

# Operation Husky™ 2200 Air-Operated



## Diaphragm Pump

3A2578D  
EN

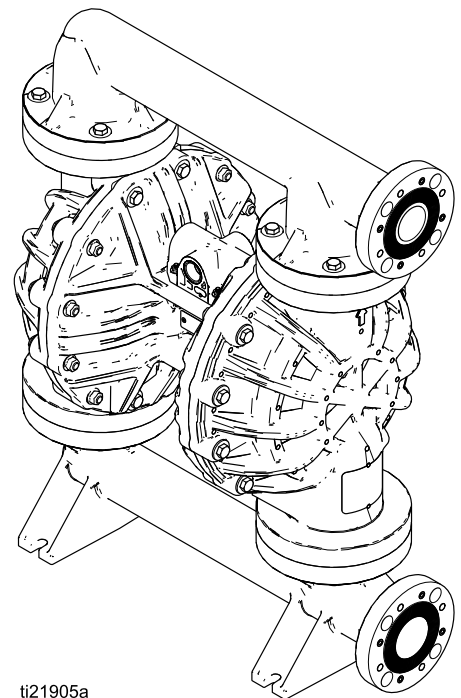
Polypropylene and PVDF pumps for fluid transfer applications, including high viscosity materials. For professional use only.  
Not for use in European explosive atmosphere locations.



### Important Safety Instructions

Read all warnings and instructions in this manual and in your Repair/Parts manual. **Save these instructions.**

*Maximum Working Pressure: 125 psi  
(0.86 MPa, 8.6 bar)*



ti21905a









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# Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

 <h2 style="margin: 0;">WARNING</h2>	
    	<p><b>FIRE AND EXPLOSION HAZARD</b></p> <p>Flammable fumes, such as solvent and paint fumes, in <b>work area</b> can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).</li> <li>• Keep work area free of debris, including solvent, rags and gasoline.</li> <li>• Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.</li> <li>• Ground all equipment in the work area. See <b>Grounding</b> instructions.</li> <li>• Use only grounded hoses.</li> <li>• Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are antistatic or conductive.</li> <li>• <b>Stop operation immediately</b> if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> <li>• Route exhaust away from all ignition sources. If diaphragm ruptures, fluid may be exhausted with air.</li> </ul> <p>Static charge may build up on plastic parts during cleaning and could discharge and ignite flammable vapors. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> <li>• Clean plastic parts only in well ventilated area.</li> <li>• Do not clean with a dry cloth.</li> <li>• Do not operate electrostatic guns in equipment work area.</li> </ul>
 	<p><b>PRESSURIZED EQUIPMENT HAZARD</b></p> <p>Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.</p> <ul style="list-style-type: none"> <li>• Follow the <b>Pressure Relief Procedure</b> when you stop spraying/dispensing and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.</li> </ul>

 <h1 style="margin: 0;">WARNING</h1>	
  <p style="font-size: small; margin: 0;">MPa / bar / PSI</p>	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Data</b> in all equipment manuals.</li> <li>Use fluids and solvents that are compatible with equipment wetted parts. See <b>Technical Data</b> in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.</li> <li>Do not leave the work area while equipment is energized or under pressure.</li> <li>Turn off all equipment and follow the <b>Pressure Relief Procedure</b> when equipment is not in use.</li> <li>Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.</li> <li>Make sure all equipment is rated and approved for the environment in which you are using it.</li> <li>Use equipment only for its intended purpose. Call your distributor for information.</li> <li>Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>Keep children and animals away from work area.</li> <li>Comply with all applicable safety regulations.</li> </ul>
   <p style="font-size: small; margin: 0;">MPa / bar / PSI</p>	<p><b>THERMAL EXPANSION HAZARD</b></p> <p>Fluids subjected to heat in confined spaces, including hoses, can create a rapid rise in pressure due to the thermal expansion. Over-pressurization can result in equipment rupture and serious injury.</p> <ul style="list-style-type: none"> <li>Open a valve to relieve the fluid expansion during heating.</li> <li>Replace hoses proactively at regular intervals based on your operating conditions.</li> </ul>
 	<p><b>PLASTIC PARTS CLEANING SOLVENT HAZARD</b></p> <p>Many solvents can degrade plastic parts and cause them to fail, which could cause serious injury or property damage.</p> <ul style="list-style-type: none"> <li>Use only compatible water-based solvents to clean plastic structural or pressure-containing parts.</li> <li>See <b>Technical Data</b> in this and all other equipment instruction manuals. Read fluid and solvent manufacturer's MSDSs and recommendations.</li> </ul>

 <b>WARNING</b>	
	<p><b>TOXIC FLUID OR FUMES HAZARD</b></p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> <li>• Read MSDSs to know the specific hazards of the fluids you are using.</li> <li>• Route exhaust away from work area. If diaphragm ruptures, fluid may be exhausted into the air.</li> <li>• Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> </ul>
	<p><b>BURN HAZARD</b></p> <p>Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> <li>• Do not touch hot fluid or equipment.</li> </ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Protective eyewear, and hearing protection.</li> <li>• Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.</li> </ul>

# Ordering Information

## To Find Your Nearest Distributor

1. Visit [www.graco.com](http://www.graco.com).
2. Click on **Where to Buy** and use the **Distributor Locator**.

## To Specify the Configuration of a New Pump

Please call your distributor.

OR

Use the **Online Husky Selector Tool** on the **Process Equipment** page at [www.graco.com](http://www.graco.com).

## To Order Replacement Parts

Please call your distributor.

## Distributor Note

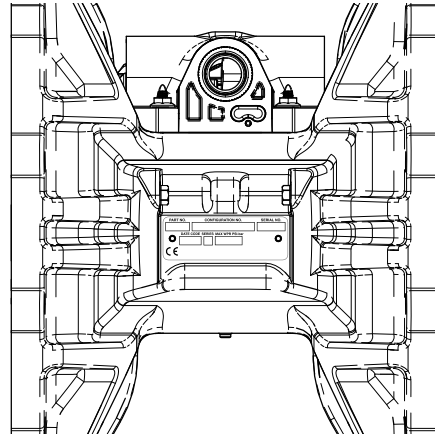
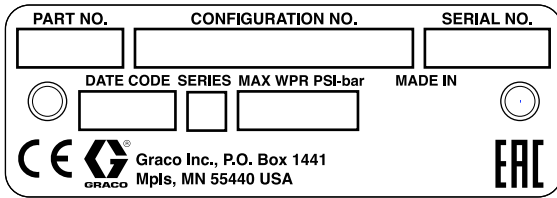
1. To find part numbers for new pumps or kits, use the **Online Husky Selector Tool**.
2. To find part numbers for replacement parts:
  - a. Use the configuration number from the ID plate on the pump. If you only have the Graco 6-digit part number, use the selector tool to find the corresponding configuration number.
  - b. Use the Configuration Number Matrix on the next page to understand which parts are described by each digit.
  - c. **Use the Repair/Parts Manual 3A2714**. Refer to the main Parts illustration and to the Parts/Kits Quick Reference. Follow the page references on these two pages for further ordering information, as needed.
3. Please call Graco Customer Service to order.

