gasket, Air Valve, Pro-Flo® SHIFT	1	04-2638-52	04-2638-52
8	Center Block Assembly, Pro-Flo® SHIFT ²	1	04-3129-01	04-3129-03
9	Pilot Sleeve Assembly	1	04-3880-99	04-3880-99
10	O-Ring, Pilot Spool Retaining (-009, Ø.208" x Ø.070")	2	04-2650-49-700	04-2650-49-700
11	Seal, Shaft	2	08-3210-55-225	08-3210-55-225
12	Bushing, Shaft	2	08-3306-13	08-3306-13
13	Gasket, Center Block Pro-Flo V™	2	04-3529-56	04-3529-56
14	O-Ring, (-210, Ø.734" x Ø.139")	2	04-3209-49	04-3209-49
15	Air Control Spool	1	04-3859-03	04-3859-03
16	O-ring, Air Control Spool Retaining (-114, Ø.612" x Ø.103")	2	04-3879-50	04-3879-50
17	Air Chamber, Pro-Flo X™ Drop-In	2	08-3698-03	08-3698-03
18	Screw, HSFHS (3/8"-16 x 1")	8	71-6250-08	71-6250-03
19	Retaining Ring	2	04-3890-03	04-3890-03
20	Grounding Screw, (10-32 x 1/2") Self Tapping	1	04-6345-08	04-6345-08
21	Grounding Strap, CSA	1	01-8303-99	01-8303-99
22	Muffler 1-1/2" MNPT	1	04-3518-99R	04-3513-99
23	Plug, Pipe, 1/4" MNPT	1	00-7010-08	00-7010-03
WETTED PATH COMPONENTS				
24	Liquid Chamber, Bolted	2	08-5015-03	08-5015-03
25	Manifold, Discharge (NPT)	1	08-5035-03	08-5035-03
	Manifold, Discharge (BSPT)	1	08-5036-03	08-5036-03
	Manifold, Discharge (ANSI)	1	08-5045-03	08-5045-03
	Manifold, Discharge (DIN)	1	08-5046-03	08-5046-03
26	Manifold, Inlet (NPT)	1	08-5095-03	08-5095-03
	Manifold, Inlet (BSPT)	1	08-5096-03	08-5096-03
	Manifold, Inlet (ANSI)	1	08-5125-03	08-5125-03
	Manifold, Inlet (DIN)	1	08-5126-03	08-5126-03
27	Washer, Flat (Ø.531" x Ø1.062" x .095")	32	04-6730-03	04-6730-03
28	Screw, HHC (1/2"-13 x 1-1/2")	16	04-6180-03	04-6180-03
29	Screw, HHC (1/2"-13 x 2")	16	04-6210-03	04-6210-03
VALVE BALLS/VALVE SEATS/VALVE O-RINGS				
30	Ball, Valve	4	08-1080-58	08-1080-58
	Ball, Valve, PTFE-Fitted	4	08-1080-55	08-1080-55
31	Seat, Valve	4	08-1128-58	08-1128-58
	Seat, Valve, PTFE-Fitted	4	08-1129-03	08-1129-03
32	O-Ring, Valve Seat PTFE-Fitted, (-347, Ø4.225 x Ø.210) (not shown)	4	08-1209-55	08-1209-55
TPE/PTFE COMPONENTS				
33	Shaft, Stallion	1	08-3848-03	08-3848-03
	Shaft, PTFE-Fitted	1	08-3812-03	08-3812-03
34	Piston, Inner	2	08-3700-01	08-3700-03
35	Diaphragm, Primary	2	08-1022-58	08-1022-58
	Diaphragm, Primary, PTFE-Fitted	2	08-1040-55-42	08-1040-55-42
36	Diaphragm, Back-Up, PTFE-Fitted	2	08-1065-57	08-1065-57
37	Piston, Outer	2	08-4550-03	08-4550-03

¹Air Valve Assembly includes items 2 and 3.

