

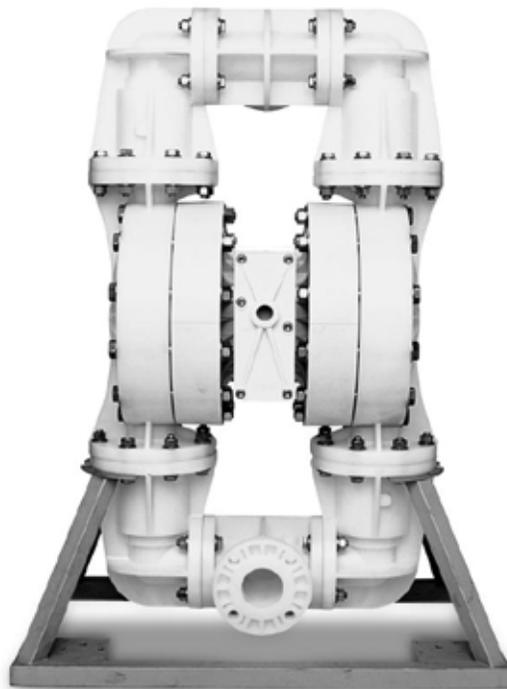


NOMAD™

OPERATION MANUAL

PWR-FLO™

NPF80W 3" POLYPROPYLENE PUMP
PWR-FLO™ AIR DISTRIBUTION SYSTEM



AIR-OPERATED  DOUBLE DIAPHRAGM  PUMPS



A JDA Global Company

 **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:**
 Neoprene -17.7°C to 93.3°C 0°F to 200°F
 Buna-N -12.2°C to 82.2°C 10°F to 180°F
 EPDM -15.1°C to 137.8°C -60°F to 280°F
 NOTE: Not all materials are available for all models. Refer to Section 2 for material options for your pump.

 **CAUTION:** Check temperature limits for all wetted components. Example: Viton® has a maximum limit of 176.7°C (350°F) but polypropylene has a maximum limit of only 79°C (175°F).

 **CAUTION:** Maximum temperature limit are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures.

 **WARNING:** Prevention of static parking – 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.

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

 **CAUTION:** The process fluid and cleaning fluids must be chemically compatible with all wetted pump components.

 **CAUTION:** Do not exceed 82°C (180°F) air inlet temperature.

 **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.

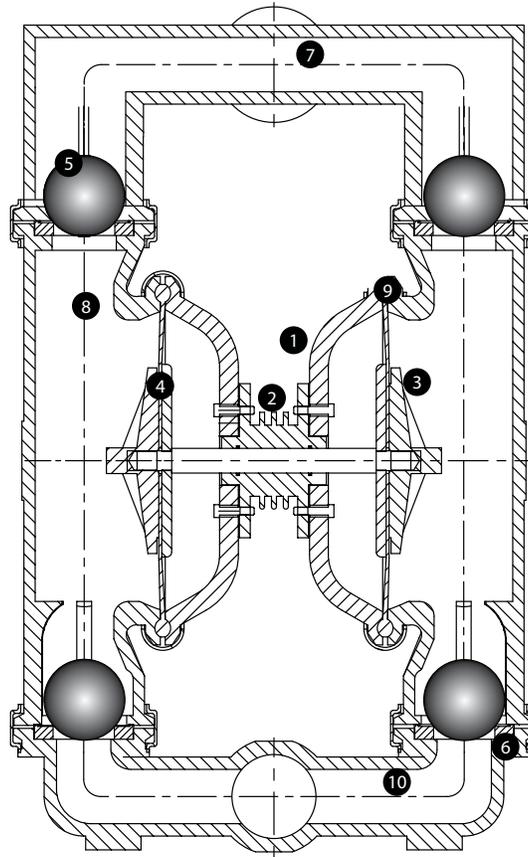
 **CAUTION:** Blow out air line for 10 to 20 seconds before attaching to pump to make sure all pipeline debris is clear. Use an in-line air filter. A 5µ (micron) air filter is recommended.