## Related Manuals

Manual Number	Title
3A2714	Husky 2200 Air-Operated Diaphragm Pump, Repair/Parts

# Configuration Number Matrix

Check the identification plate (ID) for the Configuration Number of your pump. Use the following matrix to define the components of your pump.



ti23428a

Sample Configuration Number: **2200P-PP01AP1PPPTFKPT**

<b>2200</b>	<b>P</b>	<b>P</b>	<b>P01A</b>	<b>P1</b>	<b>PP</b>	<b>PT</b>	<b>FK</b>	<b>PT</b>
Pump Size	Fluid Section Material	Drive Type	Center Section and Air Valve	Fluid Covers and Manifolds	Seats	Balls	Diaphragms	Manifold and Seat Seals

Pump	Fluid Section Material		Drive Type		Center Section and Air Valve Material		For Use With	Fluid Covers and Manifolds	
<b>2200</b>	<b>P</b>	Polypropylene	<b>P</b>	Pneumatic	<b>P01A</b>	Polypropylene	Standard Diaphragms	<b>P1</b>	Polypropylene, Center Flange, ANSI/DIN
<b>2200</b>	<b>F</b>	PVDF			<b>P01G</b>	Polypropylene	Overmolded Diaphragms	<b>P2</b>	Polypropylene, End Flange, ANSI/DIN
								<b>F2</b>	PVDF, End Flange, ANSI/DIN

Seat Material		Ball Material		Diaphragm Material		Manifold and Seat Seal Material	
<b>PP</b>	Polypropylene	<b>FK</b>	FKM	<b>FK</b>	FKM	<b>PT</b>	PTFE
<b>PV</b>	PVDF	<b>PT</b>	PTFE	<b>PO</b>	PTFE/EPDM Overmolded		
<b>SP</b>	Santoprene	<b>SP</b>	Santoprene	<b>PT</b>	PTFE/Santoprene 2-Piece		
<b>SS</b>	Stainless Steel			<b>SP</b>	Santoprene		

# Installation

## General Information

The Typical Installation shown is only a guide for selecting and installing system components. Contact your Graco distributor for assistance in planning a system to suit your needs. Always use Genuine Graco Parts and accessories. Be sure all accessories are adequately sized and pressure rated to meet the system's requirements.

Reference letters in the text, for example (A), refer to the callouts in the figures.

Variations in color between the plastic components of this pump are normal. Color variation does not affect the performance of the pump.

## Tighten Fasteners

Before mounting and using the pump for the first time, check and retorque all external fasteners. Follow [Torque Instructions, page 16](#), or see the torque tag on your pump. After the first day of operation, retorque the fasteners.

## Tips to Reduce Cavitation

Cavitation in an AODD pump is the formation and collapse of bubbles in the pumped liquid. Frequent or excessive cavitation can cause serious damage, including pitting and early wear of fluid chambers, balls, and seats. It may result in reduced efficiency of the pump. Cavitation damage and reduced efficiency both result in increased operating costs.

Cavitation depends on the vapor pressure of the pumped liquid, the system suction pressure, and the velocity pressure. It can be reduced by changing any of these factors.

1. Reduce vapor pressure: Decrease the temperature of the pumped liquid.
2. Increase suction pressure:
  - a. Lower the installed position of the pump relative to the liquid level in the supply.
  - b. Reduce the friction length of the suction piping. Remember that fittings add friction length to the piping. Reduce the number of fittings to reduce the friction length.

- c. Increase the size of the suction piping.

**NOTE:** Be sure the inlet fluid pressure does not exceed 25 % of the outlet working pressure.

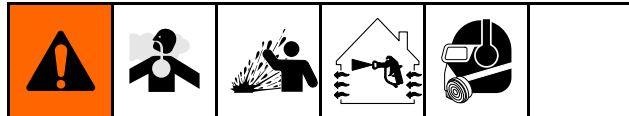
3. Reduce liquid velocity: Slow the cyclic rate of the pump.

Pumped liquid viscosity is also very important but normally is controlled by factors that are process dependent and cannot be changed to reduce cavitation. Viscous liquids are more difficult to pump and more prone to cavitation.

Graco recommends taking all the above factors into account in system design. To maintain pump efficiency, supply only enough air pressure to the pump to achieve the required flow.

Graco distributors can supply site specific suggestions to improve pump performance and reduce operating costs.

## Mount The Pump

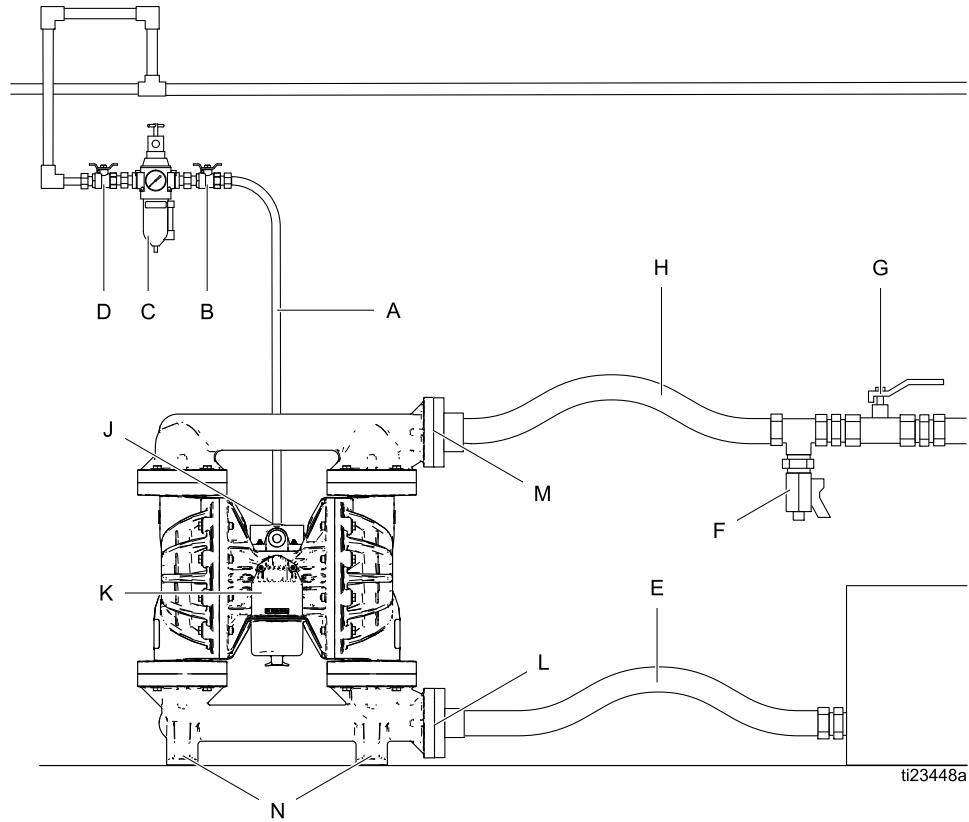


To avoid serious injury or death from toxic fluid or fumes:

