

The Most Trusted name in Pumps & Meters

FILL-RITE.

Series 400 - 115 & 230 Volt AC Diaphragm Pumps



Model 451 Pump Shown

Description of Included Models

Model Number	Description
450	Basic Pump with FilCon™ Diaphragms, 90° Outlet Flange, 1/4 HP - 110 VAC/60 HZ Motor, Straight Inlet Flange, 1" X 12' Hose Nozzle Boot and Manual Nozzle, Telescoping Suction Pipe and Bung Adapter

Available Options

Option	Description	Adjustment to Shipping Weight (lbs.)	Adjustment to Shipping Weight (kgs.)
L	Unit equipped with meter registering liters in place of standard gallon meter.	-	-
-X001	Unit supplied less hose.	(7.0)	(3.2)
-X002	Unit supplied less telescoping suction pipe.	(2.0)	(0.9)
-X003	Unit supplied less nozzle.	(1.0)	(0.45)
-X005	Unit supplied less hose and nozzle.	(8.0)	(3.6)
-X508	Unit supplied with Santoprene® diaphragm	-	-

Accessories

Part Number	Description
5200F1839	Telescoping steel suction pipe extends from 22" to 40"
400KTF6593	Single union polypropylene ball valve/nozzle
400KTF1272	Ball valve nozzle with anti-drip nozzle spout
400F6753	Straight inlet or outlet pump flange
400F6764	90° inlet or outlet pump flange
410F3137	Buna N hose 1" X 12' with 1" NPT threaded end ferrules
400KTF6853	Heavy duty wraparound tubular frame height 33"
400KTF6867	Wheel kit for tubular frame

Performance

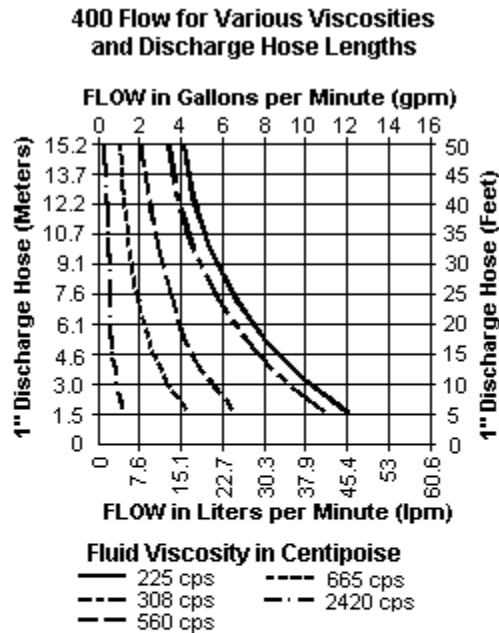
Maximum outlet pressure	15 PSI (1.09 BAR)
Maximum flow rate (1)	12 GPM (45.5 LPM)
Maximum Recommended Viscosity of Pumped Fluid	3000 CPS (SAE140 Gear Oil at 68°F)
Maximum ambient operating temperature	130 °F (54 °C)*
Minimum ambient operating temperature	-10 °F (-23 °C)*
Minimum Dry Vacuum	9 Inches of Hg.
Minimum Suction Lift**	10 feet for water & 11 feet for Diesel fuel.

1 Nominal flow rate at nominal voltage using a standard hose and manual nozzle with low viscosity fluid.

* Consult factory for extreme temperature applications outside this range.

** The lift in feet is equivalent to the vertical distance from the surface of the fluid in the tank to the inlet of the pump, PLUS the friction losses through the vertical and horizontal runs of pipe, all elbows and other fittings. The system should be designed to require a minimum amount of suction lift.

Flow Curve




NOTES:

1. SUCTION LOSSES - Pump mounted on 208 liter drum, 1/2 full with a standard suction pipe.
2. VERTICAL HEAD LOSSES - Hose horizontal with pump.
3. OTHER LOSSES - Additions for other in-line components
 - SureStop Disconnect - 0.15 M
 - Other disconnects - 4.0 M
 - 1" Check Valves - 2.7 M
 - 1" Elbow - 0.8 M

Fluid Compatibility

The FR400 Series pumps are compatible with the following fluids: Ethylene Glycol, Diesel Fuel, Grease, Hydraulic Oil, Kerosene, Motor Oil and Water.

The FR400 Series pumps are NOT compatible with the following fluids: Acetone, Ammonia, Gasoline, Bleach, Chlorine, Hydrochloric Acid, Ink and MEK.