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

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:** Tighten all hardware prior to installation.

The NOMAD 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.



1. Air Chamber

The air chamber is the chamber that houses the air which powers the diaphragms.

2. Air Distribution System

The air distribution system is the heart of the pump. The air distribution system is the mechanism that shifts the pump in order to create suction and discharge strokes.

3. Lock Nut (Outer Diaphragm Piston)

The outer diaphragm pistons provide a means to connect the diaphragms to the reciprocating common shaft and to seal the liquid side from the air side of the diaphragm.

4. Holding plate (Inner Diaphragm Piston)

The inner piston is located on the air side of the pump and does not come into contact with the process fluid.

5. Check Valve Ball

NOMAD air-operated pumps use suction and discharge check valves to produce directional flow of process fluid in the liquid chamber. The check valve balls seal and release on the check valve seats allowing for discharge and suction of process fluid to occur.

6. Check Valve Seat

The removable seats provide the ball valves a site to check.

7. Discharge Manifold

Process fluid exits the pump from the discharge port located on the discharge manifold at the top of the pump.

8. Liquid Chamber

The liquid chamber is filled with the process fluid during the suction stroke and is emptied during the discharge stroke. It is separated from the compressed air by the diaphragms.

9. Diaphragm

The diaphragm membrane provides for separation of the process fluid and the compressed air power source. To perform adequately, diaphragms should be of sufficient thickness and of appropriate material to prevent degradation or permeation in specific process fluid applications. TABLA offers a variety of diaphragm materials for your specific application requirements.

10. Inlet Manifold

Process fluid enters the pump from the intake port located on the inlet manifold at the bottom of the pump.

XXX XX / XXXX / XX / XX / XXX / X / X / X

1	Air Distribution System	2	Liquid Port Size	3	Wetted Parts	7,8	Diaphragms & Valve Balls	9	Valve Seats	11	Fittings	12	Connections	13	ATEX
N	Nomad	07	07mm/.25"	A	Aluminum	BN	Buna - N/ Nitrile	A	Aluminum	N	NPT	C	Clamped		
T	Trans-Flo	15	15mm/.5"	W	Ductile	ND	Nordel/EPDM	S	Stainless Steel	B	BSP	B	Bolted		
TG	Gold	25	25mm/1"	S	Stainless Steel	NE	Neoprene	BN	Buna - N/Nitrile	TC	Tri-Clamp				
PF	Pwr-Flo	40	40mm/1.5"	P	Polypropylene	TF	PTFE (with Neoprene back-up)	NE	Neoprene	FL	Flanged				
DF	Dura-Flo	50	50mm/2"	4	Air Chambers	VT	Viton/FKM	ND	Nordel/EPDM						
		80	80mm/3"	A	Aluminum	FG	Hytrel®	VT	Viton						
		100	100mm/4"	W	Ductile	SN	Santoprene®	SP	Santoprene						
		S	Stainless Steel	SNF	Santoprene® - UFI	FG	Hytrel								
		W	Mild Steel	TFF	PTFE - UFI	P	Polypropylene								
		P	Polypropylene	TGN	Garlock® - NEO BACKED	K	Kynar								
		5	Center Block	TGE	Garlock® - EPDM BACKED	PU	Polyurethane								
		A	Aluminum	TGV	Garlock® - Viton BACKED	MTF	Mild Steel								
		S	Stainless Steel	PU	Polyurethane	10	O-Ring								
		P	Polypropylene	FGF	Hytrel UFI	BN	Buna - N/Nitrile								
6	Air Valve	PUF	Polyurethane UFI	NE	Neoprene										
B	Brass			ND	Nordel/EPDM										
P	Polypropylene			VT	Viton										
A	Aluminum			TF	PTFE										
S	Stainless Steel			PU	Polyurethane										
				SN	Santoprene										
				PTV	Viton Encap.										

