



MAGNETIC COUPLED SEAL-LESS PUMP & MOTOR UNIT

Refer to Bulletin P-503,
Parts List P-2700 and P-2800.

MODELS

SERIES 'A' 3000A
SERIES 'B' 3450BL

SAFETY PRECAUTIONS BEFORE STARTING PUMP

1. Read operating instructions and instructions supplied with chemicals to be used.
2. Refer to Chemical Resistance Data Chart for compatibility of material in pump with solution to be used.
3. Note temperature and pressure limitations.
4. Personnel operating pump should always wear suitable protective clothing: face mask or goggles, apron and gloves.
5. All piping must be supported and aligned independently of the pump.
6. Always close valves slowly to avoid hydraulic shock.
7. Ensure that all fittings and connections are properly tightened.

BEFORE CHANGING APPLICATION OR PERFORMING MAINTENANCE:

1. Wear protective clothing as described in Item 4 above.
2. Flush pump thoroughly with a neutralizing solution to prevent possible harm to personnel.
3. Verify compatibility of materials as stated in Item 2 above.

IMPORTANT:

Check compatibility of the pump and "O"-ring with the solution to be pumped. Refer to Product Bulletin P-503 for pump model and materials of construction, standard and optional "O"-ring.

PRE-START-UP

Install proper motor starter (with overload protection) if not already included on the assembly. Pump rotation is clockwise on 3000A and counter clockwise on 3450BL pumps, (viewed from pump end). Check wing nuts to see if tight. Check voltage. Three phase motors can cause reverse rotation if wired incorrectly.

CHECK SPECIFIC GRAVITY

Pump impeller is designed to provide maximum flow and pressure for water type liquids. Liquids of high specific gravity cannot be pumped (usually indicated by initial pumping and then complete cut-off) unless the overall length of the impeller is reduced. Impellers may be trimmed by sanding or filing, taking care to remove equal amounts at each end of impeller. Remove a maximum of 1/16" and check its performance in the pump before additional material is removed. See chart at end of instruction sheet.

CHECK FOR FRICTION FREE ROTATION OF DRIVE MAGNET IN RELATION TO PUMP BODY

1. Remove pump cover and turn impeller by hand - or;
2. Turn fan on motor using screwdriver or similar tool. The pump should rotate freely without friction or binding.
3. If binding occurs, realign pump mounting studs so pump body does not interfere with drive magnet.

START-UP AND PRIMING

1. Do not operate pump when dry. Liquid is necessary for lubrication.
2. A suction strainer is recommended if the solution contains debris which may damage the pump or reduce flow.
3. Unless the pump is installed with a flooded suction, it will be necessary to prime the pump. A rubber priming bulb is supplied with each pump and is in the same plastic bag as the suction strainer if pump is supplied with a filtration system.

For 5/8" and 3/4" I.D. Hose:

Insert the suction end of the bulb (flat ended valve) into the discharge hose. End of hose should be sealed against the bulb body. Alternately squeeze and release the bulb. Liquid will rise in the suction hose and motor should be started when solution is seen coming out of the pump discharge hose.

4. A foot valve could be attached to the suction hose and liquid poured through the discharge hose until the pump and suction hose are filled. The pump is then started.

OPERATION TIPS

1. If pump remains idle, flush with water or neutral solution to avoid crystallization.
2. If pump is used on electroless plating solution, a metallic film may deposit on the internal surfaces. This reduces clearance, can affect pump performance and cause premature wear of pump body or impeller assembly. Periodically check and remove metal build-up by immersing parts in, or pumping a "stripping" agent. Be sure to check compatibility with pump and "O"-ring material.
3. Inspect impeller magnet and pump body for signs of wear. Excessive clearance between these items indicates replacement is required of either or both. An excessively worn body or impeller assembly can accelerate the wear of the other new component. Therefore, replacement of both items is recommended.
4. Place in stock, a spare "O"-ring and impeller assembly to avoid shutdown for lack of a replacement part. A body and motor could also be held in stock, depending upon the necessity of uninterrupted operation of the pump and system.
5. Install pump with hose, rather than pipe, to avoid stress on pump body and permit ease of inspection. Hose connections to rigid pipe can then complete the installation.
6. If motor fails to rotate when energized: Check for proper voltage, starter wiring, wedged impeller magnet or misalignment between pump body and drive magnet.

