SERVICE & OPERATING MANUAL

Original Instructions

Certified Quality

Model FPD10A-XXX-XXX

Metallic

FTA Pumps, Inc.
A Unit of PRG Corporation
12251 Northwoods Park Dr.
Houston, TX 77041 USA
Telephone 281.654.6499
Fax 214.432.6173
FTAPUMP.COM

SPECIFICATIONS

CONSTRUCTION

Model Series PD10X-XXX-XXX
PE10X-XXX-XXX
PZ10X-XXX-XXX
Pump Type..... Metallic, Air Operated, Double Diaphragm
Ratio 1:1
Material Inlet / Outlet
PX10X-AXX-XXX (female)..... 1 - 11-1/2 NPTF - 2
PX10X-BXX-XXX (female)..... Rp 1 (1 - 11 BSP Parallel)
PX10X-FXX-XXX..... 1" ANSI / DIN Flange (Raised Face)
Air Inlet (female) ..... 1/4 - 18 NPT
Air Exhaust (female)..... 3/4 - 14 NPT
Weight
PX10R-XAX-XXX..... 20.65 lbs (9.37 kgs)
PX10R-XCX-XXX..... 35.2 lbs (16.0 kgs)
PX10R-XHX-XXX..... 39.6 lbs (18.0 kgs)
PX10R-ASX-XXX..... 38.2 lbs (17.3 kgs)
PX10R-BSX-XXX..... 38.2 lbs (17.3 kgs)
PX10R-FHX-XXX..... 45.4 lbs (20.6 kgs)
PX10R-FSX-XXX ..... 43.9 lbs (19.9 kgs)
Add 4.65 lbs (2.11 kg) for Aluminum air motor section
Add 11.09 lbs (5.03 kg) for Stainless Steel air motor section
Air Section Service Kit 637397
Major Air Valve Assembly
PX10A-XXX-XXX 637395-3
PX10R-XXX-XXX..... 637395-1
PX10S-XXX-XXX..... 637395-5
PE10A-XXX-XXX..... 637395-4
PE10R-XXX-XXX..... 637395-2
PE10S-XXX-XXX..... 637395-6
Fluid Section Service Kit..... 637401-XX

PX10X-XXX-X[X][X]
637401 - [X][X]
Diaphragm Material
Ball Material
EXAMPLE: Model #PD10A-ASP-AAA
Fluid Section Service Kit is 637401-AA

PERFORMANCE

Maximum Air Inlet Pressure ..... 120 psig (8.3 bar)
Maximum Material Inlet Pressure... 10 psig (0.69 bar)
Maximum Outlet Pressure..... 120 psig (8.3 bar)
Maximum Flow Rate (flooded inlet) ..... 52.2 gpm (197.6 lpm)
Displacement / Cycle @ 100 psig.... 0.232 gal. (0.88 lit.)
Maximum Particle Size ..... 1/8" dia. (3.3 mm)
Maximum Temperature Limits (diaphragm / ball / seat material)
E.P.R. / EPDM..... -60° to 280° F (-51° to 138° C)
Hytrel® ..... -20° to 180° F (-29° to 82° C)
Nitrile ..... 10° to 180° F (-12° to 82° C)
Polypropylene..... 32° to 175° F (0° to 79° C)
Santoprene® ..... -40° to 225° F (-40° to 107° C)
PTFE ..... 40° to 225° F (4° to 107° C)
Viton®..... -40° to 350° F (-40° to 177° C)
Noise Level @ 70 psig - 60 cpm..... 80.6 dB(A)①

① The pump sound pressure level has been updated to an Equivalent Continuous Sound Level (LA_{eq}) tomeet the intent of ANSI S1. 13-1971, CAGI-PNEUROP S5.1 using four microphone locations.

SERVICE KITS

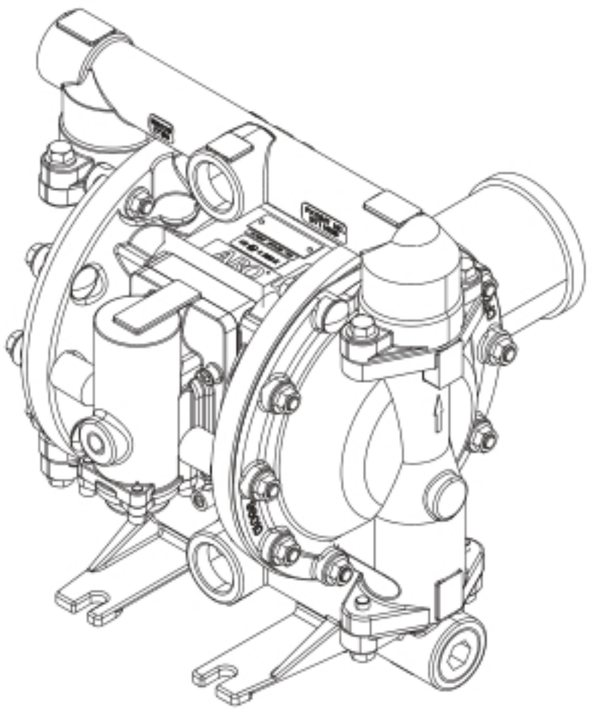
Refer to Model Description Chart to match the pump material options.
637397 for air section repair (see page 7).
637401-XXX for fluid section repair **with** seats (see page 5).
637401-XX for fluid section repair **without** seats (see page 5).
NOTE: This kit also contains several air motor seals which will need to be replaced.
637395-X major air valve assembly (see page 8).

PUMP DATA

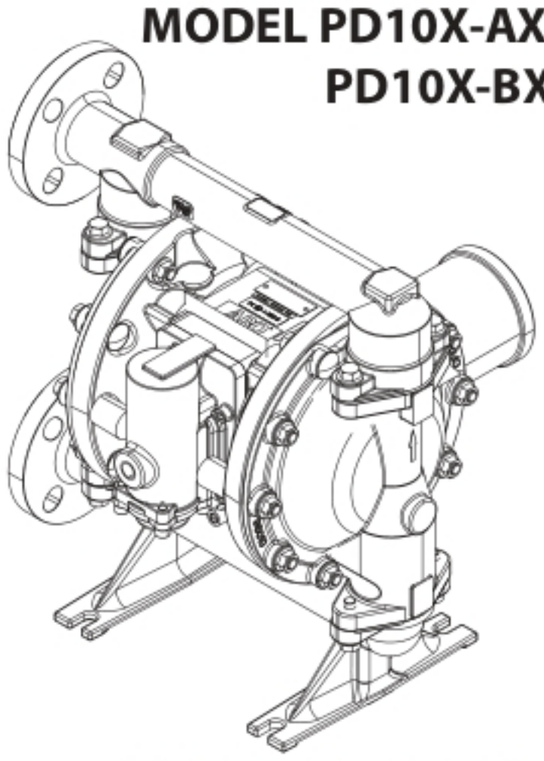
Models..... see Model Description Chart for "-XXX".
Pump Type.. Air Operated Double Diaphragm
Material .... see Model Description Chart.
Weight
PX10R-XAX-XXX-AXXX ..... 20.65 lbs (9.37 kgs)
PX10R-XCX-XXX-AXXX..... 35.2 lbs (16.0 kgs)
PX10R-XHX-XXX-AXXX ..... 39.6 lbs (18.0 kgs)
PX10R-ASX-XXX-AXXX..... 38.2 lbs (17.3 kgs)
PX10R-BSX-XXX-AXXX..... 38.2 lbs (17.3 kgs)
PX10R-FHX-XXX-AXXX ..... 45.4 lbs (20.6 kgs)
PX10R-FSX-XXX-AXXX..... 43.9 lbs (19.9 kgs)
Add 4.65 lbs (2.11 kg) for Aluminum air motor section.
Add 11.09 lbs (5.03 kg) for Stainless Steel air motor section.
Maximum Air Inlet Pressure ..... 120 psig (8.3 bar)
Maximum Material
Inlet Pressure ..... 10 psig (0.69 bar)
Maximum Outlet Pressure ..... 120 psig (8.3 bar)
Maximum Flow Rate (flooded inlet) ..... 52.2 gpm (197.6 lpm)
Displacement / Cycle @ 100 psig... 0.232 gal. (0.88 lit.)
Maximum Particle Size ..... 1/8" dia. (3.3 mm)
Maximum Temperature Limits
(Diaphragm / Ball / Seat material)
E.P.R. / EPDM..... -60° to 280°F (-51° to 138°C)
Hytrel® ..... -20° to 180°F (-29° to 82°C)
Nitrile ..... 10° to 180°F (-12° to 82°C)
Polypropylene..... 32° to 175°F (0° to 79°C)
Santoprene® ..... -40° to 225°F (-40° to 107°C)
PTFE..... 40° to 225°F (4° to 107°C)
Viton®..... -40° to 350°F (-40° to 177°C)
Dimensional Data..... see page 10
Mounting Dimension ..... 4" x 6.25"
(101.6 mm x 158.8 mm)

Noise Level@ 70 psig, 60 cpm ..... 80.6 dB(A)①

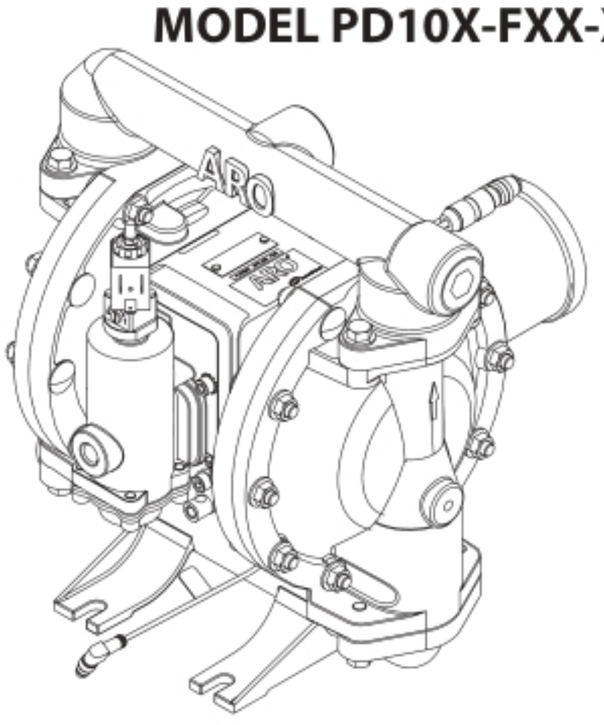
① The pump sound pressure levels published here have been updated to anEquivalent Continuous Sound Level (LA_{eq}) to meet the intent of ANSI S1.13-1971, CAGI-PNEUROP S5.1 using four microphone locations.