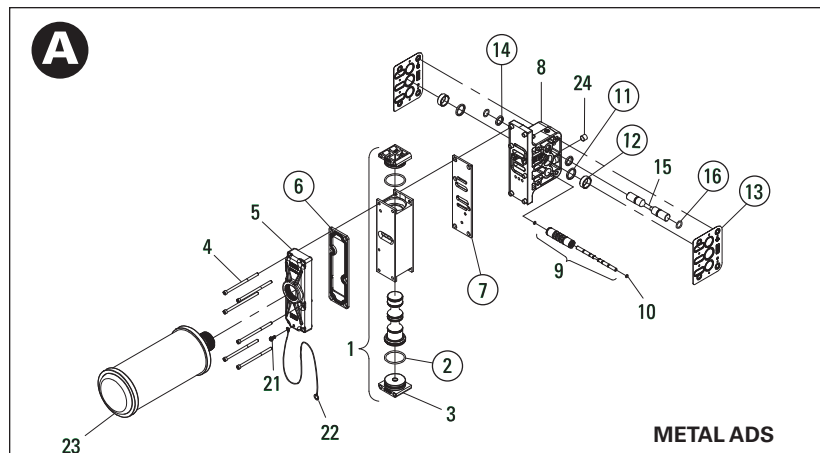
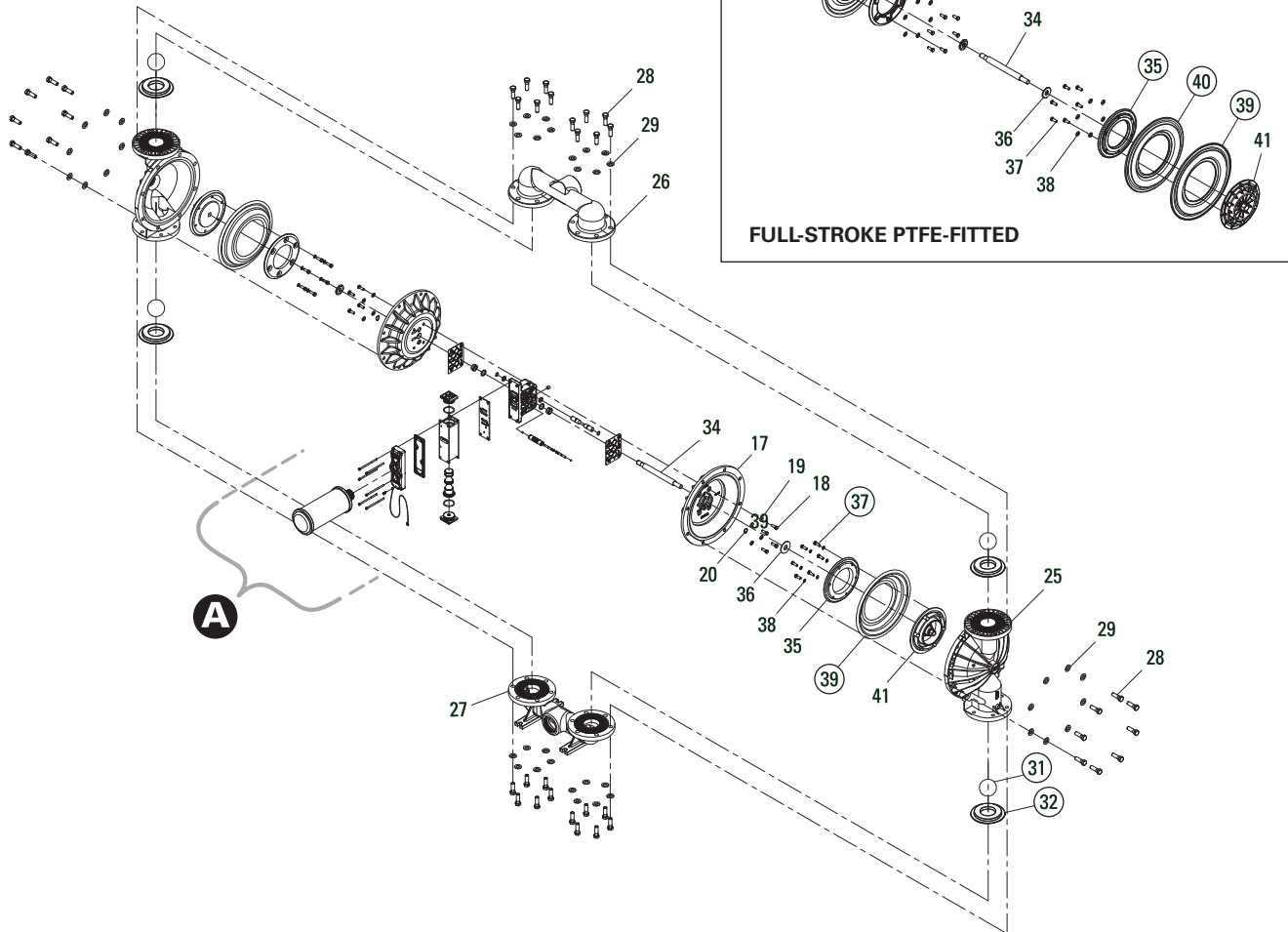
²Metal Center Block Assembly includes items 11, 12 and 14.

