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PRODUCT DATA SHEET

Series 700B AC Powered Pumps

Model FR700B Pump Shown

Description of Included Models

Model Number	Description	Shipping Weight
FR700	**Basic AC Utility Pump** with manual nozzle and 3/4" X 12' hose.	**48lbs 21.3kgs**
FR701	**Basic AC Utility Pump** with manual nozzle, 3/4" X 12' hose and Model 807C meter installed.	**52lbs 23.6kgs**

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Safety Listings

Approval Organization Mark	Organization Description	File Number	Guide Number
c UL us LISTED	**Underwriters Laboratories Inc.**, a nationally recognized independent organization for testing of products to ensure public safety. Also recognized and accepted in Canada.	MH7817	RCRX
CE Ex	Indicates compliance with applicable European standards and the motor is rated as explosion proof under those standards.	N/A	N/A
	Australian Certification Program, Certified under the		

Australian Certification Program under Aus EX 3620 as Series 700 (230 V, 76 LPM, heavy duty)

N/A N/A

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Available Options

Option	Description	Adjustment to Shipping Weight (lbs.)	Adjustment to Shipping Weight (kgs.)
A	Upgrade to automatic nozzle from standard manual nozzle.	2.0	0.9
E	Unit supplied with 220 VAC - 50 Hz motor	-	-
G	Unit supplied with 220VAC - 50/60 Hz motor	-	-
L	Unit equipped with meter registering liters in place of standard gallon meter.	-	-
-X001	Unit supplied less hose.	(7.0)	(3.1)
-X003	Unit supplied less nozzle.	(1.0)	(0.4)
-X005	Unit supplied less hose and nozzle.	(8.0)	(3.6)
-X011	Unit supplied with automatic nozzle retainer kit (Part No. F8598), less nozzle.	-	-
-X011	Wiring added in the motor for connection of auxiliary equipment.	-	-

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Accessories

Part Number	Description
4200F9111	Nozzle Spout Hook (for automatic nozzles)
700F3135	Buna-N hose 3/4" X 12' with static wire, 3/4" ferrules
5200F1839	Telescoping steel suction pipe - 1"NPT threads - Extends 22" to 40"
700F3136	Manual unleaded nozzle with 3/4" inlet
700F3144	Automatic unleaded nozzle with 3/4" inlet
700F2170	2" O.D. X 1" I.D. tank adapter
700KTF8598	Automatic nozzle retainer kit
712KTF9114	Universal nozzle boot & nozzle retainer, mounting plate to be attached to FR700B or FR701B pump, LESS vapor hose, vapor nozzle, valve & fittings
TH13	Pedestal Kit - Base, pedestal column & coupler for 1" pipe, less suction pipe and union
700KTF7023	Particulate Filter Kit - 700ACCF7016 cast iron 3/4" adapter with 700ACCF7013 filter for Model FR700B

700KTF7024 Hydrosorb Filter Kit - 700ACCF7016 cast iron 3/4" adapter with 700ACCF7012 filter for Model FR700B
701KTF7025 Particulate Filter Kit - 700ACCF7016 cast iron 3/4" adapter with 700ACCF7013 filter for Model FR701B
701KTF7022 Hydrosorb Filter Kit - 700ACCF7016 cast iron 3/4" adapter with 700ACCF7012 filter for Model FR701B

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Performance

Maximum outlet pressure	20 PSI (1.52 BAR)
Maximum flow rate (1)	20 GPM (75.7 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	12 Inches of mercury
Minimum Suction Lift**	15 Feet for Diesel. For gasoline see below.***

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 Reid's vapor pressure of the gasoline and it's temperature. The lower the vapor pressure and temperature, the higher the possible lift. Review

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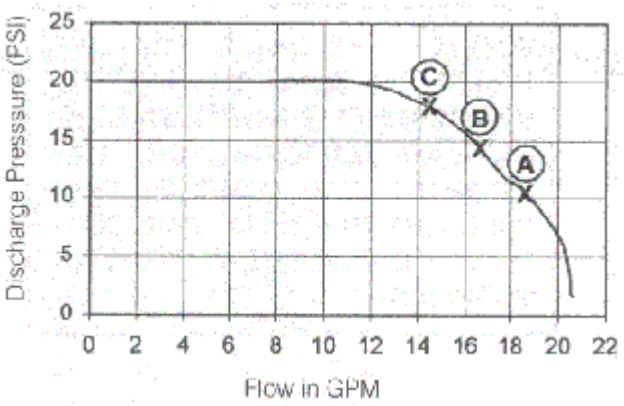
Flow Curve

A.FR650 with 1" X 12' hose and manual nozzle.

