Product Data Sheet

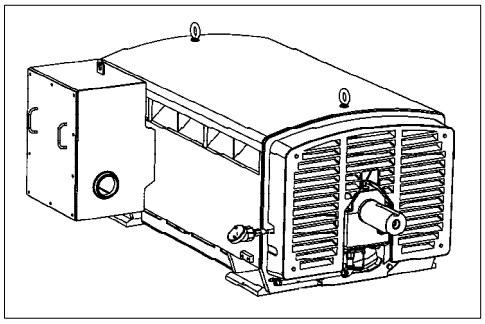
Horizontal TITAN® Line A.C. Motors

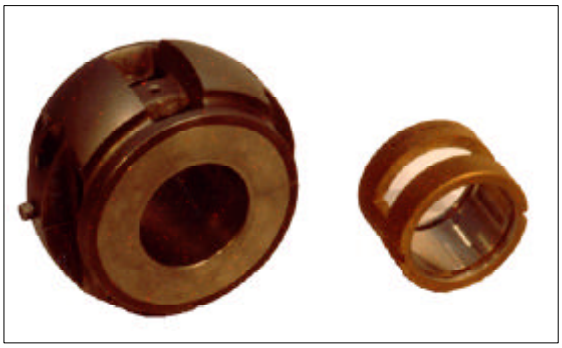
Sleeve Bearing Motor

- 400 through 4000 Horsepower
- 50 and 60 Hertz
- Low and medium voltage
- 5000 through 9600 frame
- Open Dripproof, Weather Protected Types I and II
- Direct connected applications

Product Overview

Recognized by engineers and industrial users for their long life, sleeve bearings are offered as an available option on all TITAN® horizontal ODP, WP-I and WP-II enclosures. Sleeve bearings operate on a thin film of oil supplied by oil ring or flood lubrication and are frequently applied to high(er) speed direct connected loads. Sleeve bearings have a very limited capacity for any external radial loads, but when applied and maintained correctly, they offer an infinite (theoretical) life.





U.S. Motors offers a unique sleeve bearing product when evaluated against the typical competitive design. The USEM two piece, spherically seated bearing has become an industry benchmark which provides significant advantages over the fixed seated bearing.

A USEM spherically seated bearing (left) illustrating the tin babbitted thrust face(s). The fixed seated design is from a competitive product of the same rating.

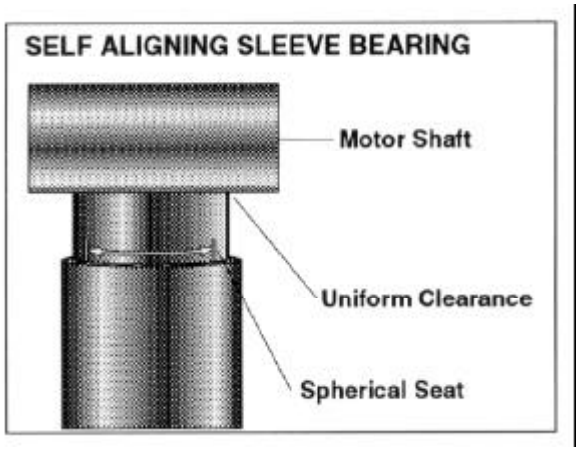
The typical fixed seated sleeve bearing is a cylindrical arrangement with a concentric O.D. and I.D. During final assembly, the fixed seated bearing or bracket must be shimmed in order to achieve alignment between the journal of the shaft and the babbitt of the bearing. Without this parallelism, edge loading will occur leading to premature failure with potentially catastrophic results. Achieving alignment between the shaft journal and bearing babbitt is a tedious and time consuming process. This process requires that the shaft journal be marked with bluing ink. Then the bearing is assembled, the shaft is rotated and the bearing is disassembled.