All boldface items are primary wear parts.

EXPLODED VIEW & PARTS LISTING

GPS1520 ALUMINUM

EXPLODED VIEW



METAL ADS

LW0305 Rev. D

ALL CIRCLED PART IDENTIFIERS ARE INCLUDED IN REPAIR KITS

EXPLODED VIEW & PARTS LISTING

GPS1520 ALUMINUM

PARTS LISTING

Item	Description	Qty.	GPS1520/AAAAA/.../ P/N
AIR DISTRIBUTION COMPONENTS			
1	Air Valve Assembly, Pro-Flo® SHIFT¹	1	04-2039-01
2	O-Ring, End Cap (-225, Ø1.859" x Ø.139")	2	04-2390-52-700
3	End Cap	2	04-2340-01
4	Screw, SHC, Air Valve (1/4"-20 x 4-1/2")	6	01-6000-03
5	Muffler Plate, Pro-Flo® SHIFT	1	04-3189-01
6	Gasket, Muffler Plate, Pro-Flo® SHIFT	1	04-3509-52
7	Gasket, Air Valve, Pro-Flo® SHIFT	1	04-2638-52
8	Center Block Assembly, Pro-Flo® SHIFT ²	1	15-3129-01
9	Pilot Sleeve Assembly	1	15-3884-99
10	O-Ring, Pilot Spool Retaining (-009, Ø.208" x Ø.070")	2	04-2650-49-700
11	Seal, Shaft	2	15-3210-55-225
12	Bushing, Shaft	2	15-3306-13
13	Gasket, Center Block Pro-Flo® SHIFT	2	04-3529-56
14	O-Ring, (-210, Ø.734" x Ø.139")	2	04-3209-49
15	Air Control Spool	1	15-3859-03
16	O-Ring, Air Control Spool Retaining (-114, Ø.612" x Ø.103")	2	04-3879-50
17	Air Chamber, Pro-Flo Shift™	2	15-3694-01
18	Screw, HHC (3/8"-16 x 1-1/8")	8	15-6130-08
19	Washer, Flat (Ø.406" x Ø.812" x .065")	8	15-6740-08-50
20	Retaining Ring	2	04-3890-03
21	Grounding Screw, (10-32 x 1/2") Self Tapping	1	04-6345-08
22	Grounding Strap, CSA	1	01-8303-99
23	Muffler 1-1/2" MNPT	1	04-3518-99R
24	Plug, Pipe, 1/4" MNPT	1	00-7010-08
WETTED PATH COMPONENTS			
25	Liquid Chamber, Bolted	2	15-4980-01
26	Manifold, Discharge (NPT)	1	15-5035-01
	Manifold, Discharge (BSPT)	1	15-5036-01
27	Manifold, Inlet (NPT)	1	15-5095-01
	Manifold, Inlet (BSPT)	1	15-5096-01
28	Screw, HHC (5/8"-11 x 2")	40	15-6180-08
29	Washer, Flat (Ø.656" x Ø1.312" x .095")	40	15-6732-08
VALVE BALLS/VALVE SEATS/VALVE O-RINGS			
30	Manifold Gasket, PTFE-Fitted (not shown)	4	15-1405-55
31	Ball, Valve	4	15-1080-58
	Ball, Valve, PTFE-Fitted	4	15-1080-55
32	Seat, Valve	4	15-1126-58
	Seat, Valve, PTFE-Fitted	4	15-1125-03
33	O-Ring, Valve Seat PTFE-Fitted (-250, Ø4.984" x Ø.139") (Not Shown)	4	15-1205-55
TPE/PTFE COMPONENTS			
34	Shaft, Stallion	1	15-3848-03
	Shaft, PTFE-Fitted	1	15-3805-09
35	Piston, Inner	2	15-3700-01
36	Washer, Inner Piston Back-up	2	15-6850-08
37	Inner Piston Screw, HHC (3/8"-16 x 1-1/8")	12	15-6130-08
38	Inner Piston Washer (Ø.406" x Ø.812" x .065")	12	15-6740-08-50
39	Diaphragm, Primary	2	15-1022-58
	Diaphragm, Primary, PTFE-Fitted	2	15-1040-55-42
40	Diaphragm, Back-Up, PTFE-Fitted	2	15-1065-57
41	Piston, Outer	2	15-4550-01