MODEL PD10X-AXX-XXX
PD10X-BXX-XXX



MODEL PD10X-FXX-XXX



MODEL PE10X-AXX-XXX
PE10X-BXX-XXX

Figure 1

MODEL DESCRIPTION CHART

Model Code Explanation

Example: PX10 X - X X X - X X X - A X X X

Model Series

PD10- Standard Pump

PE10- Electronic Interface

Center Body Material

A - Aluminum
R - Polypropylene
S - Stainless Steel

Fluid Connection

A - 1 - 11-1/2 NPTF - 2
B - 1 - 11 BSP
F - 1" ANSI / DIN Flange (Raised Face)

Fluid Caps & Manifold Material

A - Aluminum
C - Cast Iron
H - Hastelloy - C
S - Stainless Steel

Hardware Material

P - Plated Steel
S - Stainless Steel

Seat Material

A - Santoprene
C - Hytrel
E - Carbon Steel
F - Aluminum
G - Nitrile
H - Hard 440 Stainless Steel
L - Hastelloy - C
S - 316 Stainless Steel

Ball Material

A - Santoprene
C - Hytrel
G - Nitrile
S - Stainless steel
T - PTFE
V - Viton

Diaphragm Material

A - Santoprene
C - Hytrel
G - Nitrile
L - Long Life PTFE
M - Medical Grade Santoprene
T - PTFE
V - Viton

Revision

A - Revision

Specialty Code 1 (Blank if no Speciality Code)

A - Solenoid 120 VAC,110 VAC AND 60 VDC
B - Solenoid 12 VDC, 24 VAC AND 22 VAC
C - Solenoid 240 VAC, 220 VAC AND 120 VDC
D - Solenoid 24 VDC, 48 VAC AND 44 VAC
E - Solenoid 12 VDC NEC / CEC
F - Solenoid 24 VDC NEC / CEC
G - Solenoid 12 VDC ATEX / IECEx
H - Solenoid 24 VDC ATEX / IECEx
J - Solenoid 120 VAC NEC / CEC
K - Solenoid 220 VAC ATEX / IECEx
N - Solenoid with no Coil
P - Ported Motor (No Major Valve)
0 - Standard Valve Block (No Solenoid)
S - Cycle Sensing on Major Valve

Specialty Code 2 (Blank if no Speciality Code)

E - End of Stroke feedback + Leak Detection
F - End of Stroke feedback
G - End of Stroke ATEX / IECEx / NEC / CEC
H - End of Stroke + Leak Detection ATEX / IECEx / NEC / CEC
L - Leak Detection
M - Leak Detection ATEX / IECEx / NEC / CEC
R - End of Stroke NEC
T - End of Stroke NEC / Leak Detection NEC
U - Leak Detection CCC
0 - No Option

Special Testing

⚠ WARNING	=	**Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.**
⚠ CAUTION	=	**Hazards or unsafe practices which could result in minor personal injury, product or property damage.**
NOTICE	=	**Important installation, operation or maintenance information.**

GENERAL DESCRIPTION

The FTA diaphragm pump offers high volume delivery even at low air pressure and a broad range of material compatibility options available. Refer to the model and option chart. FTA pumps feature stall resistant design, modular air motor / fluid sections. Air operated double diaphragm pumps utilize a pressure differential in the air chambers to alternately create suction and positive fluid pressure in the fluid chambers, valve checks ensure a positive flow of fluid. Pump cycling will begin as air pressure is applied and it will continue to pump and keep up with the demand. It will build and maintain line pressure and will stop cycling once maximum line pressure is reached (dispensing device closed) and will resume pumping as needed.

AIR AND LUBE REQUIREMENTS

⚠ **WARNING** **EXCESSIVE AIR PRESSURE. Can cause personal injury, pump damage or property damage.**

- A filter capable of filtering out particles larger than 50 microns should be used on the air supply. There is no lubrication required other than the "O" ring lubricant which is applied during assembly or repair.
- If lubricated air is present, make sure that it is compatible with the "O" rings and seals in the air motor section of the pump.

OPERATING INSTRUCTIONS

- Always flush the pump with a solvent compatible with the material being pumped if the material being pumped is subject to "setting up" when not in use for a period of time.
- Disconnect the air supply from the pump if it is to be inactive for a few hours.
- The outlet material volume is governed not only by the air supply, but also by the material supply available at the inlet. The material supply tubing should not be too small or restrictive. Be sure not to use hose which might co lapse.
- When the diaphragm pump is used in a forced-feed (flooded inlet) situation, it is recommended that a "Check Valve" be installed at the air inlet.
- Secure the diaphragm pump legs to a suitable surface to ensure against damage by vibration.

MAINTENANCE

Refer to the part views and descriptions as provided on pages 5 through 9 for parts identification and service kit information.

- Certain FTA "Smart Parts" are indicated which should be available for fast repair and reduction of down time.
- Service kits are divided to service two separate diaphragm pump functions: 1. AIR SECTION, 2. FLUID SECTION. The FLUID SECTION is divided further to match typical part MATERIAL OPTIONS.
- Provide a clean work surface to protect sensitive internal moving parts from contamination from dirt and foreign matter during service disassembly and reassembly.
- Keep good records of service activity and include pump in preventive maintenance program.
- Before disassembling, empty captured material in the outlet manifold by turning the pump upside down to drain material from the pump.

FLUID SECTION DISASSEMBLY

1. Remove manifolds (16), (17) and (18).
2. Remove (22) balls, (19) "O" rings and (21) seats.
3. Remove (15) fluid caps.

NOTE: Only PTFE diaphragm models use a primary diaphragm (7) and a backup diaphragm (8). Refer to the auxiliary view in the Fluid Section Illustration.

For 6661XX-XX6-C:

4. Remove (7) diaphragm, (5) washers and (30) shims.

For other models:

4. Remove the (14) screws, (6) washers, (7) or (7 / 8) diaphragms and (5) washers.
5. Remove (3) "O" rings.

FLUID SECTION REASSEMBLY

- Reassemble in reverse order.
- Clean and inspect all parts. Replace worn or damaged parts with new parts as required.
- Lubricate (1) diaphragm rod and (2) "O" ring with Lubriplate® FML-2.
- Install (2) "O" ring on (1) diaphragm rod.

For 6661XX-XX6-C:

- Attach a regulated airline to the pump inlet; gradually increasing the air pressure (6-8 psi) to check which side of the pump with air blowing out, and then shut down the air supplier.
- Fasten (7) diaphragm with (5) washer into (1) diaphragm rod, and insert them into (101) Center body from the chamber identified with blowing air in the previous step.
- Install (15) fluid cap.
- Thread the other side of (7) diaphragm with (5) washer into (1) diaphragm rod, but do not tighten it.
- Record the angle for the misalignment between (7) diaphragm hole and (101) center body holes, then unthread the (7) diaphragm and place proper Qty. of (30) shims between (5) washer and (1) diaphragm rod.
- Attach a regulated airline to the pump inlet, gradually increasing the air pressure (6-8 psi) until the diaphragm shift to the other site, shut down the air supply.
- Install the second (15) fluid cap.

NOTE: For details, refer to service kits manual 48495949.

For other models:

- Be certain (7) or (7 / 8) diaphragm(s) align properly with (15) fluid caps before making final torque adjustments on bolt and nuts to avoid twisting the diaphragm.
- For models with PTFE diaphragms: Item (8) Santoprene diaphragm is installed with the side marked "AIR SIDE" towards the pump center body. Install the PTFE diaphragm with the side marked "FLUID SIDE" towards the fluid cap.
- Re-check torque settings after pump has been re-started and run a while.

PARTS LIST / PX10X-XXX-XXX-AXXX FLUID SECTION

EXTERNAL HARDWARE OPTIONS PX10X-XXX-XXX-AXXX

Item	Description (size)	Qty	PX10X-XXP		PX10X-XXS	
			Part No.	Mtl	Part No.	Mtl
26	Screw (M8 x 1.25 - 6g x 30 mm)	(8)	95880-1	[C]	95880	[SS]
27	Bolt (M8 x 1.25 - 6g x 40 mm)	(20)	95896-1	[C]	95896	[SS]
29	Hex Flange Nut (M8 x 1.25 - 6h)	(20)	95879-1	[C]	95879	[SS]

✓ Air Section Service Kit Parts, see page 7.

COMMON PARTS

Item	Description (size)	Qty	Part No.	Mtl
1	Connecting Rod	(1)	97146	[C]
★✓ 70	Gasket	(2)	95843	[B]
★✓ 144	"U" Cup (3/16" x 1-1/8" OD)	(2)	Y186-49	[B]
★✓ 175	"O" Ring (3/32" x 13/16" OD)	(2)	Y325-114	[B]

SEAT OPTIONS PX10X-XXX-XXX-AXXX

★"21"

-XXX	Seat	Qty	Mtl	-XXX	Seat	Qty	[Mtl]
-AXX	96152-A	(4)	[Sp]	-GXX	96152-G	(4)	[B]
-CXX	96152-C	(4)	[H]	-HXX	94706	(4)	[SH]
-EXX	96158	(4)	[C]	-LXX	95836	(4)	[Ha]
-FXX	96156	(4)	[A]	-SXX	96151	(4)	[SS]

BALL OPTIONS PX10X-XXX-XXX-AXXX

★ "22" (1-1/4" dia.)

-XXX	Ball	Qty	Mtl	-XXX	Ball	Qty	Mtl
-XAX	93278-A	(4)	[Sp]	-XSX	92408	(4)	[SS]
-XCX	93278-C	(4)	[H]	-XTX	93278-4	(4)	[T]
-XGX	93278-2	(4)	[B]	-XVX	93278-3	(4)	[V]

DIAPHRAGM OPTIONS PX10X-XXX-XXX-AXXX

-XXX	★ Service Kit With Seat	★ Service Kit Without Seat	★ "7"			★ "8"			★ "19"			★ "33"		
	-XXX = (Seat) -XXX = (Ball) -XXX = (Diaphragm)	-XX = (Ball) -XX = (Diaphragm)	Diaphragm	Qty	Mtl	Diaphragm	Qty	Mtl	"O" Ring	Qty	Mtl	"O" Ring	Qty	Mtl
-XXA	637401-XXA	637401-XA	96267-A	(2)	[Sp]	-----	---	---	93280	(4)	[E]	93279	(4)	[E]
-XXC	637401-XXC	637401-XC	96267-C	(2)	[H]	-----	---	---	Y327-225	(4)	[V]	Y327-220	(4)	[V]
-XXG	637401-XXG	637401-XG	96328-2	(2)	[B]	-----	---	---	Y325-225	(4)	[B]	Y325-220	(4)	[B]
-XXL	637401-XXL	637401-XL	96146-L	(2)	[L]	96145-A	(2)	[SP]	93282	(4)	[T]	93281	(4)	[T]
-XXM	637401-XXM	637401-XM	96267-M	(2)	[MSP]				93282	(4)	[T]	93281	(4)	[T]
-XXT	637401-XXT	637401-XT	96146-T	(2)	[T]	96145-A	(2)	[SP]	93282	(4)	[T]	93281	(4)	[T]
-XXV	637401-XXV	637401-XV	95989-3	(2)	[V]	-----	---	---	Y327-225	(4)	[V]	Y327-220	(4)	[V]

NOTE: Gasket items 19 and 33 are not required with seat option AXX, -CXX and -GXX.