- Ventilate to a remote area. The pump exhaust air may contain contaminants. See [Air Exhaust Ventilation, page 11](#).
- Never move or lift a pump under pressure. If dropped, the fluid section may rupture. Always follow the [Pressure Relief Procedure, page 14](#), before moving or lifting the pump.

1. Be sure the mounting surface can support the weight of the pump, hoses, and accessories, as well as the stress caused during operation.
2. For all mountings, be sure the pump is secured with screws through the mounting feet.
3. Make sure the surface is flat and that the pump doesn't wobble.
4. For ease of operation and service, mount the pump so air valve, air inlet, fluid inlet and fluid outlet ports are easily accessible.








**Accessories/Components Not Supplied**

- A Air supply line
- B Bleed-type master air valve (may be required for your pump)
- C Air filter/regulator assembly
- D Master air valve (to isolate the filter/regulator for service)
- E Grounded flexible fluid supply line
- F Fluid drain valve (may be required for your pump)
- G Fluid shutoff valve
- H Grounded, flexible fluid outlet line

**System Components**

- J Air inlet port (not visible)
- K Air exhaust port and muffler
- L Fluid inlet port
- M Fluid outlet port
- N Mounting feet

## Ground The System

					
<p>The equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electrical current.</p> <ul style="list-style-type: none"> <li>• <b>Always</b> ground the entire fluid system as described below.</li> <li>• Polypropylene and PVDF pumps are <b>not</b> conductive and are not for use with flammable fluids.</li> <li>• Follow your local fire codes.</li> </ul>					




Before operating the pump, ground the system as explained below.

- **Pump:** **Always** ground the entire fluid system by making sure the fluid has an electrical path to a true earth ground.
- **Air and fluid hoses:** Use only grounded hoses with a maximum of 500 ft (150 m) combined hose length to ensure grounding continuity.
- **Air compressor:** Follow manufacturer's recommendations.
- **Fluid supply container:** Follow local code.
- **Solvent pails used when flushing:** Follow local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts grounding continuity.

Check your system electrical continuity after the initial installation, and then set up a regular schedule for checking continuity to be sure proper grounding is maintained.





## Air Lines

1. Install an air filter/regulator assembly (C). The regulator controls the fluid pressure. The fluid stall pressure will be the same as the setting of the air regulator. The filter removes harmful dirt and moisture from the compressed air supply.
2. Locate a bleed-type master air valve (B) close to the pump and use it to relieve trapped air. Be sure the valve is easily accessible from the pump and located downstream from the regulator.

					
<p>Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from splashing.</p>					

3. Locate another master air valve (D) upstream from all air line accessories and use it to isolate them during cleaning and repair.
4. Install a grounded, flexible air hose (A) between the accessories and the 3/4 npt(f) pump air inlet.

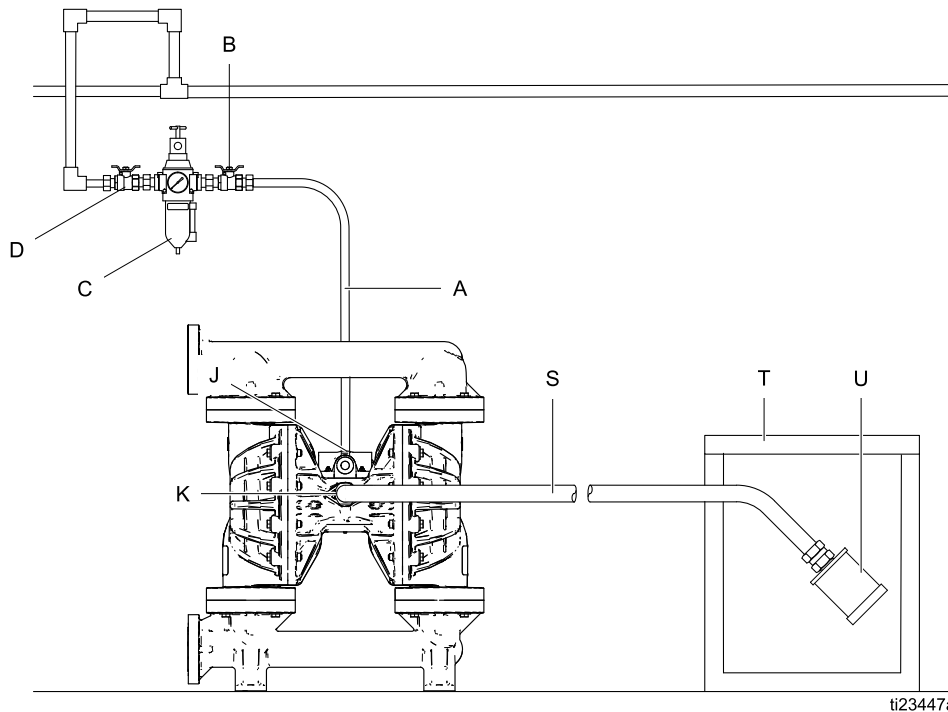
## Air Exhaust Ventilation

					
<p>If pumping toxic fluids, you must vent the exhaust away from people, animals, food handling areas, and all sources of ignition. Follow all applicable codes.</p>					

<b>NOTICE</b>
<p>The air exhaust port is 1 in. npt(f). Do not restrict the air exhaust port. Excessive exhaust restriction can cause erratic pump operation.</p>

### To provide a remote exhaust:

1. Remove the muffler (U) from the pump air exhaust port (K).
2. Install a grounded air exhaust hose (S) and connect the muffler to the other end of the hose. The minimum size for the air exhaust hose is 1 in. (26 mm) ID. If a hose longer than 15 ft (4.57 m) is required, use a larger diameter hose. Avoid sharp bends or kinks in the hose.
3. Place a container (T) at the end of the air exhaust line to catch fluid in case a diaphragm ruptures. If the diaphragm ruptures, the fluid being pumped will exhaust with the air.



