The Most Trusted name in Pumps & Meters FILL-RITE.

Model 300 AC Powered Pumps

Model FR310 Pump Shown

Description of Included Models

Model Number	Description	Shipping Weight (lbs)	Shipping Weight (kgs)
FR300	**Heavy Duty AC 20 GPM Pump** with Manual Nozzle, 1" X 12' Hose and 1/2 HP - 115/220 VAC 50/60 HZ Motor.	78 lbs	35kg
FR301	**Heavy Duty AC 20 GPM Pump** with Manual Nozzle, 1" X 12' Hose, 1/2 HP - 115/220 VAC 50/60 HZ Motor and Model 901 Meter.	86 lbs	39 kg
FR310	**Heavy Duty AC 35 GPM Pump** with Manual Nozzle, 1" X 12' Hose and 3/4 HP - 115/220 VAC 50/60 HZ Motor.	80 lbs	36 kg
FR311	**Heavy Duty AC 35 GPM Pump** with Manual Nozzle, 1" X 12' Hose, 3/4 HP - 115/220 VAC 50/60 HZ Motor and Model 901 Meter.	88 lbs	40 kg

Safety Listings

Approval Organization Mark	Organization Description	File Number	Guide Number
	**Underwriters Laboratories Inc.**, a nationally recognized Independent organization for testing of products to ensure public safety. Also recognized and accepted in Canada.	**MH7817**	**RCRX**
	Compliance with applicable European standards	**N/A**	**N/A**
	**Australian Certification Program** - The FR300 (230V, 112 LPM, heavy duty) is certified under Aus EX 3620.	**N/A**	**N/A**

Available Options

Option	Description	Adjustment to Shipping Weight (lbs.)	Adjustment to Shipping Weight (kgs.)
B	Upgrade to high flow automatic nozzle from standard manual nozzle.	3.0	1.4
E	Unit supplied with 220 VAC - 50 Hz motor	-	-
L	Unit equipped with meter registering liters in place of standard gallon meter.	-	-
G	Unit shipped set at 220VAC (50/60 HZ motor)	-	-

Accessories

Part Number	Description
300F7776	Tank Adapter - 2" OD X 1 1/2" ID
300F7773	Hose 1" X 12' with static wire and 1" ferrules
700F3125	Manual Nozzle with 1" Inlet
300F7801	Automatic High Flow Nozzle with 1" Spout and 1" Inlet
4200F9111	Nozzle Spout Hook for Automatic Nozzles
700ACCF7017	1" Aluminum Filter Head For F4010PM0
F4010PM0	40 GPM, 10 Micron Particulate Filter

Performance

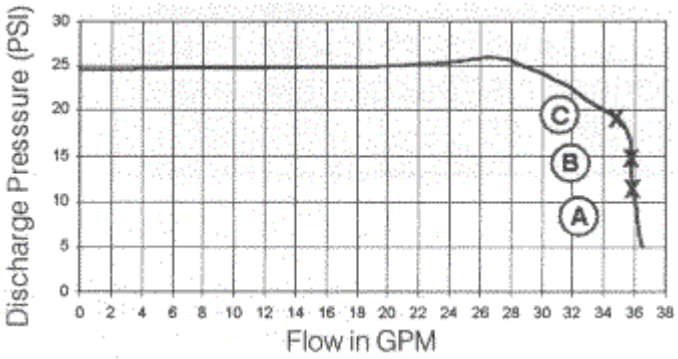
Maximum outlet pressure	25 PSI (1.73 BAR)
Maximum flow rate (1)	FR310 & FR311 - 35 GPM (132.5 LPM)/FR300 & FR301 - 20 GPM (75.8 LPM)
Maximum Recommended Viscosity of Pumped Fluid	Diesel Fuel
Maximum ambient operating temperature	150 °F (66 °C)*
Minimum ambient operating temperature	-15 °F (-26 °C)*
Minimum Dry Vacuum	14 Inches of mercury
Minimum Suction Lift**	10 feet for gasoline*** & 18 feet for diesel

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.
*** Lift of gasoline dependent on the Reid vapor pressure of the gasoline and its temperature. The lower the vapor pressure and temperature, the higher the possible lift. Review Practical Gasoline Suction Lift Considerations to determine the lift for gasoline you might expect.

2 FR310 and FR301 should not be used for Gasoline. Cavitation may result in shortening the life and flow rate of the pump.

Flow Curve

1. FR310 with 12' of 1" hose and manual nozzle.
2. FR310 with 12' of 1" hose and an automatic nozzle.
3. FR311 with 12' of 1" hose and an automatic nozzle.



Nominal flow curve for Based on 3 feet suction lift. Actual flow rates obtained may vary.

Fluid Compatibility

The 300 Series pumps are compatible with the following fluids:

Diesel, Gasoline, Kerosene, Mineral Spirits, Heptane and Hexane.