CENTER SECTION OPTIONS PX10X-XXX-XXX-AXXX

Item	Description (size)	Qty	Aluminum PX10A-XXX-XXX-AXXX		Polypropylene PX10R-XXX-XXX-AXXX		Stainless Steel PX10S-XXX-XXX-AXXX	
			Part No.	Mtl	Part No.	Mtl	Part No.	Mtl
28	Washer (8.5 mm ID)	(4)	-----	---	96217	[SS]	-----	---
43	Ground Lug	(1)	93004	[Co]	-----	---	93004	[Co]
68	Air Cap	(1)	95994-4	[A]	96104-3	[P]	96007-3	[SS]
69	Air Cap	(1)	95994-3	[A]	96104-4	[P]	96007-4	[SS]
74	Pipe Plug (1/4 - 18 NPT x 7/16")	(2)	Y17-51-S	[SS]	93832-3	[K]	Y17-51-S	[SS]
131	Screw (M8 x 1.25 - 6g x 95 mm)	(4)	96001	[C]	-----	---	96655	[SS]
	(M8 x 1.25 - 6g x 100 mm)	(4)	-----	---	96216	[SS]	-----	---
✓ 180	Washer	(4)	96006	[Co]	-----	---	96006	[Co]
★✓	"O" Ring (2.5 mm x 12 mm OD)	(8)	-----	---	96292	[B]	-----	---
195	Nut (M8 x 1.25 - 6h)	(4)	96005	[SS]	95879	[SS]	96005	[SS]

MATERIAL CODE

[A]	=	Aluminum
[B]	=	Nitrile
[C]	=	Carbon Steel
[CI]	=	Cast Iron
[Co]	=	Copper
[E]	=	E.P.R.
[H]	=	Hytrel
[Ha]	=	Hastelloy-C
[K]	=	PVDF
[L]	=	Long Life PTFE
[MSP]	=	Medical Grade Santoprene
[P]	=	Polypropylene
[SH]	=	Hard Stainless Steel
[SP]	=	Santoprene
[SS]	=	Stainless Steel
[T]	=	PTFE
[V]	=	Viton

MANIFOLD / FLUID CAP MATERIAL OPTIONS PX10X-XXX-XXX-AXXX

Item	Description (size)	Qty	Aluminum PX10X-XAX-XXX		Cast Iron PX10X-XCX-XXX		Hastelloy-C PX10X-XHX-XXX		Hastelloy-C PX10X-FHX-XXX		Stainless Steel PX10X-ASX-XXX PX10X-BSX-XXX		Stainless Steel PX10X-FSX-XXX	
			Part No.	[Mtl]	Part No.	[Mtl]	Part No.	[Mtl]	Part No.	[Mtl]	Part No.	[Mtl]	Part No.	[Mtl]
5	Backup Washer	(2)	95990-3	[C]	95990-3	[C]	95990-1	[SS]	95990-1	[SS]	95990-1	[SS]	95990-1	[SS]
6	Diaphragm Washer	(2)	95990-3	[C]	95990-3	[C]	95990-2	[Ha]	95990-2	[Ha]	95990-1	[SS]	95990-1	[SS]
9	Washer (0.505" ID)	(2)	93189-1	[SS]	93189-1	[SS]	96161	[Ha]	96161	[Ha]	93189-1	[SS]	93189-1	[SS]
14	Screw (M12 x 1.75 - 6g x 25 mm)	(2)	95997	[SS]	95997	[SS]	96159	[Ha]	96159	[Ha]	95997	[SS]	95997	[SS]
15	Fluid Cap	(2)	95935	[A]	95831	[CI]	96148	[Ha]	96148	[Ha]	96010	[SS]	96010	[SS]
60	Inlet Manifold	(1)	95936-[◆]	[A]	95829-[◆]	[CI]	96150-[◆]	[Ha]	98284	[Ha]	96008-[◆]	[SS]	98242	[SS]
61	Outlet Manifold	(1)	95960-[◆]	[A]	95830-[◆]	[CI]	96149-[◆]	[Ha]	98285	[Ha]	96009-[◆]	[SS]	98243	[SS]

MANIFOLD / FLUID CAP MATERIAL OPTIONS PX10X-XXX-XXX-AXXX

Item	Description (size)	Qty	Aluminum PX10X-XAX-XXX Part No.	[Mtl]	Cast Iron PX10X-XCX-XXX Part No.	[Mtl]	Hastelloy-C PX10X-XHX-XXX Part No.	[Mtl]	Hastelloy-C PX10X-FHX-XXX Part No.	[Mtl]	Stainless Steel PX10X-ASX-XXX PX10X-BSX-XXX Part No.	[Mtl]	Stainless Steel PX10X-FSX-XXX Part No.	[Mtl]
63	Pipe Plug (1 - 11-1/2 NPT)	(2)	Y17-125	[A]	Y17-55-S	[SS]	-----	---	-----	---	Y17-55-S	[SS]	-----	---
	(R 1, 1 - 11 BSP)	(2)	96160-2	[A]	96160-1	[SS]	-----	---	-----	---	96160-1	[SS]	-----	---

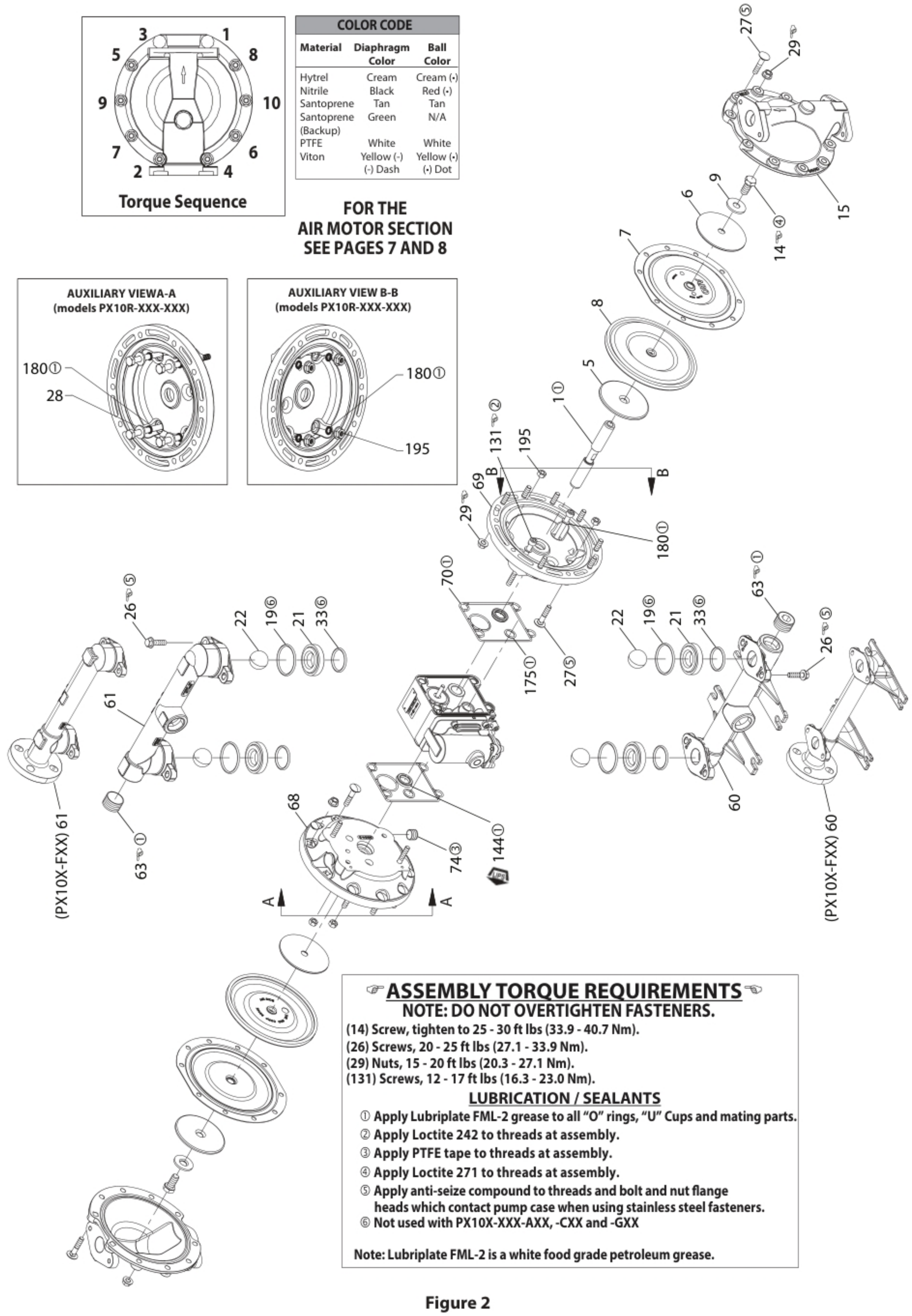
NOTE: ◆ For NPTF thread models (PX10X-AXX-XXX-AXXX), use "-1". ◆ For BSP thread models (PX10X-BXX-XXX-AXXX), use "-2".

PARTS LIST / PX10X-XXX-XXX-AXXX FLUID SECTION

Torque Sequence

COLOR CODE		
Material	**Diaphragm Color**	**Ball Color**
Hytrel	Cream	Cream (•)
Nitrile	Black	Red (•)
Santoprene	Tan	Tan
Santoprene (Backup)	Green	N/A
PTFE	White	White
Viton	Yellow (-) (-) Dash	Yellow (•) (•) Dot

FOR THE AIR MOTOR SECTION SEE PAGES 7 AND 8



☞ ASSEMBLY TORQUE REQUIREMENTS ☜

NOTE: DO NOT OVERTIGHTEN FASTENERS.

(14) Screw, tighten to 25 - 30 ft lbs (33.9 - 40.7 Nm).
(26) Screws, 20 - 25 ft lbs (27.1 - 33.9 Nm).
(29) Nuts, 15 - 20 ft lbs (20.3 - 27.1 Nm).
(131) Screws, 12 - 17 ft lbs (16.3 - 23.0 Nm).

LUBRICATION / SEALANTS

① Apply Lubriplate FML-2 grease to all "O" rings, "U" Cups and mating parts.
② Apply Loctite 242 to threads at assembly.
③ Apply PTFE tape to threads at assembly.
④ Apply Loctite 271 to threads at assembly.
⑤ Apply anti-seize compound to threads and bolt and nut flange heads which contact pump case when using stainless steel fasteners.
⑥ Not used with PX10X-XXX-AXX, -CXX and -GXX

Note: Lubriplate FML-2 is a white food grade petroleum grease.

Figure 2

PARTS LIST / PX10X-XXX-XXX-AXXX AIR SECTION

✓ Indicates parts included in 637397 Air Section Service Kit shown below and items (70), (144), (175) and (180) shown on page 5.