A	Air supply line	K	Air exhaust port
B	Bleed-type master air valve (may be required for your pump installation)	S	Grounded air exhaust hose
C	Air filter/regulator assembly	T	Container for remote air exhaust
D	Master air valve (for accessories)	U	Muffler
J	Air inlet port (not visible)		

## **Fluid Supply Line**

1. Use grounded, flexible fluid hoses (E). See [Ground The System, page 10](#).
2. If the inlet fluid pressure to the pump is more than 25% of the outlet working pressure, the ball check valves will not close fast enough, resulting in inefficient pump operation. Excessive inlet fluid pressure also will shorten diaphragm life. Approximately 3–5 psi (0.02–0.03 MPa, 0.21–0.34 bar) should be adequate for most materials.
3. For maximum suction lift (wet and dry), see [Technical Data, page 22](#). For best results, always install the pump as close as possible to the material source. Minimize suction requirements to maximize pump performance.

## **Fluid Outlet Line**

1. Use grounded, flexible fluid hoses. See [Ground The System, page 10](#),
2. Install a fluid drain valve (F) near the fluid outlet.
3. Install a shutoff valve (G) in the fluid outlet line.

## Flange Connections

The fluid inlet and outlet ports are 2 in. (50 mm) raised face, ANSI/DIN PN 10 flanges. Connect 2 in. (50 mm) plastic pipe flange to the pump as follows. You will need:

- Torque wrench
- Adjustable wrench
- 6 in. (152 mm) diameter, 1/8 in (32 mm) thick PTFE gasket, with four 0.75 in (19 mm). diameter holes on a 4.75 in. (121 mmm) diameter bolt circle, and a 2 in. (50 mm) diameter center
- Four 5/8 in (17 mm) x 3 in (76 mm) long bolts
- Four 5/8 in.(17 mm) spring lock washers
- Eight 5/8 in. (17 mm) flat washers
- Four 5/8 in. (17 mm) nuts

1. Place a flat washer (K) on each bolt (H).
2. Align the holes in the gasket (G) and the pipe flange (F) with the holes in the pump outlet flange (E).
3. Lubricate the threads of the four bolts. Install the bolts through the holes and secure with the washers (K), lock washers (J), and nuts (L).
4. Hold the nuts with a wrench. Refer to the tightening sequence in the figure and torque the bolts to 20 to 30 ft-lb (27 to 41 Nm). **Do not overtorque.**
5. Repeat for the pump inlet flange.

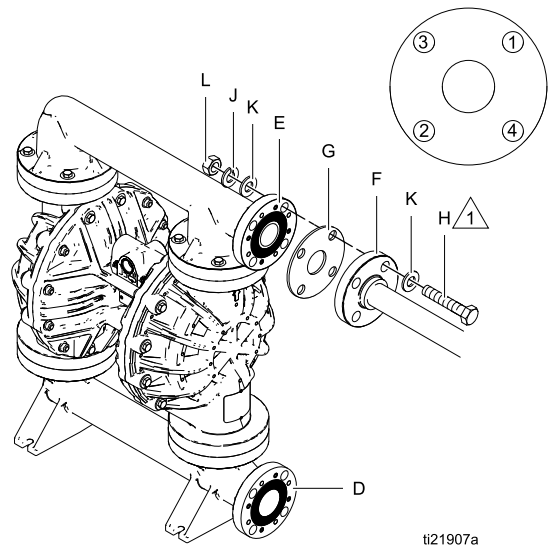



Figure 1

- D 2 in. (50 mm) fluid inlet flange
- E 2 in. (50 mm) fluid outlet flange
- F Plastic pipe flange
- G PTFE gasket
- H Bolt
- J Lock washer
- K Flat washer
- L Nut

 Lubricate threads. torque to 20 to 30 ft-lb (27 to 41 Nm). **Do not overtorque.**

# Operation

## Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.



This equipment stays pressurized until pressure is relieved manually. To help prevent serious injury from pressurized fluid, such as splashing in the eyes or on skin, follow the Pressure Relief Procedure when you stop pumping and before you clean, check, or service the equipment.

1. Shut off the air supply to the pump.
2. Open the dispensing valve, if used.
3. Open the fluid drain valve to relieve fluid pressure. Have a container ready to catch the drainage.

## Tighten Fasteners

Before mounting and using the pump for the first time, check and retorque all external fasteners. Follow [Torque Instructions, page 16](#), or see the torque tag on your pump. After the first day of operation, retorque the fasteners.

## Flush the Pump Before First Use

The pump was tested in water. If water could contaminate the fluid you are pumping, flush the pump thoroughly with a compatible solvent. See [Flushing and Storage, page 15](#).

## Start and Adjust the Pump

1. Be sure the pump is properly grounded. See [Ground The System, page 10](#).
2. Check fittings to be sure they are tight. Use a compatible liquid thread sealant on male threads. Tighten fluid inlet and outlet fittings securely

3. Place the suction tube (if used) in fluid to be pumped.

**NOTE:** If fluid inlet pressure to the pump is more than 25% of outlet working pressure, the ball check valves will not close fast enough, resulting in inefficient pump operation.

**NOTICE**

Excessive fluid inlet pressure can reduce diaphragm life.

4. Place the end of the fluid hose into an appropriate container.
  5. Close the fluid drain valve.
  6. Turn the air regulator knob to 0. Open all bleed-type master air valves.
  7. If the fluid hose has a dispensing device, hold it open.
  8. Slowly increase air pressure with the air regulator until the pump just starts to cycle. Allow the pump to cycle slowly until all air is pushed out of the lines and the pump is primed.
- NOTE:** Use lowest possible air pressure to prime, just enough to cycle the pump. If the pump does not prime as expected, turn air pressure **DOWN**.
9. If you are flushing, run the pump long enough to thoroughly clean the pump and hoses.
  10. Close the bleed-type master air valve.

## Pump Shutdown



At the end of the work shift and before you check, adjust, clean, or repair the system, follow the [Pressure Relief Procedure, page 14](#).

# Maintenance

## Maintenance Schedule

Establish a preventive maintenance schedule based on the pump's service history. Scheduled maintenance is especially important to prevent spills or leakage due to diaphragm failure.

## Lubrication

The pump is lubricated at the factory. It is designed to require no further lubrication for the life of the packings. There is no need to add an inline lubricator under normal operating conditions.