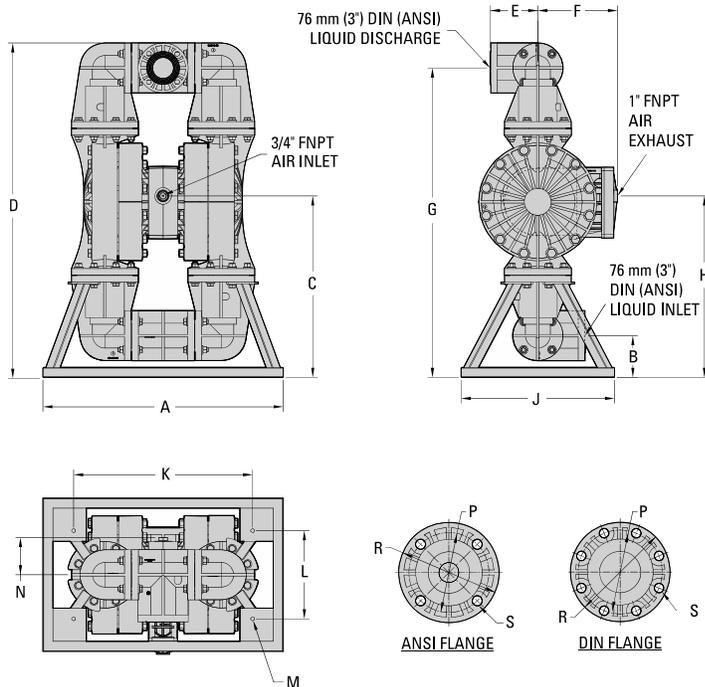
NTG 50 / AAAB / TF / TF / ATF / N / C / X

1	Air Distribution System	2	Liquid Port Size	3	Wetted Parts	7,8	Diaphragms & Valve Balls	9	Valve Seats	11	Fittings	12	Connections	13	ATEX
N	Nomad	50	50mm/2"	A	Aluminum	TF	PTFE (with Buna back-up)	A	Aluminum	N	NPT	C	Clamped		
T	Trans-Flo			4	Air Chambers			10	O-Ring						
TG	Gold			A	Aluminum			TF	PTFE						
PF	Pwr-Flo			5	Center Block										
DF	Dura-Flo			A	Aluminum										
				6	Air Valve										
				B	Brass										

Dimensional Drawings



NPF80W Polypropylene



DIMENSIONS

ITEM	METRIC (mm)	STANDARD (inch)
A	914	36.0
B	160	6.3
C	691	27.2
D	1280	50.4
E	180	7.1
F	305	12.0
G	1181	46.5
H	693	27.3
J	584	23.0
K	681	26.8
L	335	13.2
M	15 DIA.	0.6 DIA.
N	150	5.9
FLANGES		
	DIN (mm)	ANSI (inch)
P	160 DIA.	6.0 DIA.
R	191 DIA.	7.5 DIA.
S	18 DIA.	0.8 DIA.

Performance



NPF80W PWR-FLO

PTFE-FITTED

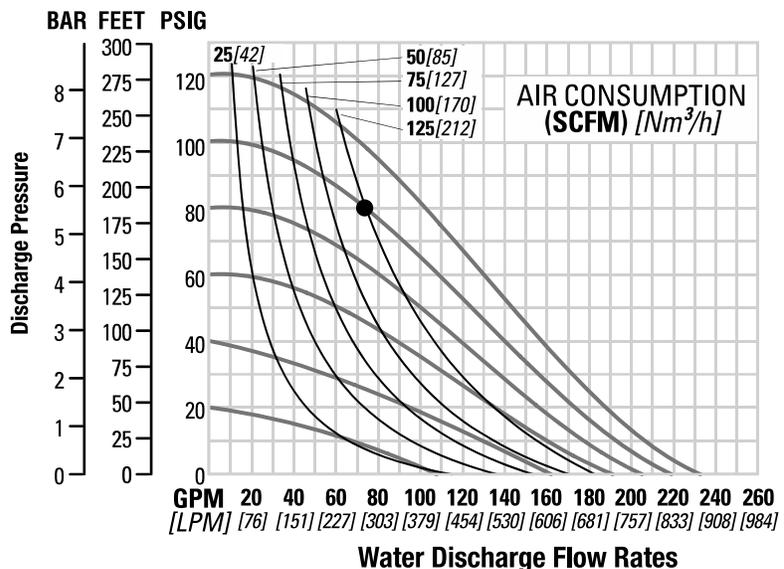
Ship Weight.. Polypropylene 138 kg (305 lb)