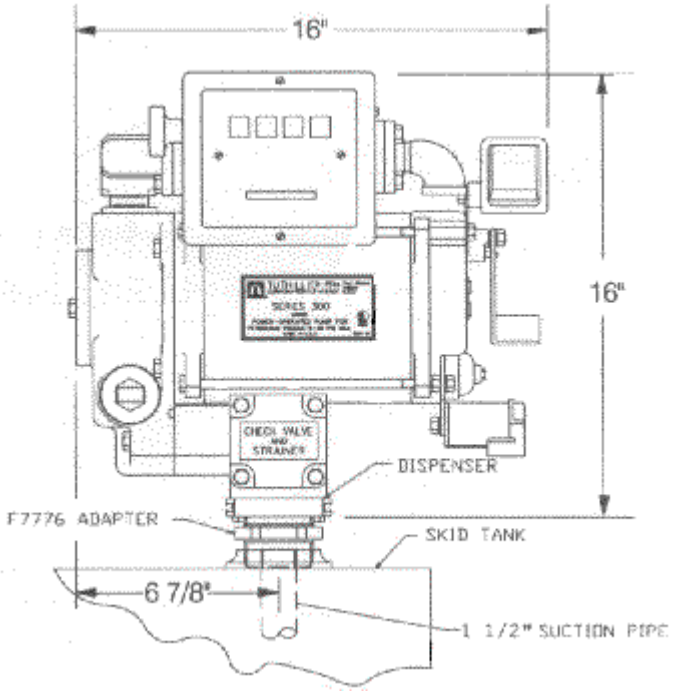
The 300 Series pumps are NOT compatible with the following fluids:

Acetone, Ammonia, Benzene, Bleach, Hydrochloric Acid,Water, Ink and Toluene.

If in doubt about the compatibility of a specific fluid, contact the supplier of the fluid to check for any adverse reactions to the following wetted materials.

Cast Iron	**Steel**	**Zinc Plated Steel**
Aluminum	**Bronze/Iron**	**Polyester**
Ceramic	**Carbon**	**Nylon**
300S Stainless Steel	**400S Stainless Steel**	**Fluorocarbon**
Buna N	**301 & 311 also includes PPS**	

Dimensions



Repair

To insure the ultimate performance, pumps must be set up according to the "INSTALLATION" section of the Owner's Manual shipped with the pump and available below in the **eLibrary** section.

To maintain UL listing, 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:

1. Check strainer for dirt accumulation. To clean strainer, remove strainer cover and pull out screen.
2. Remove rotor cover and inspect vanes. Vanes should be replaced before they exhibit excessive wear to prevent damage to pump. If more than 1/2 the total blade length is out of the rotor slot at the extreme of travel, the wear is excessive
3. Check hose and nozzle for wear or damage. Bad hoses or nozzles are potential safety hazards.

For FR301 and FR311 see meter's Owner's Operation & Safety Manual for calibration and meter's 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 high current are many. The pump is designed for low viscosity fluid, like diesel or gasoline, and will overheat if used to pump oil or
other higher viscosity fluids. The inlet filter screen could be clogged. Bearings could be defective resulting in a drag on the armature shaft rotation.

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

2. There is fluid leaking out between the pump body and the motor. How do I stop it?

This is a "weep hole" and is positioned to drain fluid that has leaked past the dynamic seal between the pump and the motor. It is important that the leak be corrected as soon as possible to avoid damage to the motor . A new shaft seal will be needed to stop the leak.

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

3. What can I do to avoid my pump losing prime when it sets for a time?

Maintaining "prime" or keeping fluid in the inlet piping of your pumping system requires that no air leak into that piping. You can depend on the check valve in your pump preventing air from entering your system through the nozzle, should it be opened while the pump is off. If your pump is consistently losing prime, check all joints and fittings paying particular attention to the suction tube to pump connection, and the various covers and plugs in the pump itself. Teflon® type sealing tape or a sealing compound noted as resistant to fuels is recommended at all threaded piping connections.

4. When it gets hot outside my pump will not pump gasoline but my diesel pump works great, what is going on?

A suction pump works by developing a vacuum above the fluid being pumped and depends on atmospheric pressure to force that fluid into that vacuum. The higher the fluid is being raised, the more vacuum is required. If the fluid turns to a gas at a lower vacuum than that required to raise the fluid out of the container, the system is said to be vapor locked. In other words, rather than enough vacuum being developed by the pump to raise the fluid, the pump is instead vaporizing the gasoline and only gas vapor is being pumped. Diesel has a very low vapor pressure at even relatively high temperatures so there is no danger of vapor locking at practical temperatures. Gasoline is blended to have different vapor pressures to aid winter starting (high vapor pressure) or avoid vapor locking in the summer (lower vapor pressure). The unit of measure used in the industry for this characteristic is Reid's Vapor Pressure. Having winter gas (high Reid's Vapor Pressure), still available in your tank in a hot spring, is a

common cause of vapor locking pumps.

Once the situation exists, there are a limited number of options. Decrease the "lift" needed to raise the gasoline by filling the tank to the top is the easiest and quickest. This has the added benefit of mixing in a hopefully new blend of gasoline with a lower vapor pressure which will average the blended Reid's Vapor Pressure down. Another option is to decrease the temperature by shading and/or cooling the piping and pump in some fashion. In an emergency spraying water on the piping could well drop the system temperature sufficiently to allow gasoline to be pumped. **Use extreme caution when spraying water around electrical connections and components to avoid the shock hazard**

In new systems make sure the suction pump is installed at the lowest position possible as that decreases the lift, and always install the pump and piping out of the hot sun if at all possible. Know what the Reid's Vapor pressure is of the gasoline you buy. Your supplier has, or can get, that characteristic of the gasoline for you. The Reid's vapor pressure should be 9 to 8, or lower, in the summer and 11 to 12 in the winter.