¹Air Valve Assembly includes items 2 and 3.

LW0306 Rev. E

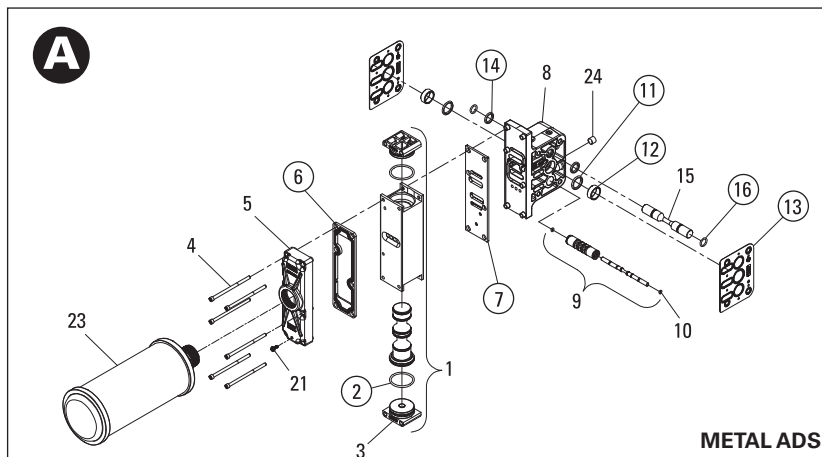
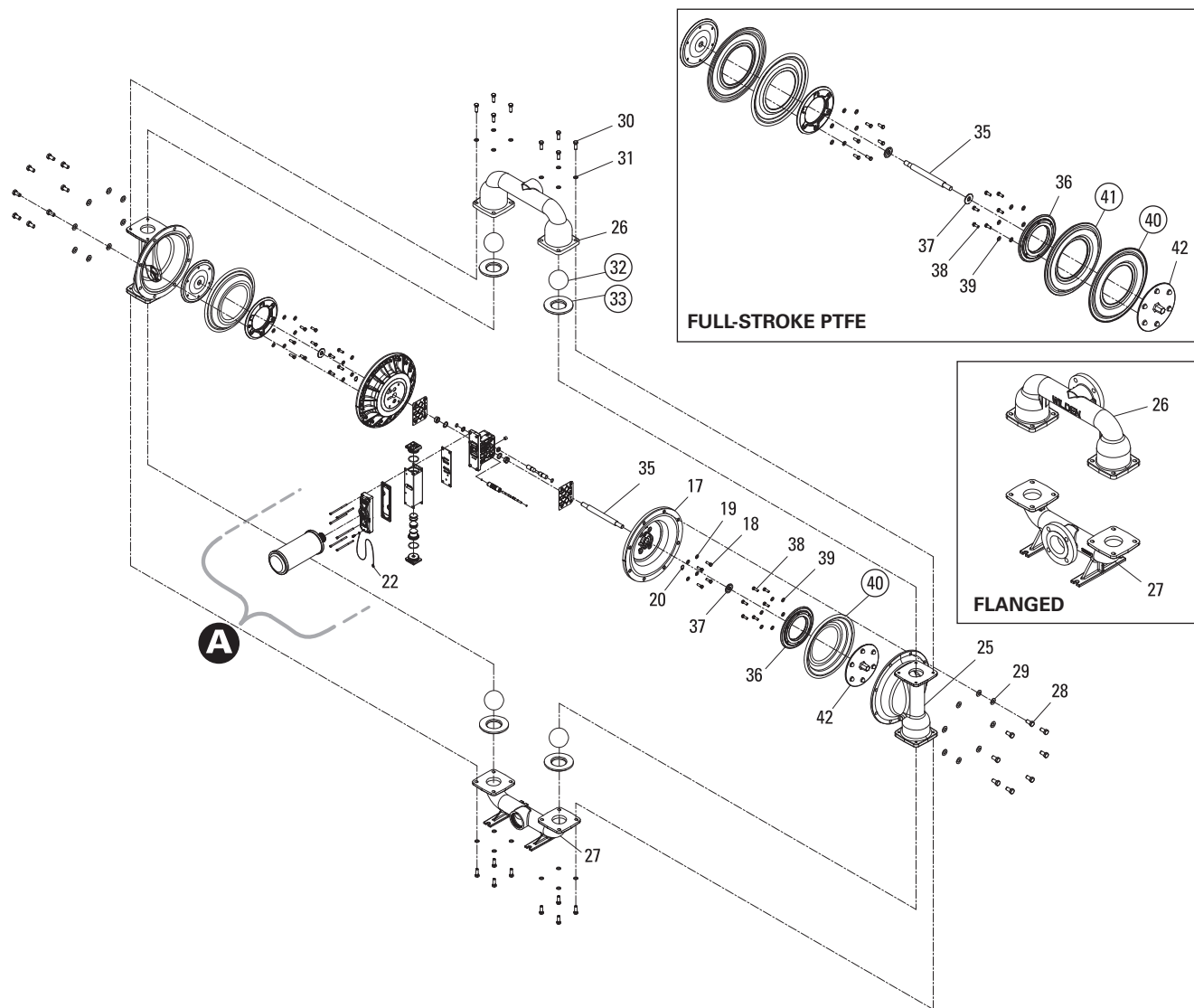
²Metal Center Block Assembly includes items 11, 12, 14, 15 and 16.

All boldface items are primary wear parts.