Item	Description (size)	Qty	Part No.	[Mtl]
101	Center Body (PX10A)	(1)	97025	[A]
	(PX10R)	(1)	97026	[P]
	(PX10S)	(1)	97034	[SS]
103	Bushing	(1)	97391	[D]
105	Screw (M6 x 1 - 6g)			
	(PX10A and PX10S) (16 mm long)	(4)	95991	[SS]
	(PX10R) (130 mm long)	(4)	95886	[SS]
107	End Plate (PX10R only)	(2)	95840	[SS]
111	Spool (PX10A and PX10S)	(1)	95835	[D]
	(PX10R)	(1)	96293	[D]
118	Actuator Pin	(2)	95999	[SS]
121	Sleeve	(2)	95123	[D]
126	Plug (PX10A)	(1)	Y17-13-S	[SS]
	(PX10R)		93897-1	[P]
	(PX10S)		Y17-13-S	[SS]
128	Pipe Plug (1/8 - 27 NPT x 0.27") (PX10A and PX10S models only)	(1)	Y17-50-S	[SS]
✓132	Gasket	(1)	96170	[B]
133	Washer (1/4") (PX10A)	(3)	Y117-416-C	[C]
	(M6) (PX10R)	(6)	95931	[SS]
	(1/4") (PX10S)	(3)	Y14-416-T	[SS]
134	Screw (M6 x 1 - 6g x 20 mm)			
	(PX10R-X)	(6)	95887	[SS]
	(PX10A-X and PX10S-X-X)	(4)	95887	[SS]
135	Valve Block (PD10A-X-X)	(1)	95942-3	[Z]
	(PD10R-X-X)	(1)	96174-1	[P]
	(PD10S-X-X)	(1)	95939-3	[SS]

Item	Description (size)	Qty	Part No.	[Mtl]
136	End Cap (PX10A)	(1)	95941	[Z]
	(PX10R)	(1)	95833	[P]
	(PX10S)	(1)	95938	[SS]
✓137	Gasket	(1)	95844	[B]
✓138	"U" Cup (3/16" x 1-5/8" OD)	(1)	Y186-53	[B]
✓139	"U" Cup (3/16" x 1-1/8" OD)	(1)	Y186-49	[B]
140	Valve Insert	(1)	95838	[AO]
141	Valve Plate	(1)	95885	[AO]
✓166	Gasket	(1)	96171	[B]
✓167	Pilot Piston (includes 168 and 169)	(1)	67164	[D]
168	"O" Ring (3/32" x 5/8" OD)	(2)	94433	[U]
169	"U" Cup (1/8" x 7/8" OD)	(1)	Y240-9	[B]
170	Piston Sleeve	(1)	94081	[D]
✓171	"O" Ring (3/32" x 1-1/8" OD)	(1)	Y325-119	[B]
✓172	"O" Ring (1/16" x 1-1/8" OD)	(1)	Y325-22	[B]
✓173	"O" Ring (3/32" x 1-3/8" OD)	(2)	Y325-123	[B]
✓★174	"O" Ring (1/8" x 1/2" OD)	(2)	Y325-202	[B]
✓176	Diaphragm (check valve)	(2)	95845	[U]
181	Roll Pin (5/32" OD x 1/2" long)	(4)	Y178-52-S	[SS]
✓200	Gasket (PX10A and PX10S)	(1)	96172	[B]
	(PX10R)	(1)	95842	[B]
201	Muffler (PX10A and PX10S)	(1)	350-568	
	(PX10R)	(1)	93139	[P]
233	Adapter Plate	(1)	95832	[P]
236	Nut (M6 x 1 - 6g) (PX10R only)	(4)	95924	[SS]
★✓	Lubriplate FML-2 Grease	(1)	94276	
	Lubriplate Grease Packets (10)		637308	

★ Fluid Section Service Kit Parts, see page 5.

AIR MOTOR SECTION SERVICE

Service is divided into two parts – 1. Pilot Valve, 2. Major Valve. GENERAL REASSEMBLY NOTES:

- Air Motor Section Service is continued from Fluid Section repair.
- Inspect and replace old parts with new parts as necessary. Look for deep scratches on surfaces, and nicks or cuts in "O" rings.
- Take precautions to prevent cutting "O" rings upon installation.
- Lubricate "O" rings with Lubriplate FML-2 grease.
- Do not over-tighten fasteners, refer to torque specification block on view.
- Torque fasteners following restart.
- SERVICE TOOLS – To aid in the installation of (168) "O" rings onto the (167) pilot piston, use tool # 204130-T, available from ARO.

PILOT VALVE DISASSEMBLY

1. A light tap on (118) should expose the opposite (121) sleeve, (167) pilot piston and other parts.
2. Remove (170) sleeve, inspect inner bore of sleeve for damage

PILOT VALVE REASSEMBLY

1. Clean and lubricate parts not being replaced from service kit.
2. Install new (171 and 172) "O" rings, replace (170) sleeve.
3. Install new (168) "O" rings and (169) "U" cup. Note the lip direction. Lubricate and replace (167) pilot piston.
4. Reassemble remaining parts, replace (173 and 174) "O" rings.

MAJOR VALVE DISASSEMBLY

1. Remove (135) valve block and (233) adapter plate, exposing (132 and 166) gaskets and (176) check valve.
2. Insert a small flat blade screwdriver into the notch in the side of (135) valve block and push in on tab to remove (233) adapter plate, releasing (140) valve insert, (141) valve plate and (200) gasket.
3. Remove (136) end cap and (137) "O" ring, releasing (111) spool.

MAJOR VALVE REASSEMBLY

1. Install new (138 and 139) "U" cups on (111) spool – **LIPS MUST FACE EACH OTHER.**
2. Insert (111) spool into (135) valve block.
3. Install (137) gasket on (136) end cap and assemble end cap to (135) valve block, securing with (107) end plates(where applicable) and (105) screws.
4. Install (140) valve insert and (141) valve plate into (135) valve block.

NOTE: Assemble (140) valve insert with "dished" side toward (141) valve plate. Assemble (141) valve plate with part number identification toward (140) valve insert.

5. Assemble (200) gasket and (233) adapter plate to (135) valve block. NOTE: Assemble (233) adapter plate with notched side down.
6. Assemble (132 and 166) gaskets and (176) check valve to (101) body.
7. Assemble (135) valve block and components to (101) body, securing with (134) screws. NOTE: Tighten (134) screws to 35 - 40 in. lbs (4.0 - 4.5 Nm).

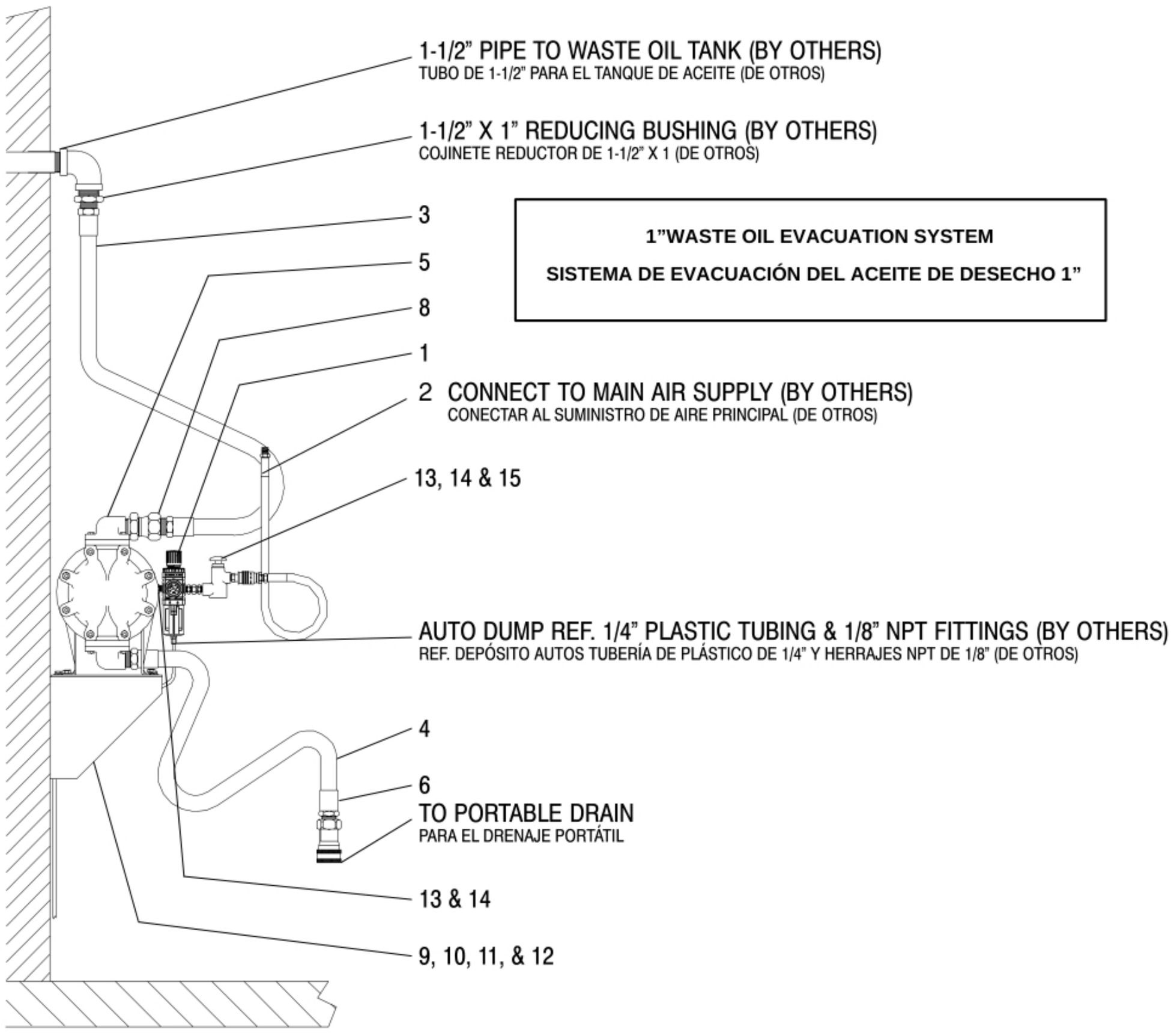
MATERIAL CODE	
[A]	= Aluminum
[AO]	= Alumina Oxide
[B]	= Nitrile

MATERIAL CODE	
[C]	= Carbon Steel
[D]	= Acetal
[P]	= Polypropylene

MATERIAL CODE	
[SS]	= Stainless Steel
[U]	= Polyurethane
[Z]	= Zinc

Recommended Installation Guide

TYPICAL SYSTEM CONFIGURATION
CONFIGURACIÓN TÍPICA DEL SISTEMA



Installation And Start-Up
Locate the pump as close to the product being pumped as possible. Keep the suction line length and number of fittings to a minimum. Do not reduce the suction line diameter.

Air Supply
Connect the pump air inlet to an air supply with sufficient capacity and pressure to achieve desired performance. A pressure regulating valve should be installed to insure air supply pressure does not exceed recommended limits.

Air Valve Lubrication
The air distribution system is designed to operate WITHOUT lubrication. This is the standard mode of operation. If lubrication is desired, install an air line lubricator set to deliver one drop of SAE 10 non-detergent oil for every 20 SCFM (9.4 liters/sec.) of air the pump consumes. Consult the Performance Curve to determine air consumption.