## Tighten Threaded Connections

Before each use, check all hoses for wear or damage and replace as necessary. Check to be sure all threaded connections are tight and leak-free. Check mounting bolts. Check fasteners. Tighten or retorque as necessary. Although pump use varies, a general guideline is to retorque fasteners every two months. See [Torque Instructions, page 16](#).

## Flushing and Storage



- Flush before fluid can dry in the equipment, at the end of the day, before storing, and before repairing equipment.
- Flush at the lowest pressure possible. Check connectors for leaks and tighten as necessary.
- Use solvent that is compatible with the equipment wetted parts and the material being dispensed.
- Always flush the pump and relieve the pressure before storing it for any length of time.

### ***NOTICE***

Flush the pump often enough to prevent the fluid you are pumping from drying or freezing in the pump and damaging it.

# Torque Instructions

If fluid cover or manifold fasteners have been loosened, it is important to torque them using the following procedure to improve sealing.

**NOTE:** Fluid cover and manifold fasteners have a thread-locking adhesive patch applied to the threads. If this patch is excessively worn, the fasteners may loosen during operation. Replace screws with new ones or apply medium-strength (blue) Loctite or equivalent to the threads.

**NOTE:** Always completely torque fluid covers before torquing manifolds.

1. Start all fluid cover screws a few turns. Then, turn down each screw just until head contacts cover.
2. Turn each screw by 1/2 turn or less working in a crisscross pattern to specified torque.
3. Repeat for manifolds.

**Fluid cover and manifold fasteners:** 190 to 220 in-lb (21 to 25 Nm)

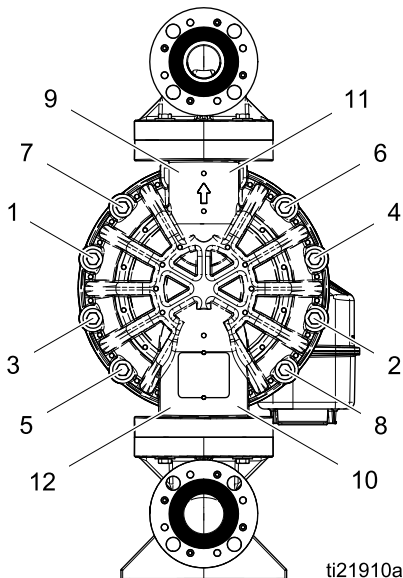
4. Retorque the air valve fasteners in a crisscross pattern to the specified torque.

**Air valve fasteners:** 45 to 55 in-lb (5 to 6 Nm)

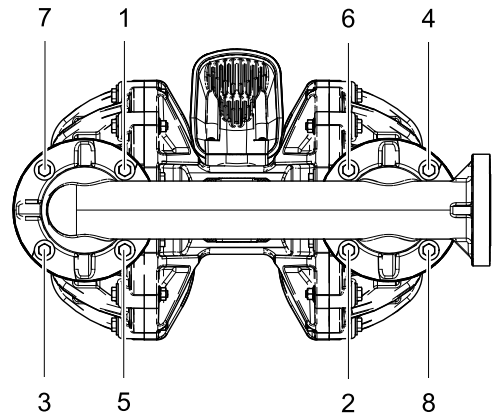
5. Retorque the pilot valves to the specified torque. **Do not overtorque.**

**Pilot valves:** 20 to 25 in-lb (2 to 3 Nm)

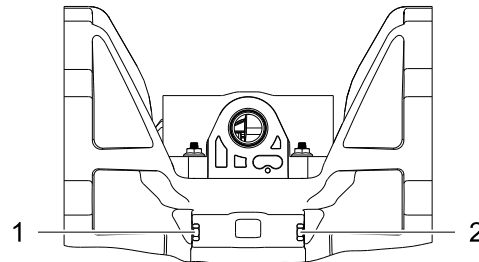
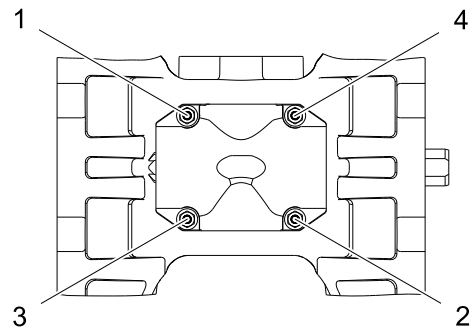
## Fluid Cover Screws



## Inlet and Outlet Manifold Screws



## Air Valve Screws and Pilot Valves

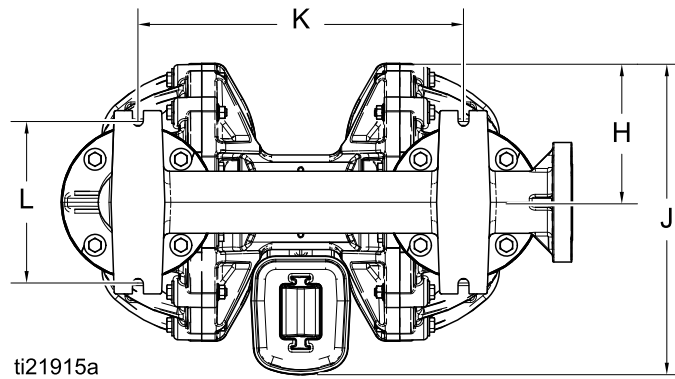
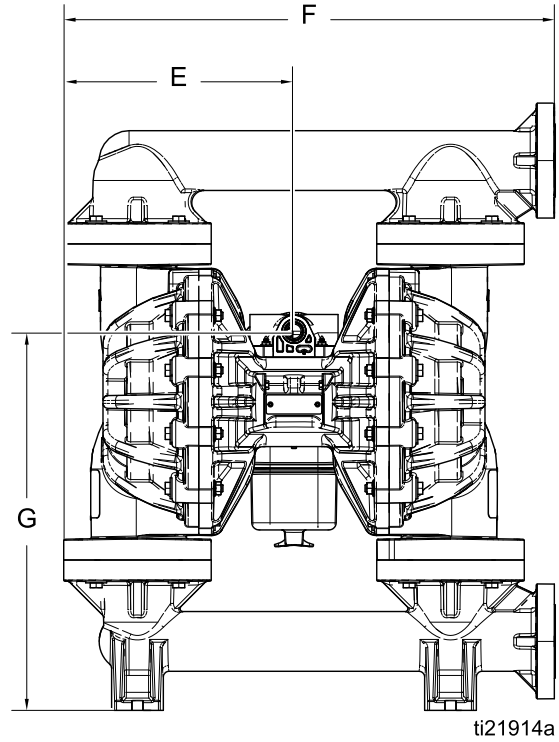
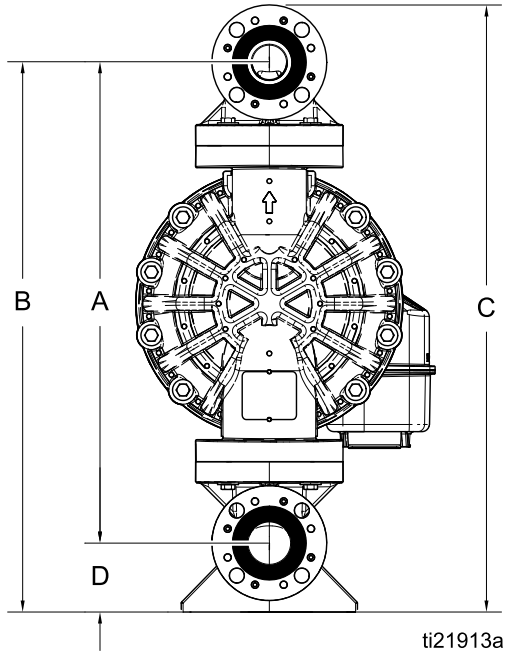






