OPERATION AND
SERVICE GUIDE
O-189-1
NOV. 1996

SERIES 'P'
MAGNETIC COUPLED PUMPS

PRODUCT BULLETIN	PARTS LIST
P-508-1	P-4225-1

A. SAFETY

1. Read operating instructions and instructions supplied with chemicals to be used.
2. Refer to Chemical Resistance Data Chart for compatibility of materials 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.
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. Shut off power to motor at isolating switch.

SUPPLY OF MACHINERY (SAFETY) REGULATIONS 1992 EEC DIRECTIVES - CE MARKING

SAFETY GUARDS

The products covered by these instructions are, where appropriate, supplied with guards to prevent accidental contact with moving parts.

It is essential that these guards are fitted correctly and securely after assembly, servicing or repair such that the machine conforms with the essential health and safety requirements - machines must not be put into service until they have been declared in conformity with the Machinery Directive.

AIRBORNE NOISE EMISSIONS

The products covered by these instructions, when operating under normal design conditions, generate a continuous noise intensity which does not exceed 70db (A) when measured at a distance of 1m from the machine.

Note: No account has been taken of noise resulting from vibration or reverberation of connecting pipework/tanks or the building enclosing the installation.

WARNING

Operators should be sure that no physical contact is made with rotating pump parts which may be accessible through pump suction/discharge ports.

B. GENERAL

1. The pump is constructed of PP or PVDF. Fasteners are stainless steel. The materials should be chemically compatible with the solution being pumped, and care should be taken to protect the pump components against unnecessary wear and physical abuse.
2. Record all model and serial numbers for future reference. Always specify model number and serial number when ordering parts.
3. 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 diameter of the impeller is reduced.
4. All units are factory tested to meet published or specified flow rates and to confirm that the pump and motor functioned properly at time of shipment.
5. Review Parts List and maintain an emergency inventory of replacement items to assure that pump is returned to service with the least delay.

C. INSTALLATION

Installer is responsible for ensuring that all interconnecting pipe work and fittings are suitable for the application and the temperature and chemical composition of the solution being handled.

1. Verify that operating temperature is not in excess of pump design temperature.
2. A strainer should be installed in the suction line to prevent foreign material causing damage to the pump. Strainer should be sized such that suction losses are minimized otherwise cavitation of the pump can occur with resultant damage.
3. Install proper motor starter (with overload protection) if not already included on the assembly. Pump rotation is anti-clockwise when viewed from pump end. Check suction casing fasteners to see if tight. Check volt age.
4. Support piping near pump to minimize strain on pump casings.
   To minimize head loss from friction:
   Increase pipe size 1 diameter
   Use minimal number of bends
   Keep bends a minimum of 10 pipe diameters away from suction.
5. Position pump as close to liquid source as possible. Maintain flooded suction whenever possible. Ensure that piping is leak-proof.

6. The only moving part inside the pump volute is the impeller magnet assembly and bushing which rotates on the porcelain shaft. If the pump is run dry with no liquid inside the volute, it will damage the bushing and possibly the impeller. Short runs of 15 seconds or less will not damage the pumps. This will allow electrical connections to be checked. The electrical wiring diagram is located inside the cover of the motor conduit box. The motor fan must rotate in a clockwise direction when viewed through the fan cover of the motor. The motor is rated for continuous duty.

D. OPERATION

1. Do not operate pump when dry. Liquid is necessary for lubrication.
2. Pump should not be 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.
3. Do not pump liquids that contain suspended iron fines which will be attracted to the strong magnetic fields of the impeller magnet, and thus damage internals.
4. Unless the pump is installed with flooded suction, it will be necessary to prime the pump. Priming may be performed with the process liquid or with water if it is acceptable to the process. To prime, hold the ends of both hoses and pour liquid into the suction hose until it appears in the discharge hose. Agitate both hoses to disperse air that may be trapped in the pump.
   With the end if each hose facing upward, lower suction hose until the liquid overflows. Place hand over the end of hose, immerse in tank, energize motor and remove hand.
5. If motor fails to rotate when energized: Check for proper voltage, starter wiring or misalignment between pump body and drive magnet.
6. If motor rotates, but does not deliver flow (when primed properly) check for:
   6.1 Impeller and "O"-ring fitted.
   6.2 Solution specific gravity vs. impeller diameter.
   6.3 Loose connection in suction system to pump (tighten all clamps, fittings, etc.)
   6.4 Loose suction casing fasteners.
7. If pump remains idle, flush with water or neutral solution to avoid crystallization.

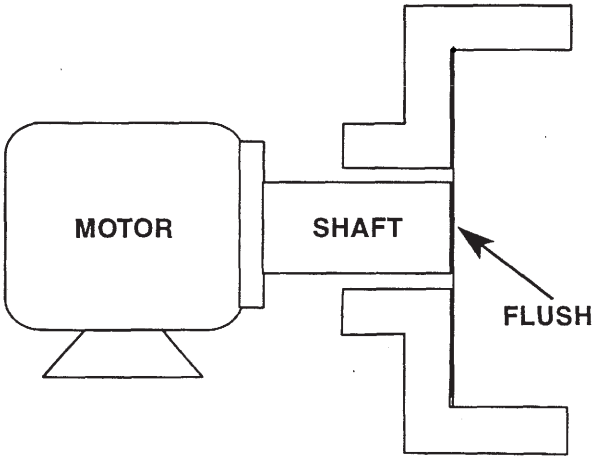
E. MAINTENANCE

1. PUMP SERVICE - Inspect all parts and replace as necessary

1.1 Drain liquid from the pump and adjacent hose or pipe-flush.
1.2 To disassemble the pump, remove suction casing fasteners; wetted parts can now be separated from motor bracket.
1.3 After removing suction casing, check impeller rotates freely on ceramic shaft supported in magnet liner section.
1.4 Inspect forward face of impeller bushing and front thrust bearing for wear; check condition of rear thrust washer.
1.5 Inspect "O"-ring for deformation/damage.
1.6 Remove liner from motor bracket and inspect for damage.
1.7 Ensure all parts are clean before reassembly.

2. MOTOR/DRIVE MAGNET - Inspection/replacement

2.1 Disassemble pump as in 1 above.
2.2 Slacken set screws in drive magnet hub - accessed via hole in motor bracket - and remove drive magnet using a suitable extractor; motor bracket can be released by removing 4 bolts securing it to motor face.
2.3 Reassembly is reverse of above; the drive magnet hub should be pressed onto the motor shaft until it contacts the shoulder - set screws should then be tightened.



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