PIPING
To avoid strain on the pump, and for better serviceability, the pump should not be used to support piping. Pump suction and discharge piping must be independently supported. Make sure to hold and support both suction and discharge by means of pipe wrench when installing or dismantling pump piping.

PUMP PRIMING
Fill pump and suction pipe completely with water before starting the system. If pump does not deliver water within 20 to 30 seconds, stop the system. Check for air leaks or traps. Repipe and start the system again. DO NOT RUN PUMPS DRY. This will damage the seal and possibly the molded impeller.

Shallow Well Installation

LOCATION:
The pump should be permanently mounted on a solid and level foundation. The location should be accessible for service, yet sufficiently protected against flooding, or excessive moisture.

SUCTION PIPING
Install the pump as close to the water source as possible to minimize the length of your suction pipe. The diameter of the suction pipe should be identical to the suction opening of the pump, except as noted. Make sure the piping is free of all air leaks, and that it slopes continuously upward from the water source to the pump. The pipeline should be free of high spots which can trap air.

Where possible, avoid bends such as elbows and fittings which affects your friction loss adversely. Install a foot valve or check valve to maintain prime.

DISCHARGE PIPING
The discharge piping should be of a size similar to that of the pump discharge outlet, except as noted. It is recommended that you install a “T” and a gate valve with a union. This will enable you to easily prime your pump or disconnect the system to allow for service when required.

NOTE: It is recommended that suction/discharge piping size utilized be larger than pump size if long runs of piping are being used.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>HP</th>
<th>VOLTAGE &amp; PHASE</th>
<th>PORTS</th>
<th>WEIGHT</th>
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<tr>
<td></td>
<td></td>
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<td>Disch</td>
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</tbody>
</table>

All Models are also available in 3 Phase - Specify voltage & Use 93XXX Model No.
GROUNDING & ELECTRICAL INSTALLATION

Use copper conductors only, and be certain wire and fuses of the correct size are installed.

(DO NOT GROUND TO GAS OR FUEL LINES)

Prior to making electrical connections, check the motor name plate and/or terminal board wiring against the motor name plate and wiring diagram/voltage switch to verify compatibility with power available (voltage, phase and cycles).

ATTENTION!
Important information for installers of this equipment!

This equipment is intended for installation by technically qualified personnel. Failure to install it in compliance with national and local electrical codes and with motor suppliers recommendations, may result in electrical shock or fire hazard, unsatisfactory performance, and equipment failure. Installation information is available from pump manufacturers and directly from motor suppliers. Retain this information sheet with the equipment for future reference.

WARNING!
Serious or fatal electrical shock may result from failure to connect the motor, control enclosures, metal plumbing, and all other metal near the motor or cable, to the power supply ground terminal using wire no smaller than motor cable wires. To reduce risk of electrical shock, disconnect power before working on or around the water system.

It is recommended that the ground be connected to a metal underground pipe or casing of at least 10 feet. Plastic pipes and fittings do not serve this purpose. Remember a licensed electrical contractor is the best assurance for proper installation.

Single phase motors are available as follows:
-115/230 volts 60 or 50 Hz.
-230/115 volts 60 or 50 Hz.

Three phase motors are available in 208/230/460 volts, 60 Hz. or 230/380, 50 Hz.

Three phase motors require the use of a compatible magnetic starter. Check motor for rotation. To do so, remove motor back cover and start unit: the shaft must rotate clockwise. To change rotation on 3 phase, reverse any two leads to the starter.

PUMP MAINTENANCE

Proper installation and reasonable occasional care will assure long trouble-free service. The motors used are a ball-bearing type that require minimal attention.

To protect the system against freezing, always made sure the pump is drained prior to exposure to freezing conditions. All our pumps are provided with a drain plug for this purpose.

It is recommended that the opening for motor lead is properly sealed to prevent water, dirt, dust, and insects from entering the motor. This type of contamination will damage the motor.

A shaft seal may get damaged and must be replaced. The seal change is a simple procedure which is outlined as followed.

CAUTION!
Seal surfaces are easily damaged. Please handle carefully. Follow manufacturers instructions.

1. Remove diffuser/volute from pump.
2. To remove impeller, it is recommended that the motor shaft be held from rotating.
3. Remove impeller.
4. Once the seal is exposed, remove the entire back plate and pry loose the ceramic seal seat by applying pressure from the back plate.
5. Clean seal seat cavity and motor shaft. Avoid using sharp tools that may damage cavity or shaft.

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