



White Metal Bearing Manufacture is More Controllable with Infrared Heat

Michell Bearings, located in Newcastle upon Tyne for more than 80 years, is the premier designer and manufacturer of self-contained white metal (or babbitt) bearings for a wide range of marine and industrial applications, such as gearboxes, turbines, pumps and fans.

One of the most important production stages in the manufacture of a white metal bearing is the coating of the parent metal of the bearing surface with the white metal itself. Generally, white metal alloys are composed of tin, copper and antimony. There are various methods of applying the white metal, including dipping the parent metal shell in a hot tinning bath. However, all coating methods require the application of heat to ensure good fluxing and adhesion of the white metal. Directing a naked gas flame onto the parent metal as well as hot tinning can cause a dirty and often hazardous working environment. In an effort to solve the environmental problems, and to achieve greater control over the coating process, Michell have installed an infrared oven at their Newcastle plant. This has been located over an existing flat coating bed and is fitted to an overhead track system.

In operation, the shot-blasted, steel parent metal bearing is loaded onto an existing spinning mechanism on the bed. The infrared oven is then manually moved in place over the bearing before the emitters are switched on. The temperature of the parent metal surface is checked and when this reaches 280°C, the IR emitters are switched off and the hood is moved away. At this point, the spinning mechanism is activated and the white metal is poured in to be evenly distributed over the required bearing surface by the centrifugal force. The coated bearing is then cooled by an atomised spray of air and water.

Apart from being significantly cleaner and less hazardous than conventional coating methods, the new system has also allowed the coating process to be more controllable, with corresponding improvements in coating quality. Moreover, as the heat is applied only when necessary and is precisely focused onto the bearing surface, the infrared oven has proved more energy-efficient.



Features

- white metal coating of steel bearings
- infrared emitters allow the coating process to be more controllable
- improvement of quality
- less dangerous than conventional coating
- more energy-efficient

Technical Data

- medium wave infrared heating system
- 32kW, 16 emitters, 2kW each
- control by infrared thermometer
- 280°C surface temperature

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