7. If motor rotates, but does not deliver flow (when primed properly) check for:
 - A. Impeller and "O"-ring in pump body.
 - B. Solution specific gravity vs. impeller length (see table below).
 - C. Loose connection in suction system to pump (tighten all clamps, fittings, etc.)
 - D. Tighten wing nuts on cover.
8. **IMPORTANT:** An aqueous solution at 130°F, or higher will evaporate a considerable volume of water. The remaining solution will have a greater S.G. and therefore, can cause separation of the impeller from the drive magnet, and zero flow rate will result. Correct by adding water or trimming impeller (see below).
9. Solution containing ferrous fines can cause accelerated pump wear due to their magnetic attraction to the impeller magnet.
10. Pump body may be installed in any one of three positions on to the mounting studs. After repositioning body, check alignment and refer to step 1, below.

PUMP SERVICE

1. **IMPORTANT:**
Shipping and freight handling can cause pump-motor misalignment. If motor does not rotate or there is friction between drive magnet and rear of pump body the following steps for adjustment are necessary.
 - A. Remove pump body from four (4) mounting studs.
 - B. Tighten four pump mounting studs and two lock nuts. Then energize motor.
 - C. Slowly slide pump on studs toward rotating magnet until friction is detected.
 - D. Remove body and inspect rear contact point that magnet made with pump body.

- E. Adjust four (4) studs up, down, left or right to compensate for misalignment, NOTE, that pump body may be used as a tool for simultaneously adjusting four studs.
- F. Continue this procedure until pump-motor is in friction-free alignment.
- G. To replace drive magnet, unscrew old magnet from motor shaft and replace with new drive magnet assembly. Before assembling pump, check that all studs, nuts and screws are secure. When replacing pump body, follow procedure in No. 1 above. The Series 'A' pump-motor shaft threads are left hand. Series 'B' pump-motor shaft threads are right hand. There is a screwdriver slot in the fan end of the motor shaft to facilitate magnet removal.

MOTOR SERVICE

1. **Series 'A':** To replace motor, disassemble pump and loosen drive magnet from motor shaft. Note: Left hand thread on Series 'A'. Remove pump mounting plate (Series 'A') and replace new motor.
For **Series 'B'**, remove four pump mounting rods and replace motor. Drive magnet has right hand thread.
2. Turn motor on. Slide pump body entirely over mounting rods with outlet port at desired direction of discharge. The drive magnet must rotate without contact to the back side of the pump body. If friction exists between these two surfaces, remove the pump body and observe the back side to determine the point of contact and then adjust the proper mounting rod accordingly. Reposition the pump body, replace impeller magnet and pump cover.

ON/OFF switch included on all 1/12 H.P. motors (Model 3000A Pumps) shipped Sept. 1 '94 or after.

CAUTION
Be sure switch on motor is in "OFF" position before power cord is plugged in. "OFF" position is down

Specific Gravity: The length of the impeller supplied on all standard seal-less pumps is designed for use on water-like liquids. Solutions which have a higher specific gravity can be pumped if: 1) the outlet flow is restricted so that the impeller magnet stays in synchronization with the drive magnet, 2) The restrictions from a filter or other head loss is sufficient to keep the impeller magnet in synchronization. 3) the overall length of impeller is reduced according to the table below:

MODEL	SPECIFIC GRAVITY					COMMENTS
	1.1	1.2	1.3	1.4	1.5	
_3000A	2-1/2"	2-3/8"	2-1/4"	2-1/4"	2-1/4"	Maximum flow approximately 8 GPM, maximum pressure approximately 9.0 PSI. Flow rates for above will be reduced 1 GPM for each .1 specific gravity increase.
_3450BL	2-5/8"	2-1/2"	2-3/8"	2-1/4"	2-1/4"	Maximum flow approximately 13 GPM, maximum pressure approximately 10 PSI. flow rates for above will be reduced 1 GPM for each .1 specific gravity increase.

A partial reduction in impeller length may be sufficient where at least some back-pressure is present. This point is further covered in the operating instructions.



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