- Air Inlet..... 19 mm (3/4")
- Inlet..... 76 mm (3")
- Outlet 76 mm (3")
- Suction Lift 3.63 m Dry (12')
- 8.64 m Wet (28')
- Disp. Per Stroke¹ 3.75 L (0.99 gal)
- Max. Flow Rate..... 784 lpm (207 gpm)
- Max. Size Solids..... 13 mm (1/2")

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

Example: To pump 246 lpm (65 gpm) against a discharge pressure head of 5.5 bar (80 psig) requires 6.9 bar (100 psig) and 212 Nm³/h (125 scfm) air consumption. (See dot on chart.)

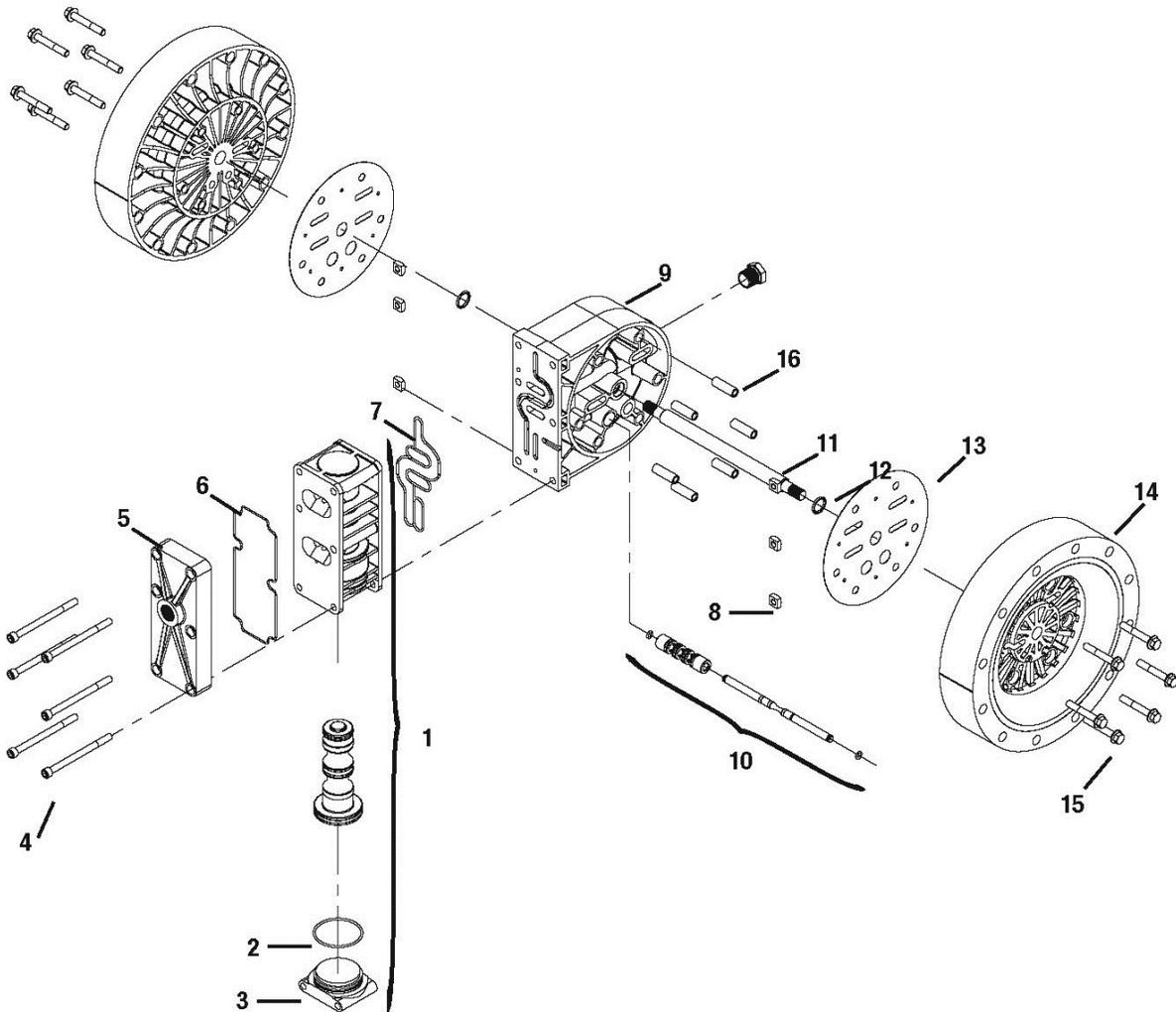
Caution: Do not exceed 6.9 bar (100 psig) air supply pressure on polypropylene pumps.