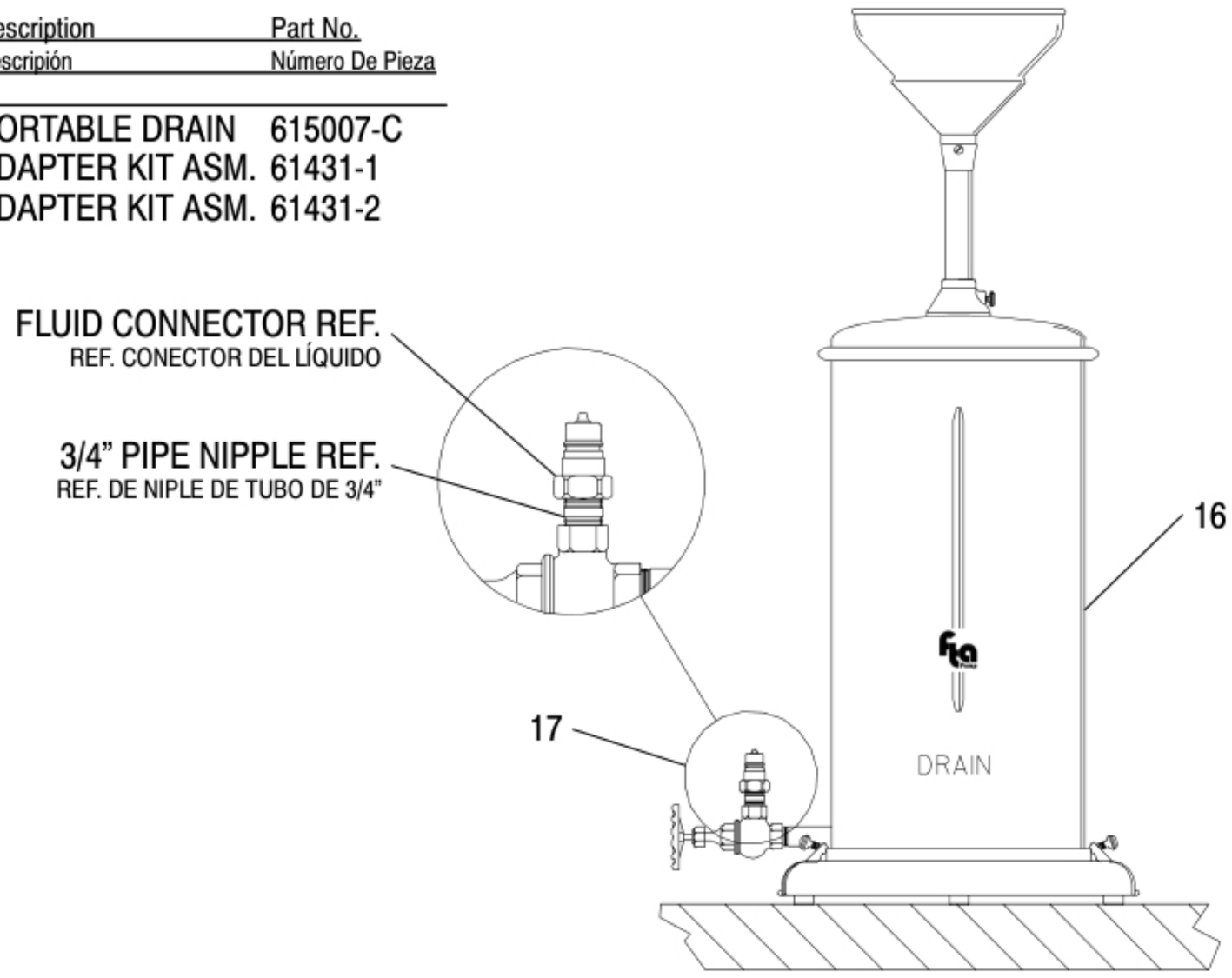
Air Line Moisture
Water in the compressed air supply may cause icing or freezing of the exhaust air, causing the pump to cycle erratically or stop operating. Water in the air supply can be reduced by using a point-of-use air dryer.

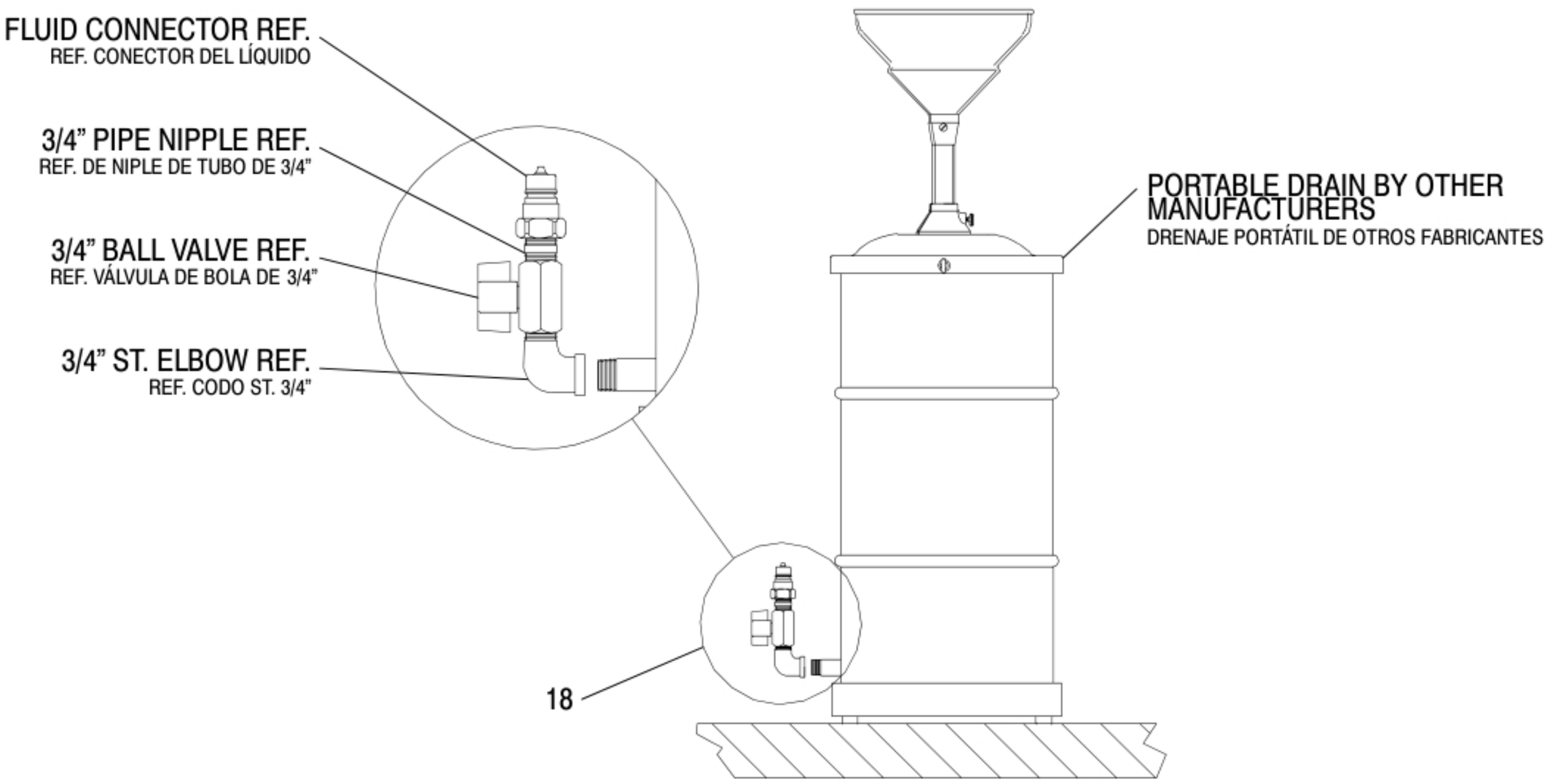
Air Inlet And Priming
To start the pump, slightly open the air shut-off valve. After the pump primes, the air valve can be opened to increase air flow as desired. If opening the valve increases cycling rate, but does not increase the rate of flow, cavitation has occurred. The valve should be closed slightly to obtain the most efficient air flow to pump flow ratio.

OPTIONAL ITEMS AVAILABLE SEPARATELY
USED TO ADAPT PORTABLE DRAINS TO SYSTEM

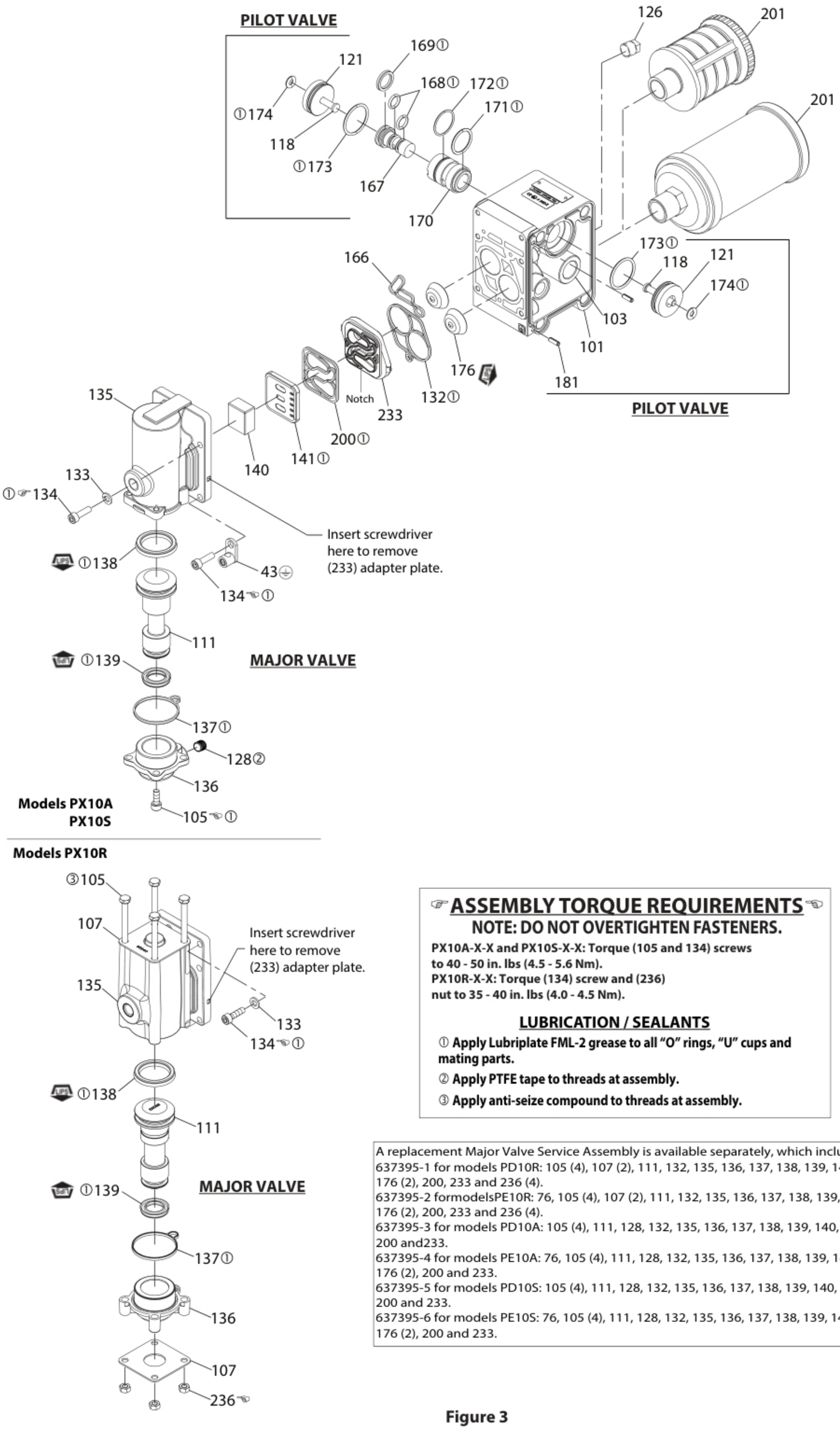
ARTÍCULOS OPTATIVOS QUE SE CONSIGUEN POR SEPARADO
UTILIZADO PARA ADAPTAR LOS DRENAJES PORTÁTILES AL SISTEMA

Item Elemento	Description Descripión	Part No. Número De Pieza
16	PORTABLE DRAIN	615007-C
17	ADAPTER KIT ASM.	61431-1
18	ADAPTER KIT ASM.	61431-2





PARTS LIST / PX10X-XXX-XXX-AXXX AIR SECTION



☞ASSEMBLY TORQUE REQUIREMENTS☜

NOTE: DO NOT OVERTIGHTEN FASTENERS.