EXPLODED VIEW & PARTS LISTING

GPS1520/GPS1530 STAINLESS STEEL

EXPLODED VIEW



METAL ADS
LW0307 Rev. C

ALL CIRCLED PART IDENTIFIERS ARE INCLUDED IN REPAIR KITS

EXPLODED VIEW & PARTS LISTING

GPS1520/GPS1530 STAINLESS STEEL

PARTS LISTING

Item	Description	Qty.	GPS1520/1530/SSSAA/.../ P/N	GPS1520/1530/SSSSS/.../ P/N
AIR DISTRIBUTION COMPONENTS				
1	Air Valve Assembly, Pro-Flo® SHIFT¹	1	04-2039-01	04-2039-03
2	O-Ring, End Cap (-225, Ø1.859" x Ø.139")	2	04-2390-52-700	04-2390-52-700
3	End Cap	2	04-2340-01	04-2340-03
4	Screw, SHC, Air Valve (1/4"-20 x 4-1/2")	4	N/A	01-6000-03
	Screw, SHC, Air Valve (1/4"-20 x 4-1/2")	6	01-6000-03	N/A
5	Muffler Plate, Pro-Flo® SHIFT	1	04-3189-01	04-3189-03
6	Gasket, Muffler Plate, Pro-Flo® SHIFT	1	04-3509-52	04-3509-52
7	Gasket, Air Valve, Pro-Flo® SHIFT	1	04-2638-52	04-2638-52
8	Center Block Assembly, Pro-Flo® SHIFT ²	1	15-3129-01	15-3129-03
9	Pilot Sleeve Assembly	1	15-3884-99	15-3884-99
10	O-Ring, Pilot Spool Retaining (-009, Ø.208" x Ø.070")	2	04-2650-49-700	04-2650-49-700
11	Seal, Shaft	2	15-3210-55-225	15-3210-55-225
12	Bushing, Shaft	2	15-3306-13	15-3306-13
13	Gasket, Center Block Pro-Flo V™	2	04-3529-56	04-3529-56
14	O-Ring, (-210, Ø.734" x Ø.139")	2	04-3209-49	04-3209-49
15	Air Control Spool	1	15-3859-03	15-3859-03
16	O-Ring, Air Control Spool Retaining (-114, Ø.612" x Ø.103")	2	04-3879-50	04-3879-50
17	Air Chamber, Pro-Flo V™	2	15-3690-03	15-3690-03
18	Screw, HHC (3/8"-16 x 1")	8	08-6130-03	08-6130-03
19	Washer, Flat (Ø.406" x Ø.812" x .065")	8	15-6740-08-50	04-6740-03
20	Retaining Ring	2	04-3890-03	04-3890-03
21	Grounding Screw, (10-32 x 1/2") Self Tapping	1	04-6345-08	04-6345-08
22	Grounding Strap, CSA	1	01-8303-99	01-8303-99