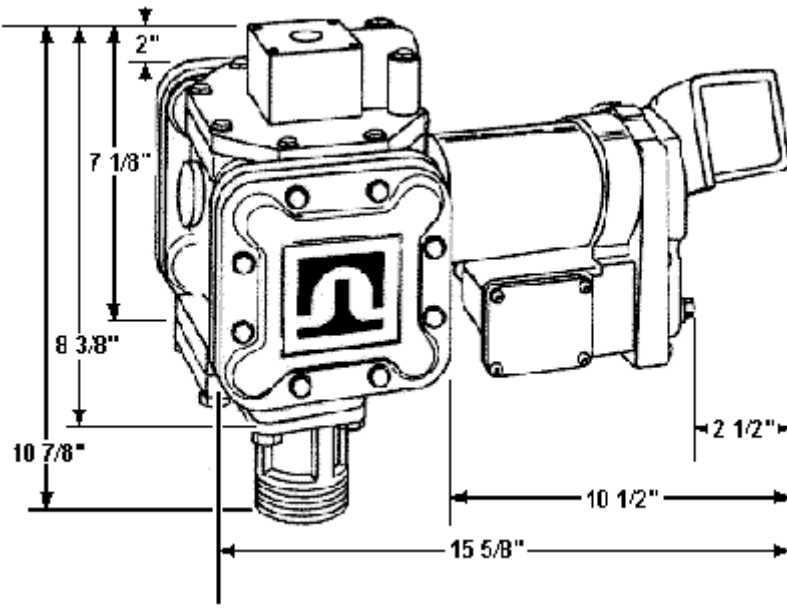
	DANGER
	<p>Not for use with fluids that have a flash point below 100°F (37.8°C, ie: gasoline, alcohol). Refer to NFPA 325M (Fire Hazard Properties of Flammable Liquids, Gases and Volatile Solids) for flash points of common liquids.</p> <p>Static electricity buildup and discharge could result in arc and explosion.</p>

Fluorocarbon

FiCon™ #454 Polyester Polyester Polypropylene

300 Series Stainless Steel Buna N

Dimensions



Repair

Refer to Owner's Operation & Safety Manual packed with the pump and/or available for reference and printing in the eLibrary for the procedure to be followed for motor/gear assembly removal, gear assembly replacement and diaphragm assembly/check valve replacement.

Motors that need repair must be taken to an authorized repair shop for service. Pumps must be thoroughly flushed and drained before being taken in for service.

Maintenance

To keep the pump running at its best, periodically perform the following procedures: :

Chemical Applications

Do not allow any chemical to remain in the pump for any extended period of time, whereby the chemicals are allowed to "dry out". Using the proper cleaning agent, thoroughly clean the diaphragm and check valve assemblies by flushing the pump with:

1. Diesel or kerosene for petroleum based chemicals
2. Water for water based chemicals

All Applications

1. On an annual basis, check the four #10-24 X 1/2" machine screws (item 11) holding the diaphragms in place. If loose tighten screws to prevent internal leakage.

Note: NEVER EXCEED 50 INCH-POUNDS TORQUE WHEN REPLACING THE PUMP COVERS OR TIGHTENING THE DIAPHRAGM SCREWS.

2. Check the oil level periodically. The oil level should be level with the bottom edge of the sight cap holes located on the front of the pump body. Always check the oil level when the pump is level.

3. Replace oil with approximately 16 ounces of automotive grade SAE 30W through one of the sight cap holes if there are any indication of contamination. Contamination can be noted by a milky appearance to the oil or the level being above the base of the sight caps.

4. Examine the diaphragm/check valve assemblies for excessive wear annually or if oil contamination is noted, (items 7, 8, 9 and 10).

See meter's Owner's Operation & Safety Manual for additional recommended maintenance procedures.

Frequently Asked Questions

1. My pump only pumps for a few minutes and then stops. What is happening?

Generally "short cycling" indicates the motor is drawing too much current from the power source for some reason, and the thermal relay is opening to protect the insulation from the resulting heat build up. If this is what is happening, the thermal relay will reset after 10 to 20 minutes and the motor will again operate. The causes of too high a current in this pump design are few and generally related to a motor defect such as a binding pump or motor bearing or shorted motor windings.

See the Troubleshooting Guide in your Owner's Manual packed with your unit or the copy available in the eLibrary.

2. The oil in the pump appears milky. Is there a problem?

The oil in the motor gear box should always appear clear and clean. A milky appearance or a change in color or appearance of this oil virtually always indicates a leak has developed and the pumped fluid is contaminating the oil. Drain the oil and thoroughly flush the pump with an appropriate solvent, water for water based pumped fluids or diesel oil or kerosene for petroleum based fluids. Locate and repair the leak. Replace the lubricating oil with approximately 16 ounces of a SAE 30W motor oil before returning the pump to service.

See the Troubleshooting Guide in your Owner's Manual packed with your unit or the copy available "on-line" in the eLibrary for more details.