PX10A-X-X and PX10S-X-X: Torque (105 and 134) screws to 40 - 50 in. lbs (4.5 - 5.6 Nm).
PX10R-X-X: Torque (134) screw and (236) nut to 35 - 40 in. lbs (4.0 - 4.5 Nm).

LUBRICATION / SEALANTS

① **Apply Lubriplate FML-2 grease to all "O" rings, "U" cups and mating parts.**

② **Apply PTFE tape to threads at assembly.**

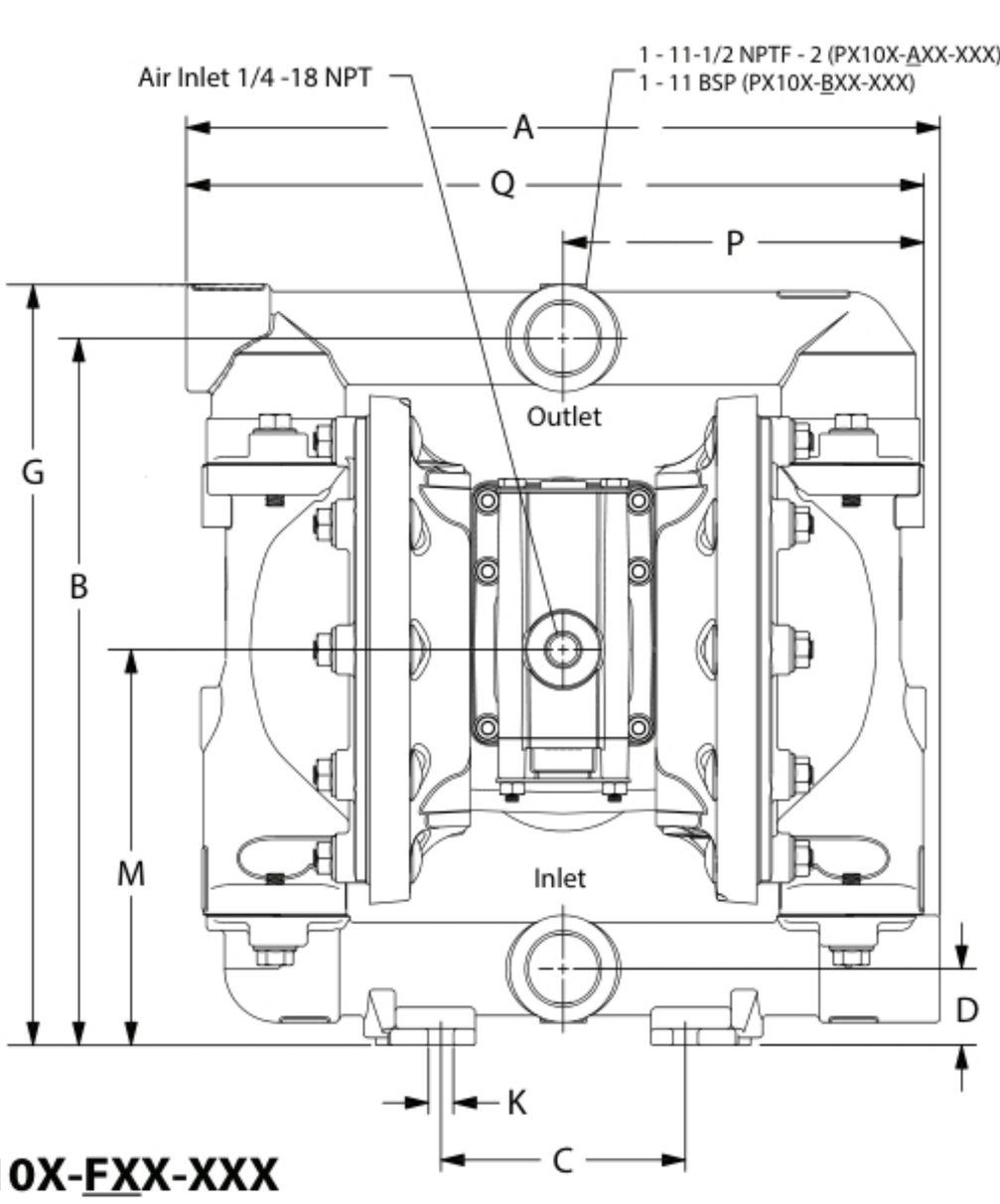
③ **Apply anti-seize compound to threads at assembly.**

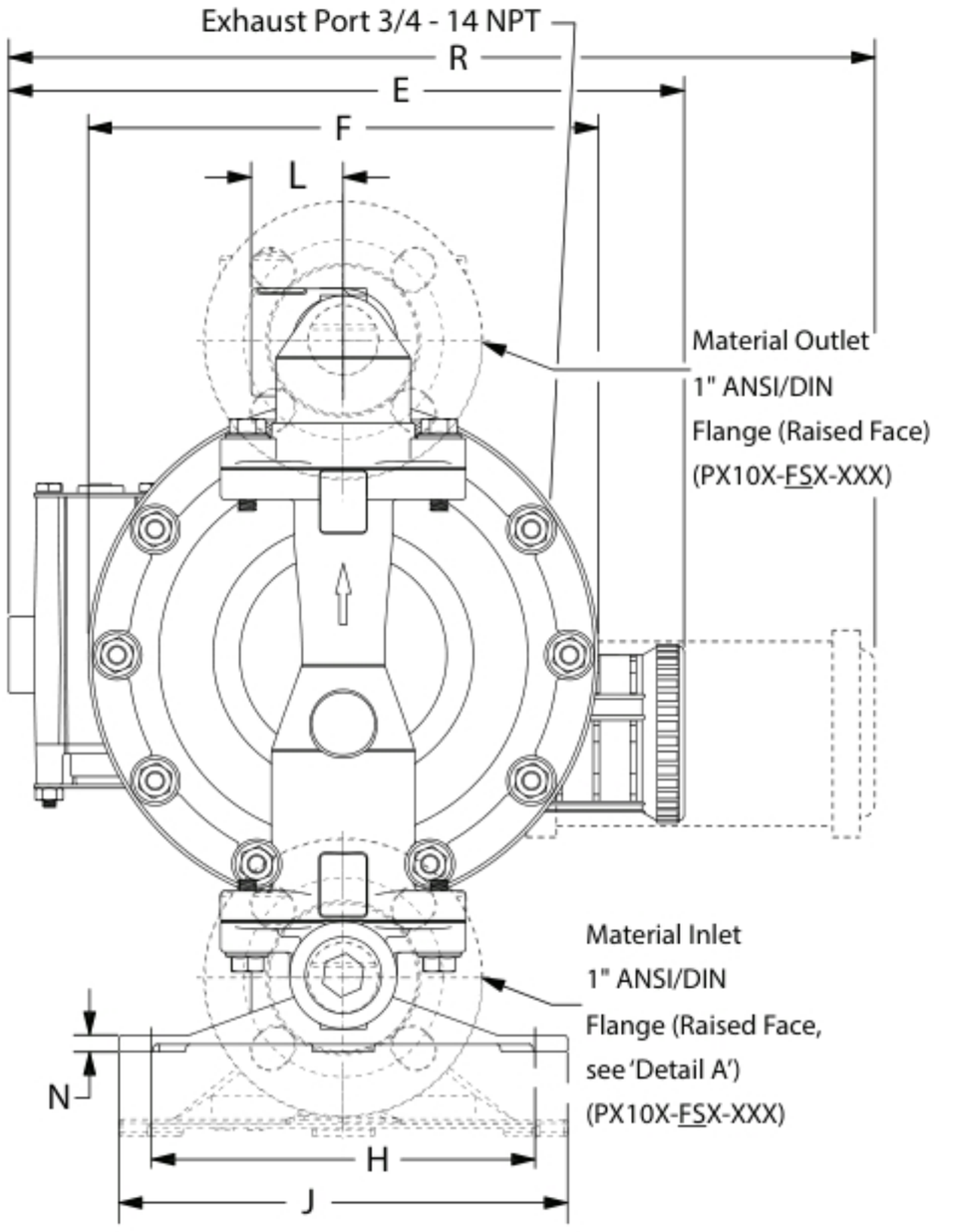
A replacement Major Valve Service Assembly is available separately, which includes the following:
637395-1 for models PD10R: 105 (4), 107 (2), 111, 132, 135, 136, 137, 138, 139, 140, 141, 166, 176 (2), 200, 233 and 236 (4).
637395-2 formodelsPE10R: 76, 105 (4), 107 (2), 111, 132, 135, 136, 137, 138, 139, 140, 141, 166, 176 (2), 200, 233 and 236 (4).
637395-3 for models PD10A: 105 (4), 111, 128, 132, 135, 136, 137, 138, 139, 140, 141, 166, 176(2), 200 and233.
637395-4 for models PE10A: 76, 105 (4), 111, 128, 132, 135, 136, 137, 138, 139, 140, 141, 166, 176 (2), 200 and 233.
637395-5 for models PD10S: 105 (4), 111, 128, 132, 135, 136, 137, 138, 139, 140, 141, 166, 176(2), 200 and 233.
637395-6 for models PE10S: 76, 105 (4), 111, 128, 132, 135, 136, 137, 138, 139, 140, 141, 166, 176 (2), 200 and 233.

