



# Chemsteel® Seal-less Mag Drive Rotary Gear Pumps

## Installation, Operation, and Maintenance Manual Supplement

This document supplements the full IOM for Chemsteel® Sealed Rotary Gear Pumps

### Introduction

#### **Construction**

Chemsteel® Seal-less Mag Drive wet-end housings are made of top quality investment cast 316 Stainless Steel or Alloy C. Shafts are Stainless Steel or Alloy C. A variety of metallic and plastic gear materials are available. Non-wetted power end components are made from durable steel and iron. Pumps are available with carbon graphite bearings, Teflon® or Rulon® bearings. No bearing lubrication is required. Static o-rings eliminate gasket problems. Consult specification sheets for complete list of available materials.

#### **Application Range**

Chemsteel® Seal-less Mag Drive Rotary Gear pumps are of the external gear positive displacement type, displacing a finite volume of fluid with each shaft revolution. As such, capacity varies in direct proportion to pump speed. They are suited for clear lubricating and non-lubricating fluids at temperatures to 450F. These pumps handle low viscosity fluids to 100 SSU with flow rates to 30 GPM, differential pressures to 110 psig, and suction lift capability to 20 feet for new pumps.

### **!! Magnet Warnings !!**

**Danger!** for persons with cardiac pacemakers within 6 feet distance.

**Caution!** inner and outer rotor have strong magnetic fields.

**Caution!** take care with metallic parts within a distance of 1 foot.

**Caution!** with magnetic data carriers within 3 feet distance.

### Installation

#### **Close Coupled Motor Mounting**

Chemsteel® Seal-less Mag Drive Rotary Gear pumps are designed with built-in alignment features for close-coupling to NEMA C-Faced motors and IEC B4-faced motors.

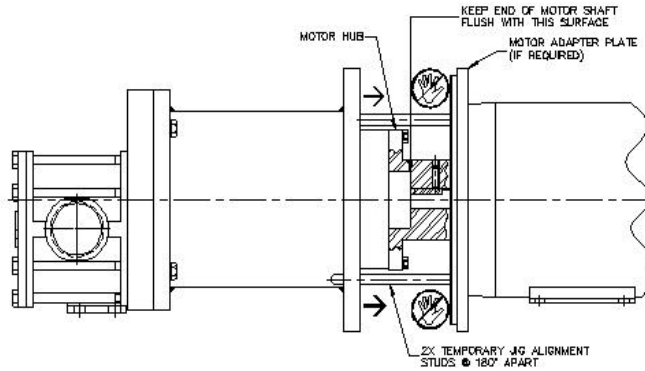
If you purchased a complete pump and motor unit from the factory, then the assembly is complete and ready for field installation.

#### **Pump Driver Mounting**

If you purchased a pump less motor or a pump wet end kit and power kit (suitable for the motor frame size selected), further assembly and motor mounting is required:

**Caution:** Find a clean area to perform the motor and drive magnet installation. Metallic fines will be drawn to the drive magnet surface and the outside of the containment can. If fines are present, they can be removed using masking tape. Keep all metallic tools a safe distance away from the magnets.

- 1) Most pump and drive combinations do not require an adapter plate. For those that do, mount the adapter plate to the face of the motor, with the male lock facing the pump. Use the bolts supplied.
- 2) Loosen the motor hub set-screws and slide the motor hub onto the motor shaft, over the key, until the shaft end is flush. Since some hubs are counterbored, flush can be to the depth of the counterbored face. This will automatically position the drive magnet properly for peak mag coupling performance. Tighten the hub set screws to lock the hub into position.
- 3) Mount the drive magnet to the hub. Take care to line up the bolt holes. Attach the drive magnet to the hub with the bolts provided. In the event it is necessary to remove the drive magnet from the hub, jack bolt holes are conveniently provided.
- 4) Join the power end and wet-end together. Install the two motor jig studs provided at 180 degrees apart to help control alignment. (Do not tighten the jig studs since they'll be removed and replaced with bolts afterward.) As the magnets approach one another, the attraction force will cause the subassemblies to be drawn quickly together. The jig studs prevent damage to the drive magnet and containment can.



**WARNING ! BEWARE OF SUDDEN MOVEMENTS!**

**Gain solid footing and hold the wet-end firmly. Take extra care to keep fingers, face, or any other part of the body away from the end of the bell housing that will join to the motor face. Failure to do so can result in personal injury.**

Advance the power end assembly slowly over the motor jig studs towards the motor face. Finish the assembly by assuring that the bell housing fit is snug on the motor c-face (or adapter plate). Install two bolts. Remove the two motor jig studs and replace with two more bolts.

**Fasteners**

Unless the pump and motor unit has been shipped directly from the factory, it is recommended to check all bolts and nuts for tightness to eliminate possible leakage problems or destructive vibration. Over-tightening fasteners can lead to damage of pump components. Chemsteel® Mag Drive pump fasteners are factory installed to the following torque specifications:

Bolt Thread	Bolt / Nut Head	Torque
M4	3 mm socket head	28 in-lbs
M5	4 mm socket head	42 in-lbs
M6	10 mm hex head or 5 mm socket head	45 in-lbs
M8	13 mm hex head or 6 mm socket head	85 in-lbs

**Operation**

When priming the pump on initial start-up, it is recommended to remove the pump flange vent plug to purge entrapped air from the containment can.

**Maintenance**

**Recommended Spares**

Repair kits are available for all Oberdorfer Chemsteel® Seal-less Mag Drive Gear Pumps. For the proper kit, simply add a “K” to your pump product number when contacting your Oberdorfer Distributor or the factory. Kits are supplied with a full set of internal components including gears, shafts, keys, o-rings and bearings.

**Troubleshooting Matrix Supplement for Mag Drive**

Difficulty	Probable Cause	Remedy
No Liquid Delivery	7) Magnet decoupled	7) Torque rating exceeded- determine cause
Low Liquid Delivery	6) Recirculation orifice plug missing or damaged.	6) Inspect orifice plug, replace if necessary
Noisy	5) Magnet decoupled	5) Torque rating exceeded- determine cause
Pump Runs too Hot	1) Recirculation configuration not matched to system requirements. 2) External recirc. cooling source has failed.	1) Contact Oberdorfer Representative 2) Inspect and remedy cooling source problem.
Pump Leaks	1) Missing or damaged o-ring 2) Fasteners not torqued	1) Inspect o-rings and replace if needed 2) Tighten fasteners to specified torque values.