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.

NPF80W Air Distribution

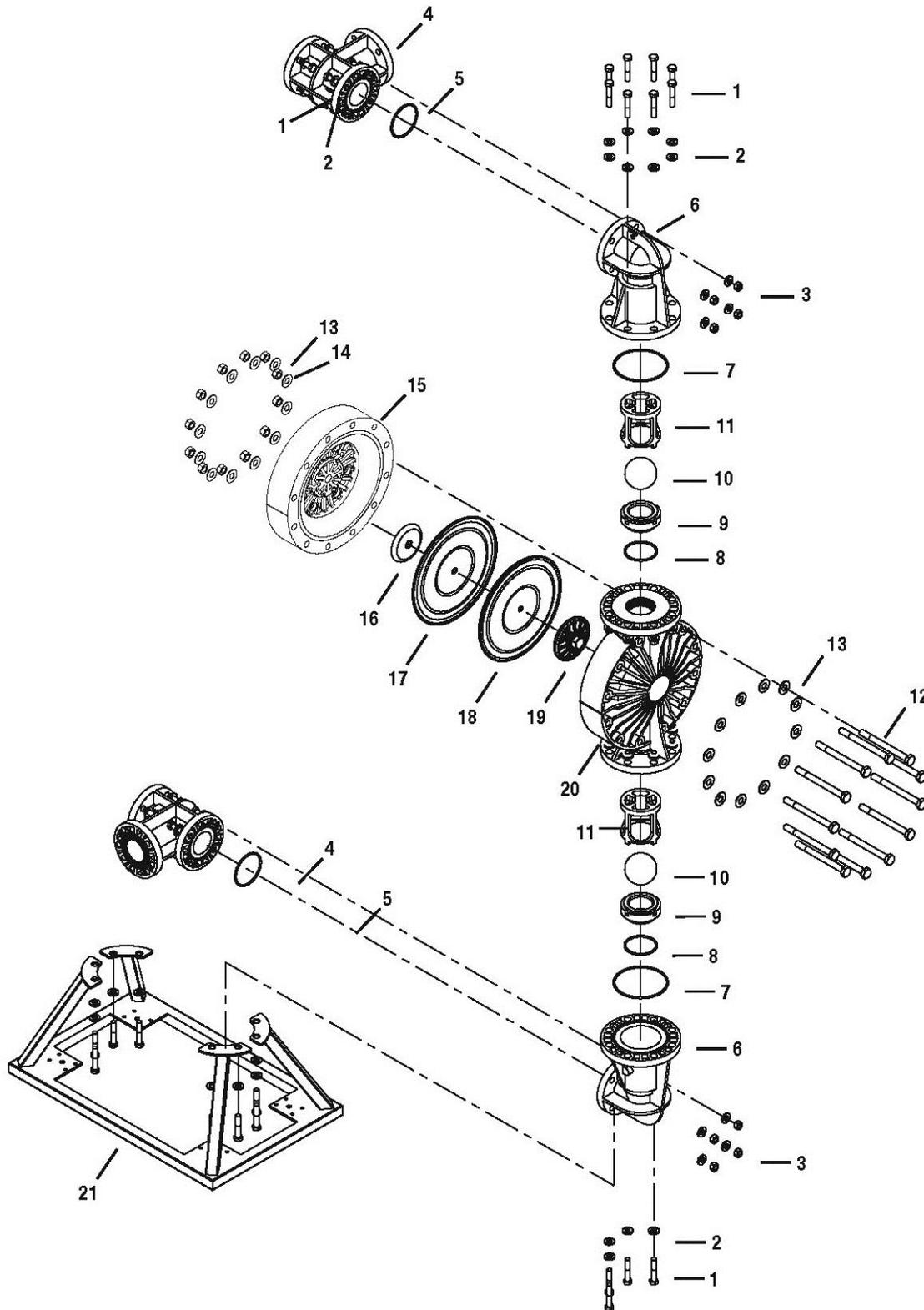


NPF80W Air Distribution

No.	Part Description	Qty.	Part #
1	Pwr-Flo® Air Valve Assembly	1	N15-2010-20
2	O-Ring (-235) End Cap	1	N71-1280-52
3	End Cap	1	N15-2332-20
4	Screw, SHCS, Air Valve (7/16-14 x 5-7/8")	6	N15-6001-03
5	Muffler Plate Pwr-Flo®	1	N15-3181-20
6	Gasket, Muffler Plate	1	N15-3505-52
7	Gasket, Air Valve	1	N15-2615-52
8	Nut, Square (7/16-14)	6	N15-6506-03
9	Center Block Assembly	1	N15-3110-20
10	Removable Pilot Sleeve Assembly	1	N15-3882-99
11	Shaft	1	N15-3842-03
12	Center Block, Slyder-Ring™	2	N15-3210-77-225
13	Gasket, Center Block, Pwr-Flo®	2	N15-3525-52
14	Air Chamber Pwr-Flo®	2	N15-3681-20
15	Air Chamber Screw 1/2-13 x 3-1/4"	12	N15-6202-03
16	Threaded Sleeve	6	N15-7710-08

*All boldface items are primary wear part

NPF80W PTFE



Parts Listing



NPF80W PTFE

No.	Part Description	Qty.	Part #