Figure 3

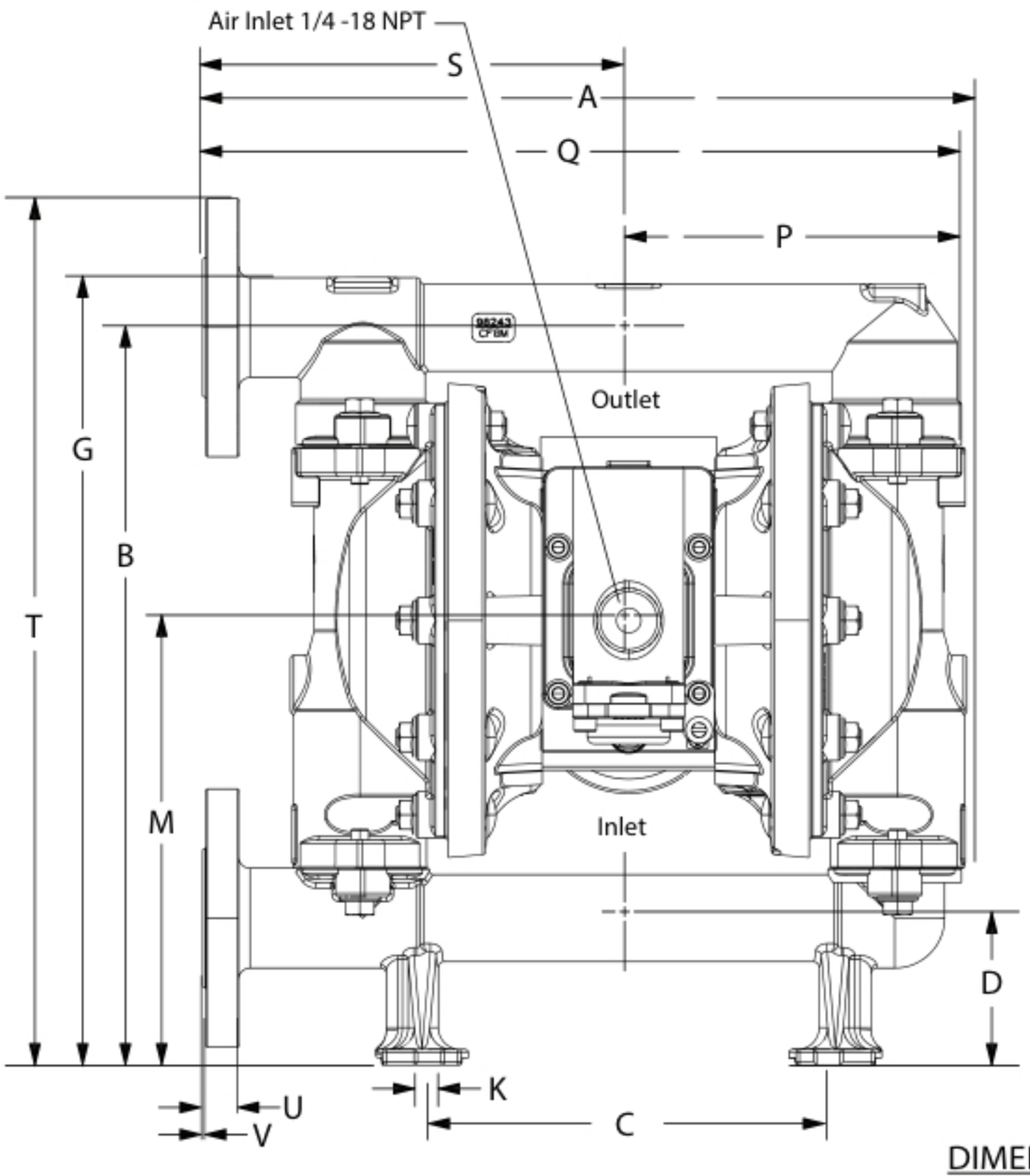
DIMENSIONAL DATA

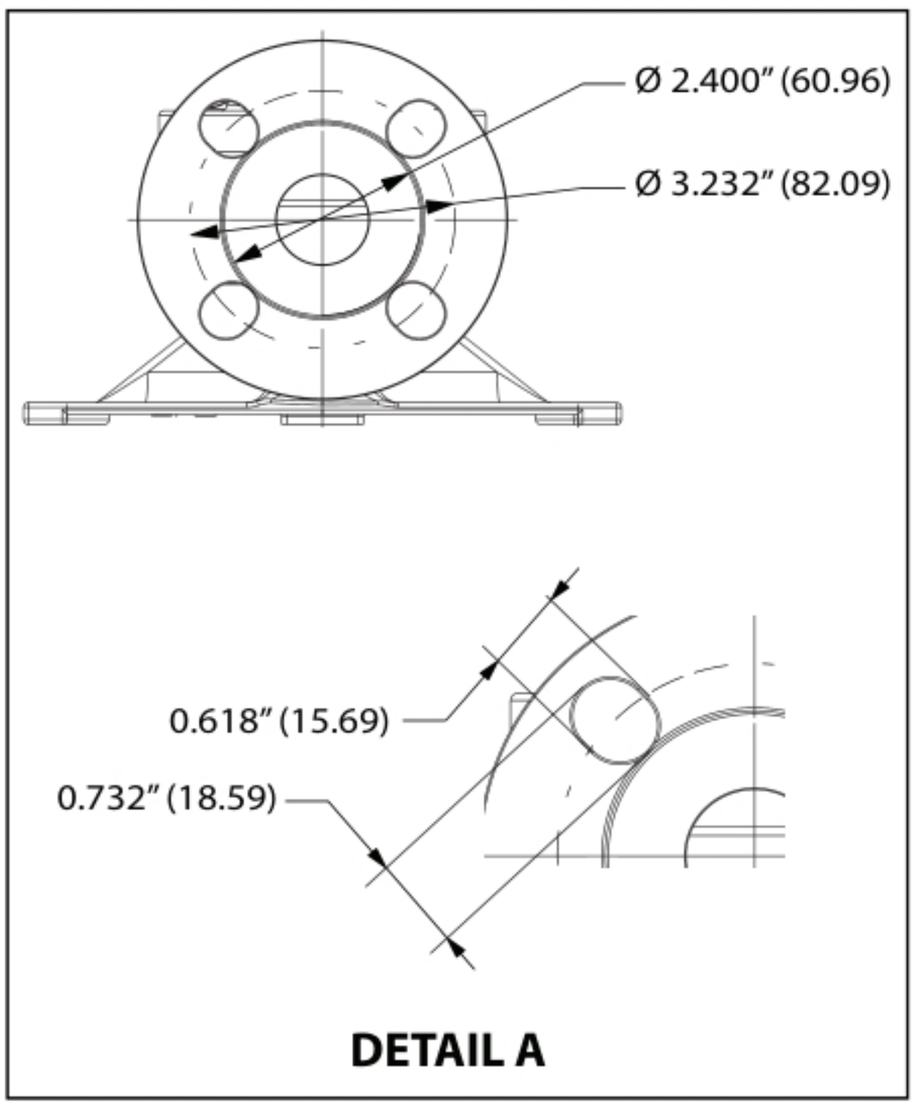
(Dimensions shown are for reference only, they are displayed in inches and millimeters (mm)).





PX10X-FXX-XXX





DIMENSIONS

A - 12.34" (313.4 mm)
B - 11.56" (293.6 mm)
C - 4" (101.6 mm)
D - 1.25" (31.7 mm)

	"E"	"F"	"R"
PX10A-XXX-XXX	------	8.12" (206.2 mm)	14.03" (356.3 mm)
PX10R-XXX-XXX	11.09" (281.6 mm)	8.31" (211.0 mm)	------
PX10S-XXX-XXX	------	8.18" (207.7 mm)	13.84" (351.5 mm)

E - see below
F - see below
G - 12.43" (315.7 mm)
H - 6.25" (158.7 mm)
J - 7.31" (185.6 mm)
K - 0.4" (10.1 mm)
L - 1.5" (38.1 mm)
M - 6.46" (164.0 mm)
N - see below
P - 5.84" (148.3 mm)
Q - 12" (304.8 mm)
R - see below

	"N"
PX10X-XAX-XXX	0.25" (6.3 mm)
PX10X-XCX-XXX	0.28" (7.1 mm)
PX10X-XHX-XXX	0.28" (7.1 mm)
PX10X-XSX-XXX	0.28" (7.1 mm)