B. FR651 with 1" X 12' hose, manual nozzle and 900 meter.

C. FR701B with 12' of 3/4" hose and automatic nozzle.



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

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Fluid Compatibility

The FR700B Series pumps are compatible with the following fluids:

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

The FR700B Series pumps are NOT compatible with the following fluids:

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

Cast Iron	**Steel**	**Stainless Steel**
Bronze/Iron	**Carbon**	**Polyester**
Spauldite	**Viton**	**Buna N**
Zinc Plated Steel	**Ceramic**	**Aluminum**
Ryton (FR701B only)		

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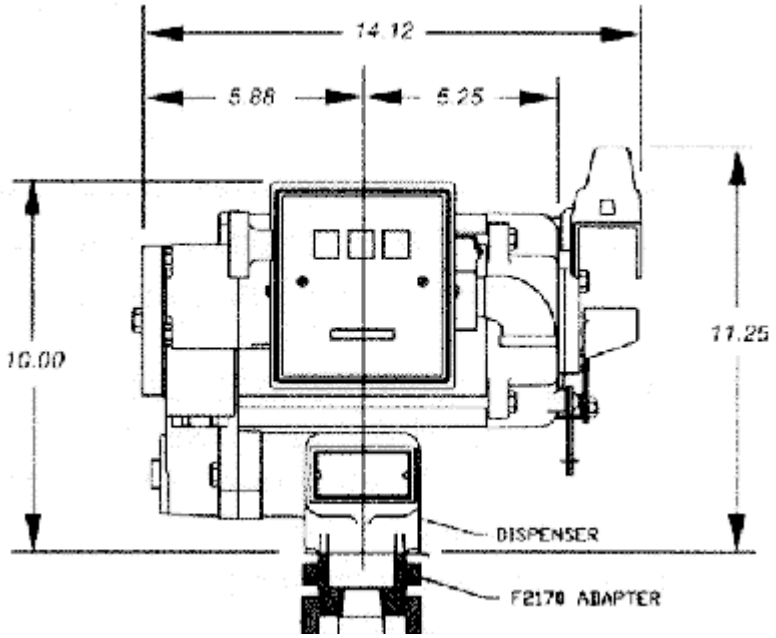
Dimensions



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Repair

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

To maintain UL listing, motors that need repair should be taken to an authorized repair shop or returned to the factory for service. Pumps must be thoroughly flushed and drained before being taken in for service.

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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 (F4360) and pull out screen (F2665).
2. Remove rotor cover (F7714) and inspect vanes (F2656 - molded). Vanes should be replaced after extensive wear to prevent damage to pump.
3. Check hose (F3135) and nozzle (F3136) for wear or damage. Bad hoses or nozzles are potential safety hazards.

For FR701B see meter's Owner's Operation & Safety Manual for additional recommended maintenance procedures.

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Frequently Asked Questions

The questions below are linked to the answers for that particular question. Point and click on the question of interest and you will be move to the answer to that question. Buttons are provided to allow you to move back to this question list or to the original INDEX.

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.

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2. There is fluid leaking out of the small hole in the bottom of the pump body. How do I stop it?

This small hole is described as the "weep hole" and is positioned to drain fluid that has leaked passed 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 front motor bearing. The problem could be as simple as foreign materials preventing the ceramic and carbon seal components from being in intimate contact, to as complex as a defective casting.

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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. Generally you can depend on there being a check valve somewhere in your system 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.

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

IA suction pump works by developing a vacuum above the fluid being pumped and depending 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.

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