1	Bolt, HHCS, 5/8-11 x 3-1/4	48	N15-6181-03
2	Washer, 5/8 (.660 x 1.312 x .187)	96	N15-6730-03
3	Nut, Hex, 5/8-11	48	N15-6430-03
4	Tee Section	2	N15-5180-20
5	Tee Section O-Ring	4	N15-1300-60
6	Combo Elbow	4	N15-5240-20
7	Elbow O-Ring	4	N15-1370-60
8	Valve Seat O-Ring	4	N08-1200-60-500
9	Valve Seat	4	N15-1120-21
10	Valve Ball	4	N15-1085-55
11	Ball Cage	4	N15-5350-20
12	Screw, HH, 3/4-10 x 8 3/8"	24	N15-6192-03
13	Washer, 3/4 (.812x 1.750 x .095)	48	N15-6735-03
14	Nut, Hex, 3/4-10	24	N156425-03
15	Air Chamber Pwr-Flo®	2	N15-3681-20
16	Inner Piston	2	N15-3750-01
17	Backup Diaphragm	2	N15-1060-51
18	PTFE Diaphragm	2	N15-1010-55
19	Outer Piston	2	N15-4600-21
20	Liquid Chamber	2	N15-5000-20
21	Pump Stand	1	N15-7650-03

*All boldface items are primary wear part.
Consult Factory for Elastomer Options.



A JDA Global Company

1645 W. Park Ave., Suite 200
Redlands, CA USA 92373
(909) 798-9532

N O M A D™



NO BOUNDARIES™