# Dimensions

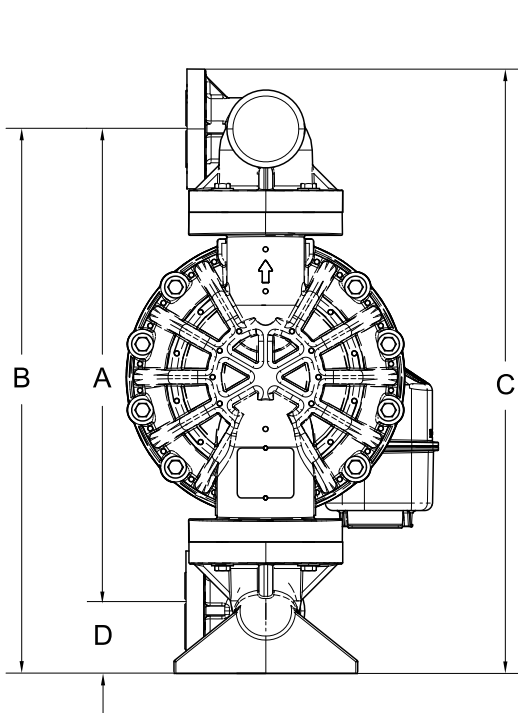
## End Flange Models, Polypropylene and PVDF



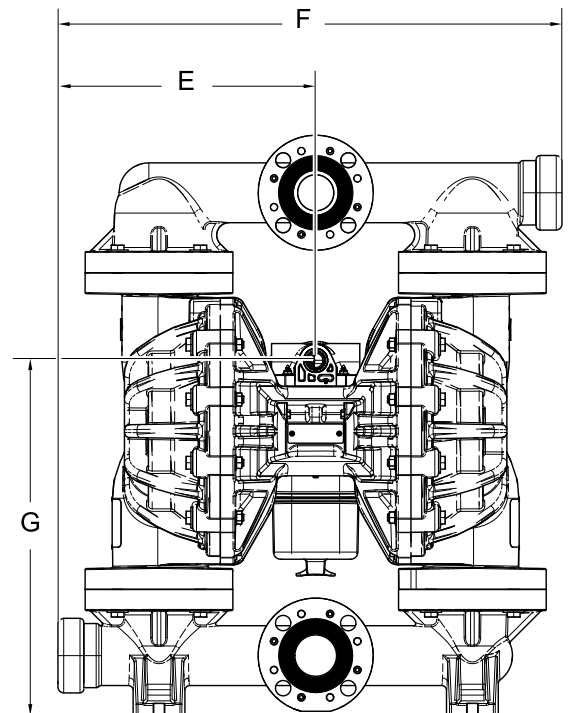
	Polypropylene		PVDF	
<b>A</b>	25.1 in.	63.8 cm	25.2 in.	64.0 cm
<b>B</b>	28.7 in.	72.9 cm	28.8 in.	73.2 cm
<b>C</b>	31.7 in.	80.5 cm	31.8 in.	80.8 cm
<b>D</b>	3.6 in.	9.1 cm	3.6 in.	9.1 cm

	Polypropylene		PVDF	
<b>G</b>	19.8 in.	50.3 cm	19.8 in.	50.3 cm
<b>H</b>	7.0 in.	17.8 cm	7.0 in.	17.8 cm
<b>J</b>	13.9 in.	35.3 cm	13.9 in.	35.3 cm
<b>K</b>	16.3 in.	41.4 cm	16.3 in.	41.4 cm
<b>L</b>	8.2 in.	20.8 cm	8.2 in.	20.8 cm

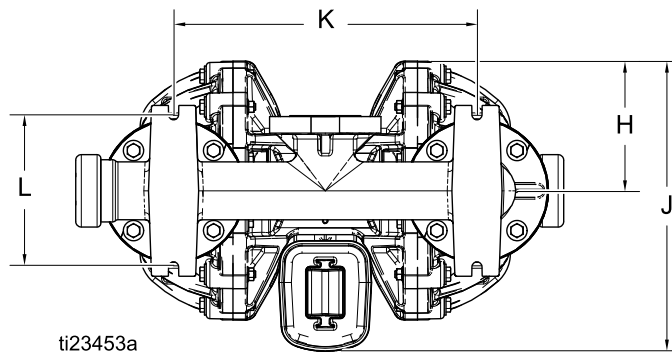
**Center Flange Models, Polypropylene Only**



ti23451a



ti23452a



ti23453a

	Polypropylene	
<b>A</b>	24.1 in.	61.2 cm
<b>B</b>	27.2 in.	69.1 cm
<b>C</b>	30.3 in.	77.0 cm
<b>D</b>	3.1 in.	7.9 cm