23	Muffler 1-1/2" MNPT	1	04-3518-99R	04-3513-99
24	Plug, Pipe, 1/4" MNPT	1	00-7010-08	00-7010-03
WETTED PATH COMPONENTS				
25	Liquid Chamber, Bolted	2	15-5006-03	15-5006-03
26	Manifold, Discharge (NPT)	1	15-5035-03	15-5035-03
	Manifold, Discharge (BSPT)	1	15-5036-03	15-5036-03
	Manifold, Discharge (ANSI)	1	15-5045-03	15-5045-03
	Manifold, Discharge (DIN)	1	15-5046-03	15-5046-03
27	Manifold, Inlet (NPT)	1	15-5095-03	15-5095-03
	Manifold, Inlet (BSPT)	1	15-5096-03	15-5096-03
	Manifold, Inlet (ANSI)	1	15-5125-03	15-5125-03
	Manifold, Inlet (DIN)	1	15-5126-03	15-5126-03
28	Screw, HHC (5/8"-11 x 2")	16	15-6180-03	15-6180-03
29	Spring, Disk (5/8")	16	15-6820-03	15-6820-03
30	Screw, HHC (1/2"-13 x 1-1/2")	16	04-6180-03	04-6180-03
31	Spring, Disk (1/2")	16	15-6810-03	15-6810-03
VALVE BALLS/VALVE SEATS/VALVE O-RINGS				
32	Ball, Valve	4	15-1085-58	15-1085-58
	Ball, Valve, PTFE-Fitted	4	15-1085-55	15-1085-55
33	Seat, Valve	4	15-1128-58	15-1128-58
	Seat, Valve, PTFE-Fitted	4	15-1129-03	15-1129-03
34	O-Ring, Valve Seat PTFE-Fitted (-358, Ø5.600" x Ø.210") (not shown)	4	15-1209-55	15-1209-55
TPE/PTFE COMPONENTS				
35	Shaft, Stallion	1	15-3848-03	15-3848-03
	Shaft, PTFE-Fitted	1	15-3805-09	15-3805-09
36	Piston, Inner	2	15-3700-01	15-3700-03
37	Washer, Inner Piston Back-up	2	15-6850-08	15-6850-08
38	Screw, HHC (3/8"-16 x 1-1/8")	12	15-6130-08	N/A
	Screw, HHC (3/8"-16 x 1")	12	N/A	08-6130-03
39	Washer (Ø.406" x Ø.812" x .065")	12	15-6740-08-50	04-6740-03
40	Diaphragm, Primary	2	15-1022-58	15-1022-58
	Diaphragm, Primary, PTFE-Fitted	2	15-1040-55-42	15-1040-55-42
41	Diaphragm, Back-Up, PTFE-Fitted	2	15-1065-57	15-1065-57
42	Piston, Outer	2	15-4550-03	15-4550-03

