

Molten Lead Pumps

Lead is obtained by mining it from large deposits. Lead is sintered to purify it and reduce the amount of sulfur content. Lead typically melts around 621 deg F and typically can be use to pour ingots around 700 deg F.

While lead is considered to be a carcinogen and breathing or consuming it can be considered hazardous, it is estimated that the average person uses around 11 pounds of lead per year. Lead can be found in automobile batteries and wheel counter weights, in the medical industry as protection from X-Rays, control rods in the Nuclear field, fishing lures and weights, and bullets.

Pump Model

The Taber Series 1000 is the pump of choice. The preferred speed is 1800 rpm. We can supply a Series 8000, which has the added feature of a triple throat casing for reduced radial loads. The Series 9000 pump has been used since it is based on a cantilever design, which would extend the life of the pump.

Pump Selection and Application

- **Materials of Construction:** All wetted parts are constructed of DI, 304SS, or all 316SS. The impeller will be 304SS or 316SS. The support column and Discharge pipe will be schedule 80, Not 40, steel pipe. The shaft will be Cold Rolled Steel (CRS). Please note that this requires special calculations of head loss when selecting a pump.
- **Bearing Materials:** All metallic bearings are required. CI or DI have been used the most. These bearings required special clearances to allow for expansion and for the molten lead to flow between the shaft and sleeve.
- **Support Column and Discharge Pipe:** Standard support column and discharge pied can be used. No jacketing is required.
- **Stuffing Box and Sealing:** All metallic bearings are required. CI or DI have been used the most. These bearings required special clearances to allow for expansion and for the molten lead to flow between the shaft and sleeve.
- **Couplings:** Flexible all metal non-spacer couplings, such as Falk Steelflex T20 or Thomas DBZ are preferred because of the relatively high service temperature.
- **Motors:** Standard TEFC or TEFC Chem Duty motors are generally used. Any enclosure can be considered. Make sure that the motor insulation is sufficient for heat resistance. We recommend "H" insulation. Make sure that you account for the high specific gravity. The S.G. used for horsepower calculations is 1.14. We would recommend a motor service factor of 1.15.

Application Considerations

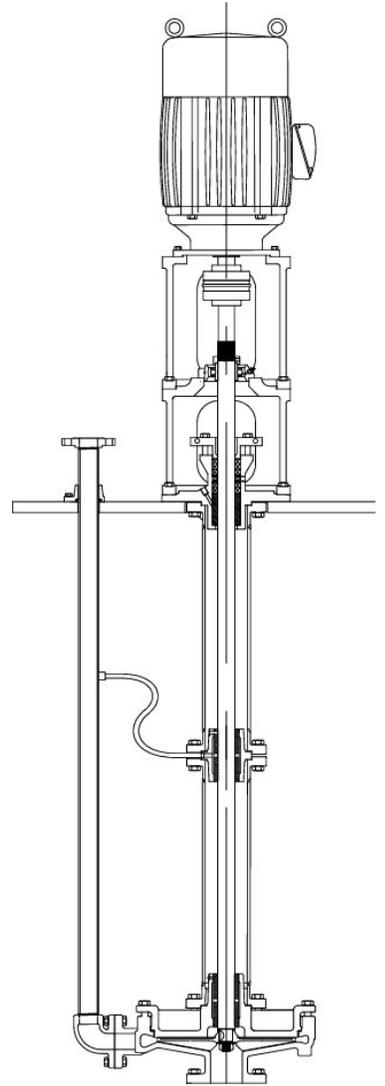
- ✓ Most Molten Lead applications are between 800-932 degF
- ✓ At 900 degF, the S.G. is 11.3 and weighs 94 lb. per gallon.
- ✓ Due to the weight of the molten lead liquid and the high temperature, we recommend duplex angular contact thrust bearings.
- ✓ Due to the high temperatures, we can add a tripod to raise the motor higher, which will allow for better heat dissipation.
- ✓ Once the pump starts, it should be ran until the tank is empty. This will prevent an "freeze-ups" in the pump.

- ✓ Due to the high temperature, special impeller settings must be made to allow for the “growth” of the shaft/impeller assembly. As standard procedure, the pump is placed in the pit and allowed to reach the application temperature, before setting the impeller clearance. Contact the factory for your specific pump application.

Reference List and Installation List

The following are the companies that have successfully applied these pumps

E. I. Dupont
Doe Run Co.
St. Joe Lead



LaBour Pump Company – 901 Ravenwood Drive, Selma, Alabama 36701

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