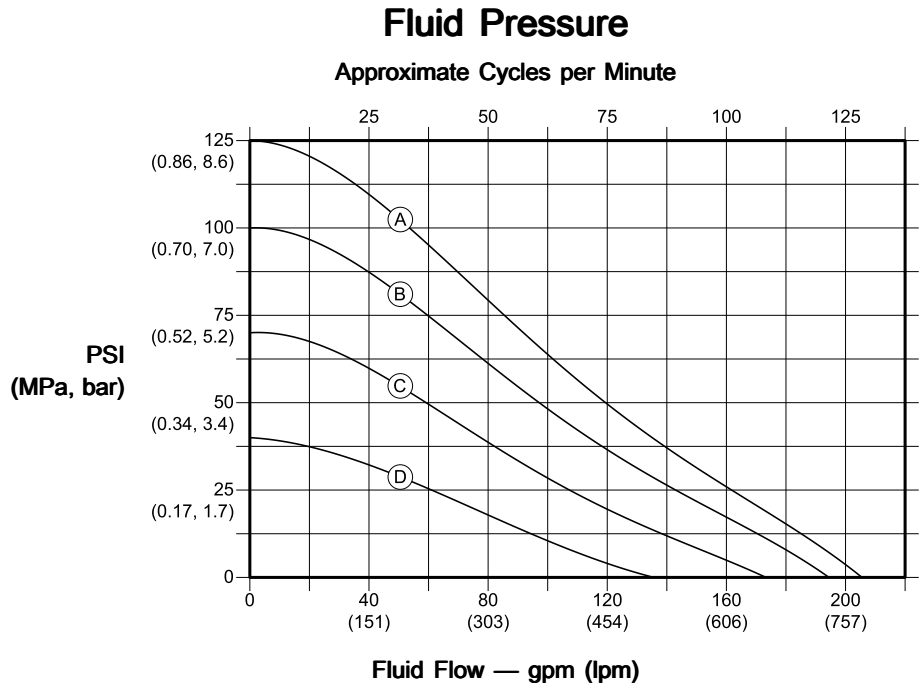
	Polypropylene	
<b>G</b>	18.5 in.	47.0 cm
<b>H</b>	7.0 in.	17.8 cm
<b>J</b>	13.9 in.	35.3 cm
<b>K</b>	16.3 in.	41.4 cm
<b>L</b>	8.2 in.	20.8 cm

# Performance Charts

## Bolt-through Diaphragms

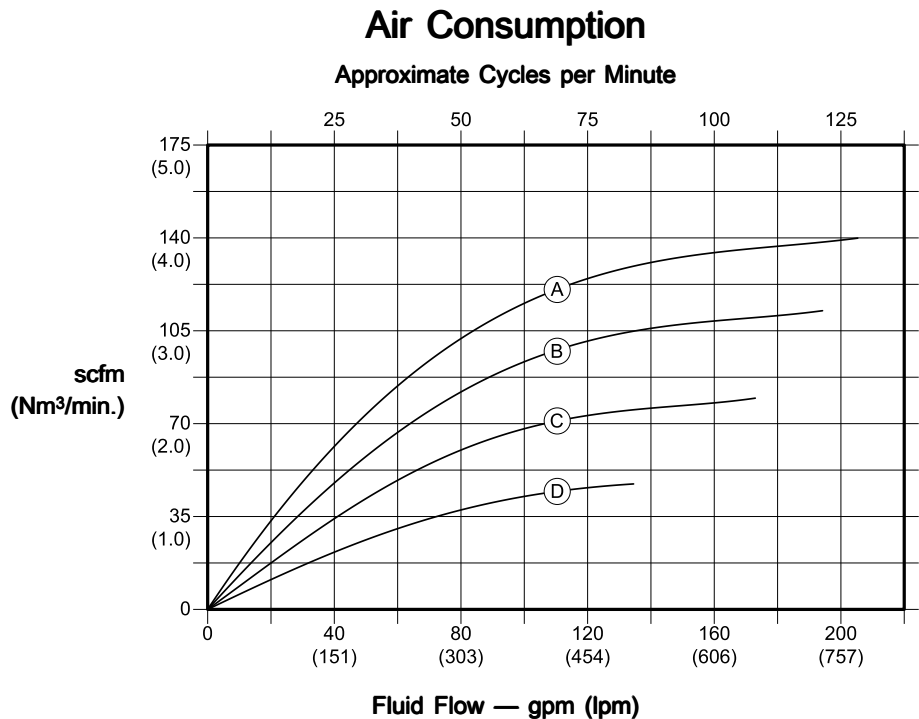
### Operating Air Pressure

- A**  
125 psi (0.86 MPa, 8.6 bar)
- B**  
100 psi (0.7 MPa, 7.0 bar)
- C**  
70 psi (0.48 MPa, 4.8 bar)
- D**  
40 psi (0.28 MPa, 2.8 bar)



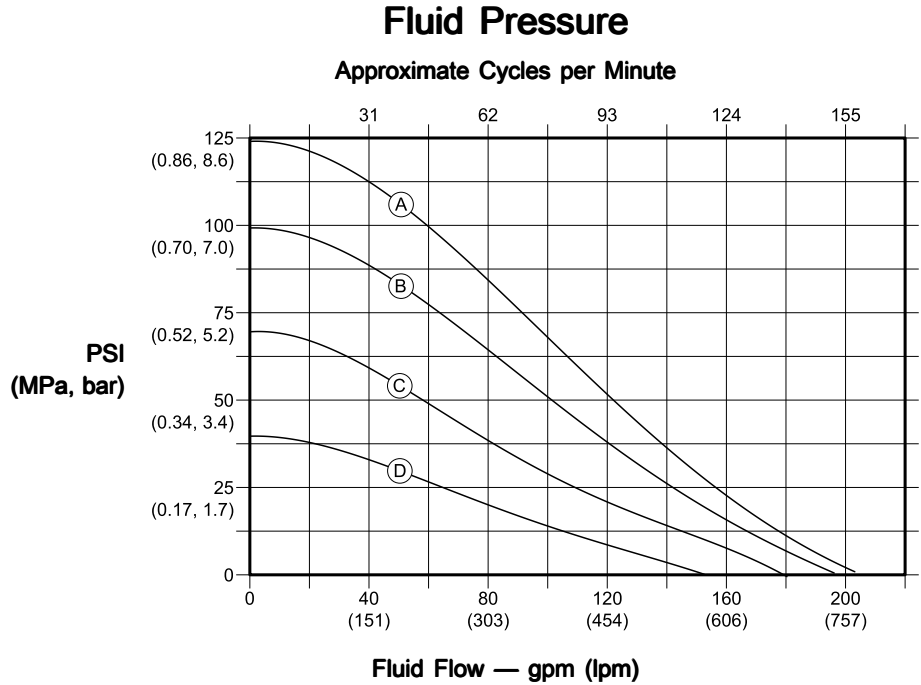
### How to Read the Charts

1. Locate fluid flow rate along bottom of chart.
2. Follow vertical line up to intersection with selected operating air pressure curve.
3. Follow left to scale to read **fluid outlet pressure** (top chart) or **air consumption** (bottom chart)