¹Air Valve Assembly includes items 2 and 3.

²Metal Center Block Assembly includes items 11, 12 and 14.

All boldface items are primary wear parts.

LW0308 Rev. E



REPAIR KITS

Repair Kits	SIZE		
	1.5"	2"	3"
Full-Stroke PTFE Wet Kit (TWS)*	04-9824-55-201	08-9824-55-201	15-9824-55-201
EZ-Install TPE Wet Kit (ZWS)*	04-9824-58-209	08-9824-58-209	15-9824-58-209
Air Kit**	04-9993-99-320	04-9993-99-320	15-9993-99-320

*Wet Kit includes primary diaphragms, back-up diaphragms (PTFE-fitted pumps only), valve balls and valve seat/O-rings.

** Air Kit includes air-valve spool assembly, end-cap O-rings, air-valve gasket, muffler-plate gasket, center-block gaskets, air control spool seals and retaining O-rings, pilot sleeve assembly, snap rings, shaft Glyd-rings and bushings, grease kit.

NOTE: Metal seats are not included with wet kits.

**WILDEN®**

WARRANTY

Each and every product manufactured by Wilden Pump and Engineering, LLC is built to meet the highest standards of quality. Every pump is functionally tested to insure integrity of operation.

Wilden Pump and Engineering, LLC 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. Failure due to normal wear, misapplication, or abuse is, of course, excluded from this warranty.

Since the use of Wilden pumps and parts is beyond our control, we cannot guarantee the suitability of any pump or part for a particular application and Wilden Pump and Engineering, LLC shall not be liable for any consequential damage or expense arising from the use or misuse of its products on any application. Responsibility is limited solely to replacement or repair of defective Wilden pumps and parts.

All decisions as to the cause of failure are the sole determination of Wilden Pump and Engineering, LLC.

Prior approval must be obtained from Wilden for return of any items for warranty consideration and must be accompanied by the appropriate MSDS for the product(s) involved. A Return Goods Tag, obtained from an authorized Wilden distributor, must be included with the items which must be shipped freight prepaid.

The foregoing warranty is exclusive and in lieu of all other warranties expressed or implied (whether written or oral) including all implied warranties of merchantability and fitness for any particular purpose. No distributor or other person is authorized to assume any liability or obligation for Wilden Pump and Engineering, LLC other than expressly provided herein.

PLEASE PRINT OR TYPE AND FAX TO WILDEN

PUMP INFORMATION				
Item # _____		Serial # _____		
Company Where Purchased _____				
YOUR INFORMATION				
Company Name _____				
Industry _____				
Name _____		Title _____		
Street Address _____				
City _____		State _____	Postal Code _____	Country _____
Telephone _____	Fax _____	E-mail _____	Web Address _____	
Number of pumps in facility? _____		Number of Wilden pumps? _____		
Types of pumps in facility (check all that apply): <input type="checkbox"/> Diaphragm <input type="checkbox"/> Centrifugal <input type="checkbox"/> Gear <input type="checkbox"/> Submersible <input type="checkbox"/> Lobe				
<input type="checkbox"/> Other _____				
Media being pumped? _____				
How did you hear of Wilden Pump? <input type="checkbox"/> Trade Journal <input type="checkbox"/> Trade Show <input type="checkbox"/> Internet/E-mail <input type="checkbox"/> Distributor				
<input type="checkbox"/> Other _____				

ONCE COMPLETE, FAX TO (909) 783-3440

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