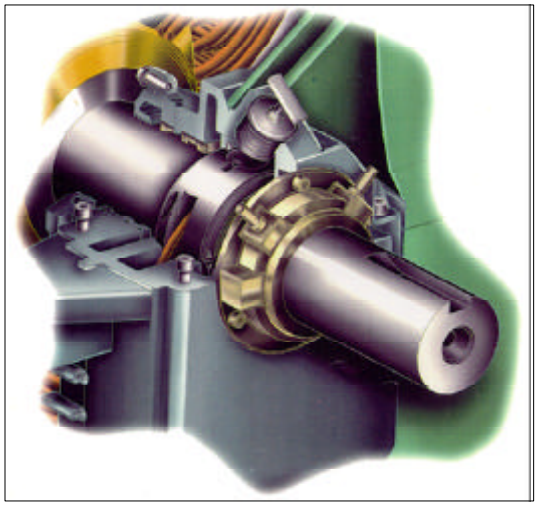
The rub marks on the shaft journal bluing highlight internal misalignment. The bearing or bracket is then shimmed to off set the misalignment. This procedure is repeated until a satisfactory alignment is achieved. Later in life should the motor need repair, the local motor repair facility must exert the same level of care during assembly to correct for internal misalignment.

Product Overview

U.S. Motors' sleeve bearing is a spherically seated, self aligning, split two piece design lubricated by one or two oil rings. Flood oil lubrication provisions is also available and is standard on larger 2-pole machines. It is mated to a bearing bracket surface which is also spherically machined. When assembled, this design provides assurance of 100% alignment.

Inspection is easy and no shimming is required. Additionally, the split bearing design allows for disassembly and replacement without removing the motor from its mounting base.





Since all sleeve bearing designs are allowed to float between geometric and magnetic centers, sleeve bearing motors need to be connected to their driven equipment with a limited end float coupling. USEM's sleeve bearings are provided with babbitted thrust face(s) to prevent damage that can occur if rotor is allowed to momentarily oscillate freely and bump the bearing. These babbitted bearing faces are not designed to provide for continuous axial thrust protection.

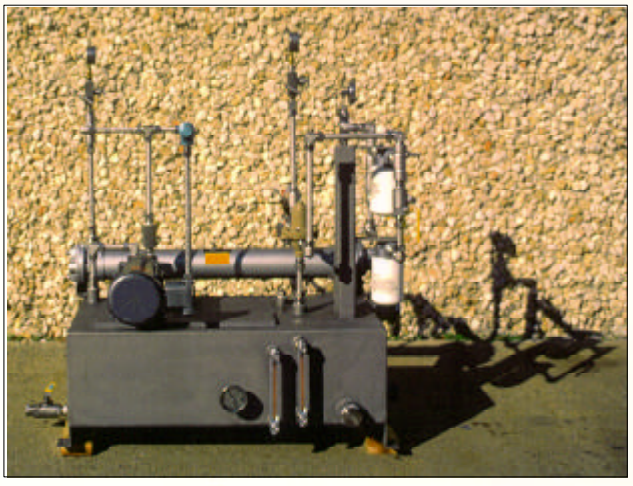
For ratings which require a single "insulated bearing", the ODE bearing will be insulated (single take off shaft) with a plasma aluminum oxide coating. This prevents circulating shaft currents from degrading the life of the sleeve bearing babbitt. When requested, USEM will offer "insulated bearings" on both ends of the motor. With this feature, a grounding strap is also included. Bearing probes are designed to prevent shorting out insulation of bearing and care should be exercised in replacement of probes with same or similar type.

Accessories

To insure optimum performance and a long dependable life, the U.S. Electrical Motors line offers a wide variety of accessories designed specifically for use with sleeve bearing motors.

- Bently Nevada 3300 Series Proximity Probes and Keyphasors
- Constant Level Oilers
- Oil Sump Heaters
- Knife Edge Seals and Coast to Rest Seals
- Permanent Magnetic Center Indicator
- Thermal Protection Devices
- Insulated Bearing(s)
- Special Balance
- Complete Forced Oil Lubrication System

When requested, a complete flood oil lubrication system console for your sleeve bearing motor can be supplied. From pre-engineered units to those customized to meet stringent specifications, the lube oil console provides dependable lubrication to the bearings.



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