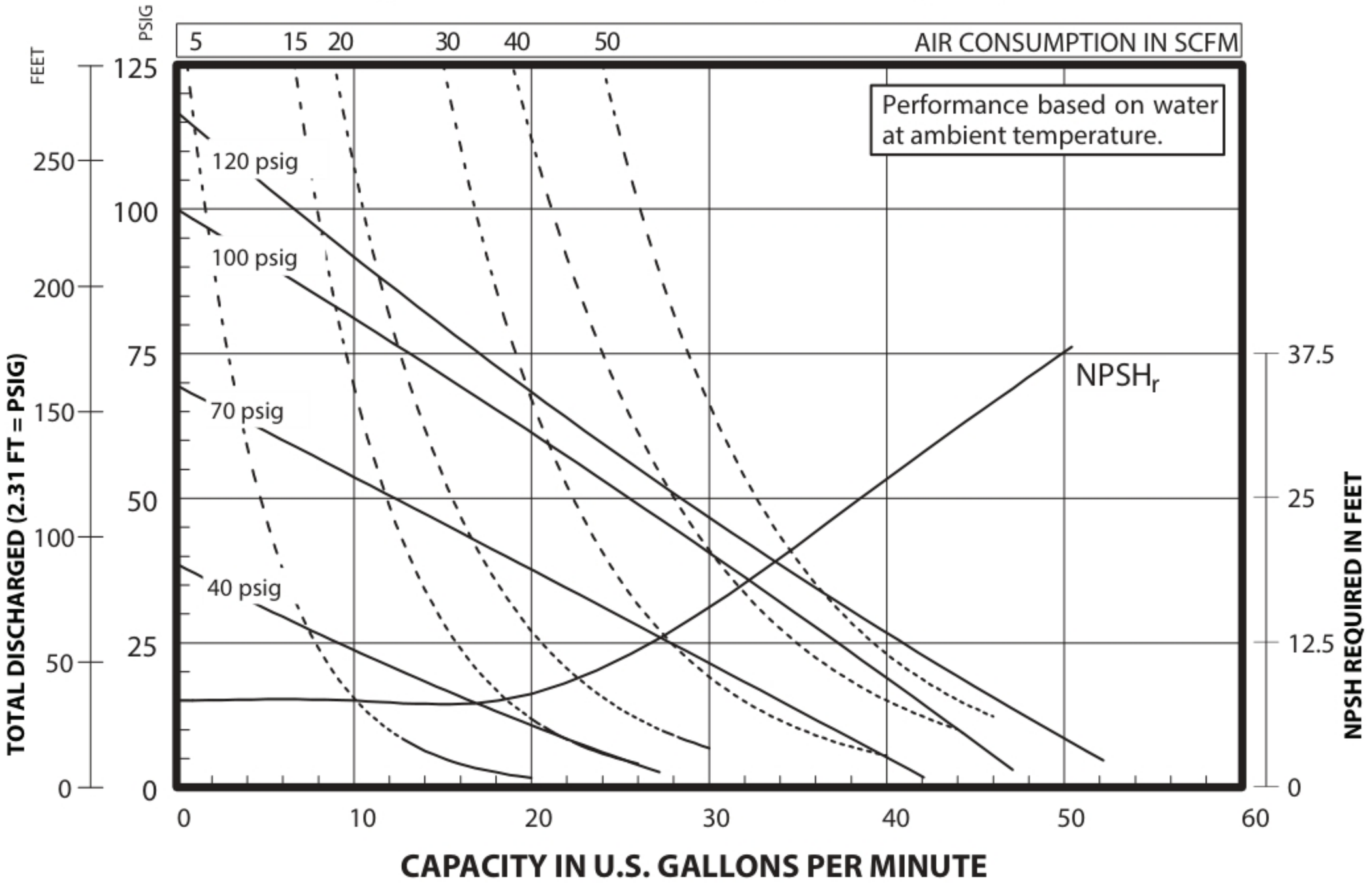
PX10X-FXX-XXX

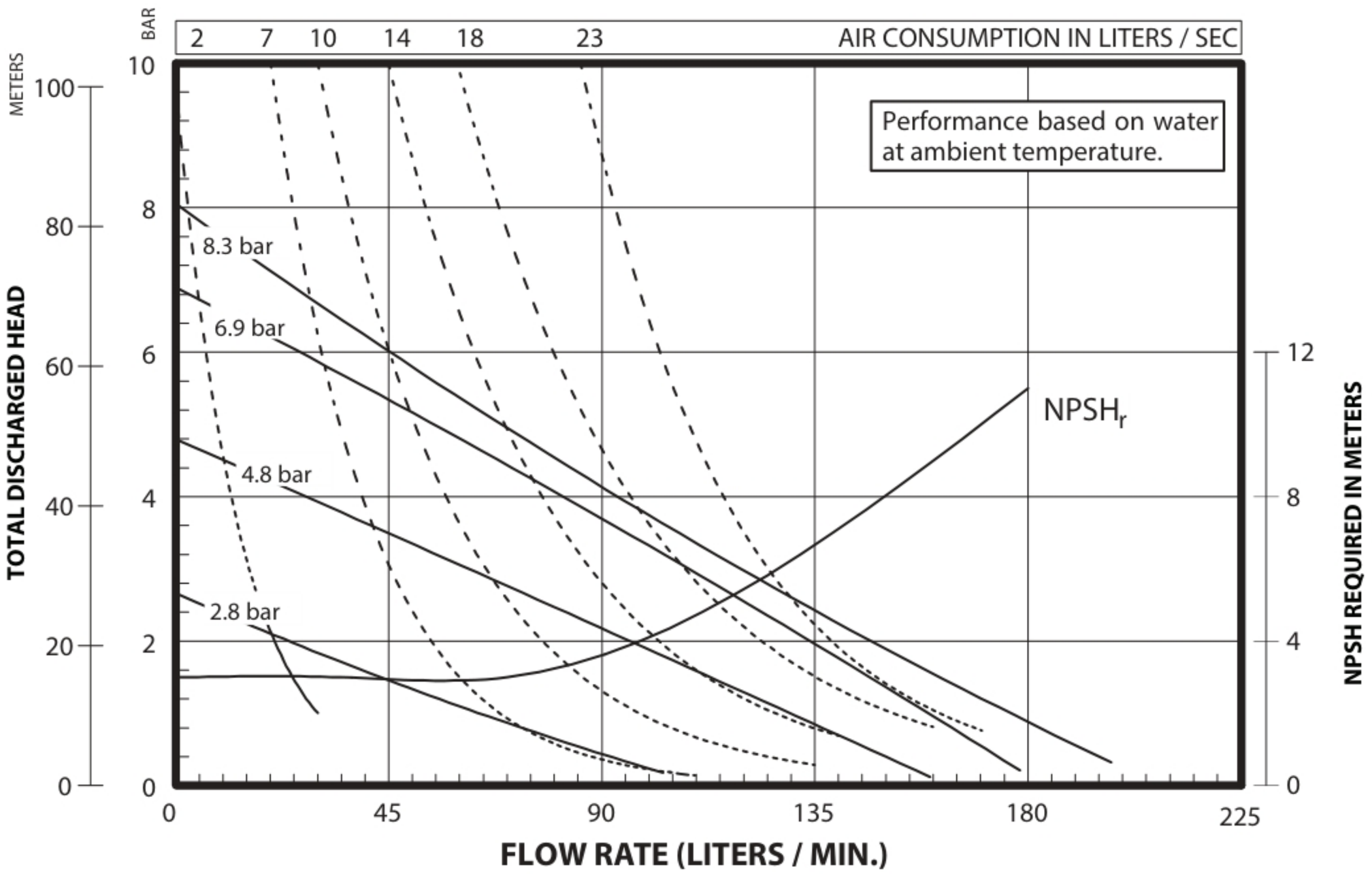
A - 13.37" (339.5 mm)
B - 12.92" (328.1 mm)
C - 7" (177.8 mm)
D - 2.57" (65.2 mm)
G - 13.80" (350.5 mm)
K - 0.4" (10.1 mm)
M - 7.79" (197.8 mm)
N - 9/32" (7.1 mm)
P - 5.83" (148.0 mm)
Q - 13.30" (337.8 mm)
R - 13.83" (351.2 mm)
S - 7.47" (187.9 mm)
T - 15.19" (385.8 mm)
U - 0.63" (16.0 mm)
V - 0.60" (15.2 mm)

Figure 4

PERFORMANCE CURVES

PX10X-XXX-XXX 1" METALLIC DIAPHRAGM PUMP

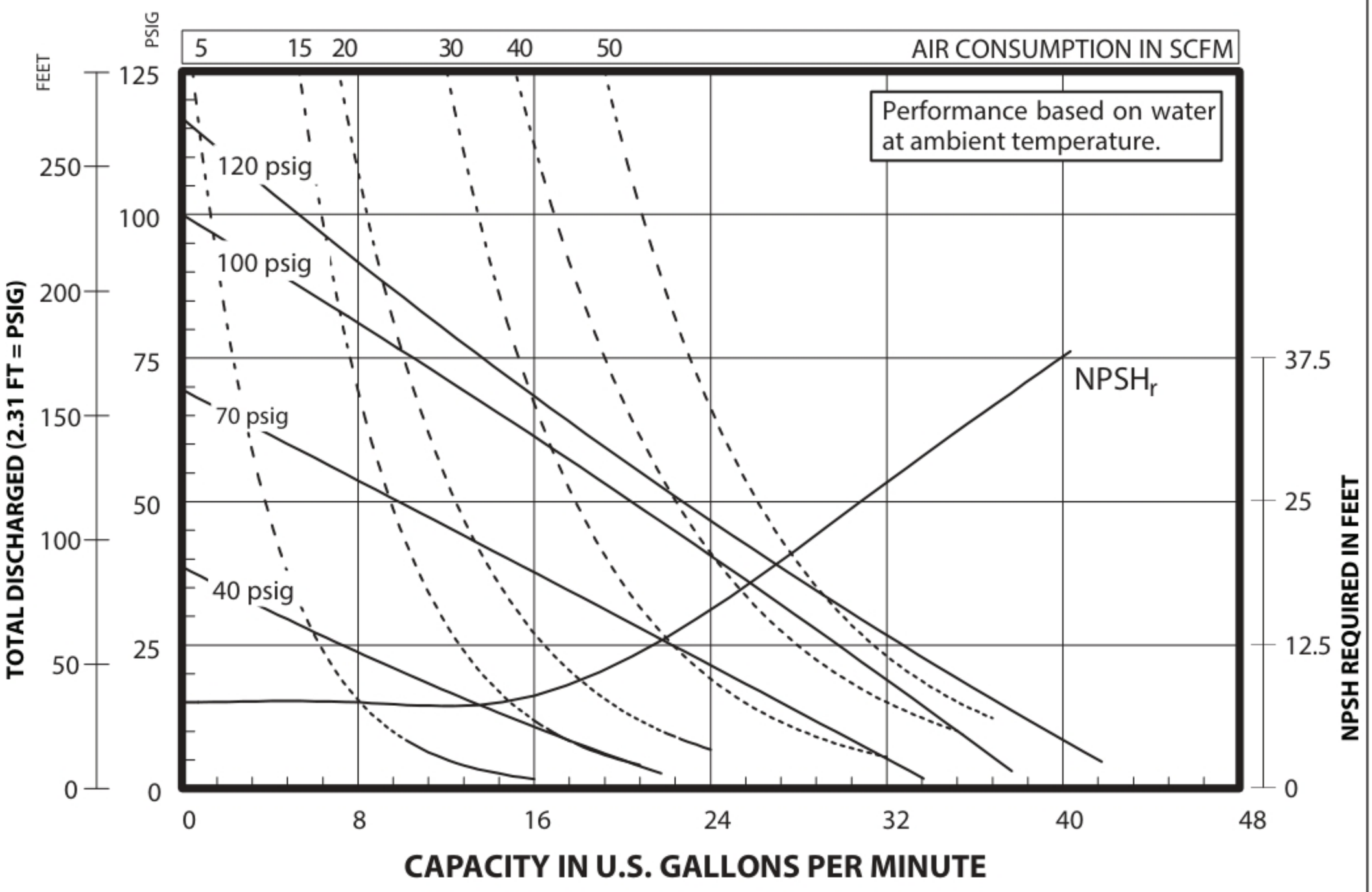


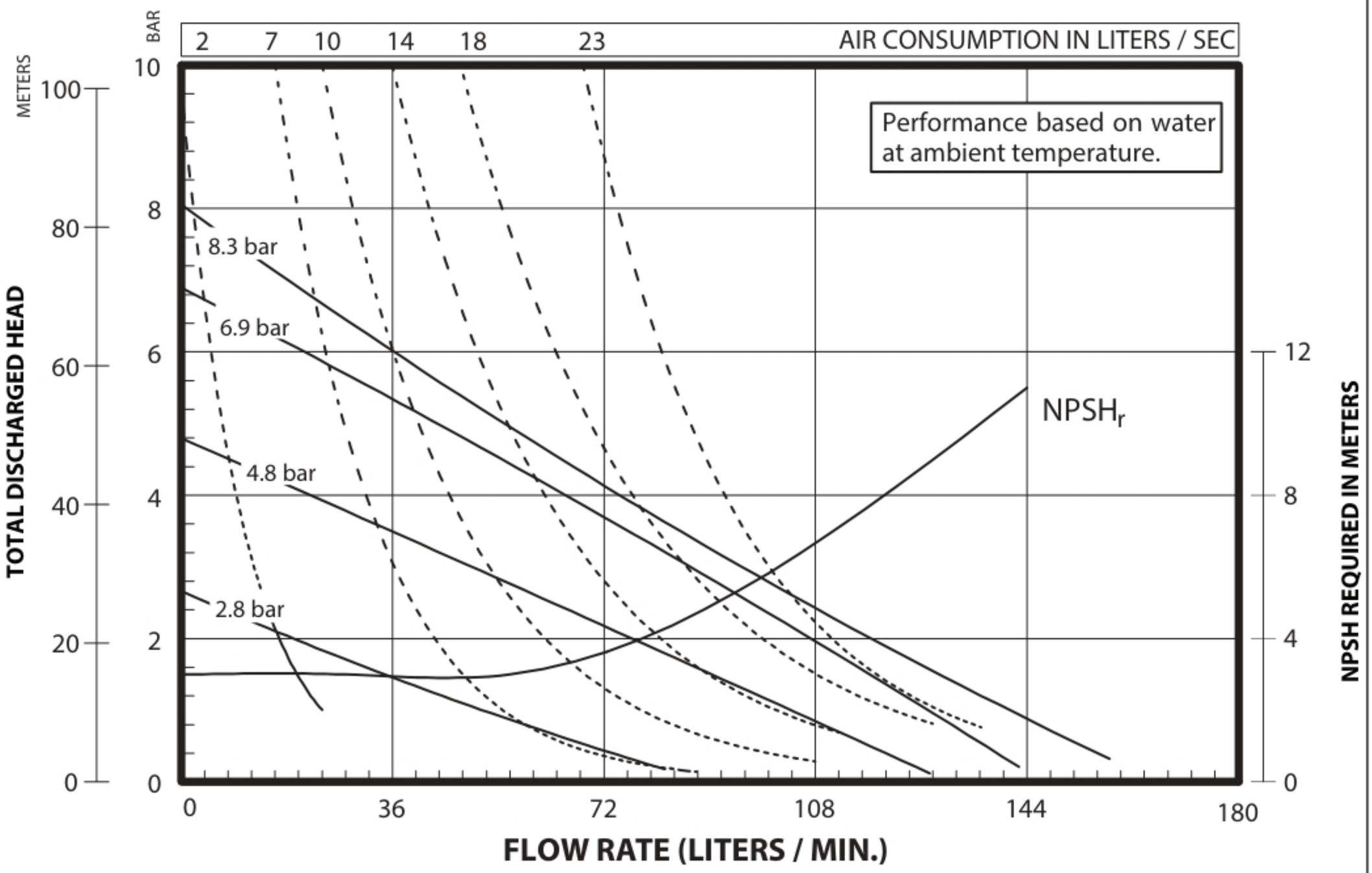


NOTE: Performance tested with 95845 Diaphragm Check Valve.

PERFORMANCE CURVES

PE10X-XXX-XXX-XXEX & PE10X-XXX-XXX-XXFX 1" METALLIC DIAPHRAGM PUMP





NOTE: Performance tested with 95845 Diaphragm Check Valve.