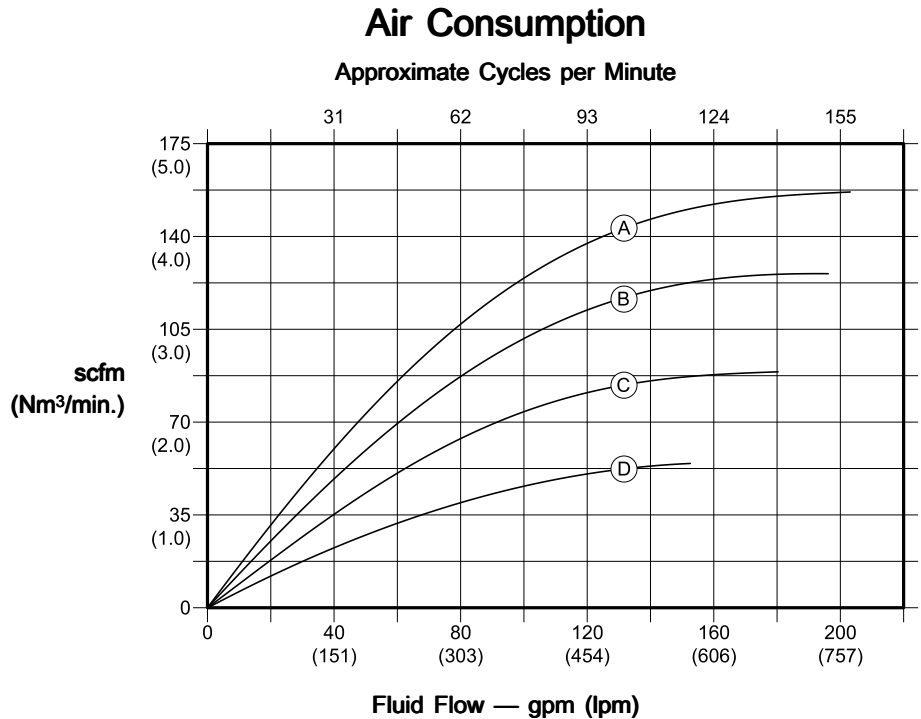
## Overmolded Diaphragms

- Operating Air Pressure**
- A**  
125 psi (0.86 MPa, 8.6 bar)
  - B**  
100 psi (0.7 MPa, 7.0 bar)
  - C**  
70 psi (0.48 MPa, 4.8 bar)
  - D**  
40 psi (0.28 MPa, 2.8 bar)



### How to Read the Charts

1. Locate fluid flow rate along bottom of chart.
2. Follow vertical line up to intersection with selected operating air pressure curve.
3. Follow left to scale to read **fluid outlet pressure** (top chart) or **air consumption** (bottom chart)



# Technical Data

<b>Husky 2200 Diaphragm Pump</b>		
	<b>US</b>	<b>Metric</b>
Maximum fluid working pressure	125 psi	0.86 MPa, 8.6 bar
Air pressure operating range	20 to 125 psi	0.14 to 0.86 MPa, 1.4 to 8.6 bar
Air inlet size	3/4 in. npt(f)	
Air exhaust size	1 in. npt(f)	
Fluid inlet and outlet size (ANSI/DIN flange)	2 in	50 mm
Maximum suction lift (reduced if balls don't seat well due to damaged balls or seats, lightweight balls, or extreme speed of cycling)	Wet: 31 ft Dry: 16 ft	Wet: 9.4 m Dry: 4.9 m
Maximum size pumpable solids	3/8 in.	9.5 mm
Minimum ambient air temperature for operation and storage. <b>NOTE:</b> Exposure to extreme low temperatures may result in damage to plastic parts.	32° F	0° C
<b>Air consumption</b>		
Standard diaphragms	70 scfm at 70 psi; 100 gpm	2.0 m <sup>3</sup> /min at 0.48 MPa, 4.8 bar, 379 lpm
Overmolded diaphragms	75 scfm at 70 psi, 100 gpm	2.1 m <sup>3</sup> /min at 0.48 MPa, 4.8 bar, 379 lpm
<b>Maximum air consumption</b>		
Standard diaphragms	140 scfm	4.0 m <sup>3</sup> /min
Overmolded diaphragms	157 scfm	4.4 m <sup>3</sup> /min
<b>Noise (dBA)</b> Sound power measured per ISO-9614-2. Sound pressure was tested 3.28 ft (1 m) from equipment.		
Sound Power	95.2 at 70 psi and 50 cpm 101.8 at 100 psi and full flow	95.2 at 4.8 bar and 50 cpm 101.8 at 7.0 bar and full flow
Sound Pressure	87.3 at 70 psi and 50 cpm 94.7 at 100 psi and full flow	87.3 at 4.8 bar and 50 cpm 94.7 at 7.0 bar and full flow
<b>Fluid flow per cycle</b>		
Standard diaphragms	1.6 gallons	6.1 liters
Overmolded diaphragms	1.3 gallons	4.9 liters
<b>Maximum free-flow delivery</b>		
Standard diaphragms	200 gpm	757 lpm
Overmolded diaphragms	200 gpm	757 lpm

<b>Maximum pump speed</b>		
Standard diaphragms	125 cycles per minute	
Overmolded diaphragms	155 cycles per minute	
<b>Weight</b>		
Polypropylene	80 lb	36.3 kg
PVDF	106 lb	48.1 kg
<b>Wetted Parts</b>		
Wetted parts include material(s) chosen for seat, ball, and diaphragm options, <b>plus the pump's material of construction: Polypropylene or PVDF</b>		
Non-wetted external parts	stainless steel, polypropylene	

**Fluid Temperature Range**

Diaphragm/Ball/Seat Material	<b>US</b>		<b>Metric</b>	
	Polypropylene Pump	PVDF Pump	Polypropylene Pump	PVDF Pump
FKM Fluoroelastomer	32° to 150°	32° to 225°	0° to 66°	0° to 107°
Polypropylene	32° to 150°	32° to 150°	0° to 66°	0° to 66°
PTFE overmolded diaphragm	40° to 150°	40° to 180°	4° to 66°	4° to 82°
PTFE check balls	40° to 150°	40° to 220°	4° to 66°	4° to 104°
PVDF	32° to 150°	32° to 225°	0° to 66°	0° to 107°
Santoprene	32° to 150°	32° to 180°	0° to 66°	0° to 82°
2-piece PTFE/Santoprene diaphragm	40° to 150°	40° to 180°	4° to 66°	4° to 82°

# Graco Standard Husky Pump Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of five years from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within six (6) years of the date of sale..

**GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO.** These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties..

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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**To place an order**, contact your Graco Distributor or call to identify the nearest distributor.

**Phone:** 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

All written and visual data contained in this document reflects the latest product information available at the time of publication.

Graco reserves the right to make changes at any time without notice.  
Original Instructions. This manual contains English. MM 3A2578

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