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Product Name :
Journal Friction Apparatus

Product Code :
LBNY-0005-14000036



Description :

The apparatus consists of a sturdy tubular steel frame on which is carried a counter shaft mounted in ball bearings having an overhung mandrel at the front. The Journal Friction Apparatus is the basic item in the Hydrodynamic Lubrication Unit which enables the friction in a journal bearing to be measured under various conditions of load and speed, including boundary lubrication conditions, and the comparison of the results with the friction torque predicted by the Petroff equation. The bearing system, which is to be the subject of the investigation, is assembled around the mandrel. The shaft is driven by a variable speed DC motor via a toothed belt and pulleys.

Features:

- Uses automotive thin wall main bearing shells of various widths.
- Variable speeds up to 1000 rev/min.
- Horizontal 50 mm shaft and journal bearing;
- Three alternative shaft sleeves provide variable bearing clearance.
- Air cylinder driven reciprocating oil pump and accumulator.
- High quality oil filtration and pressure regulation.
- Indication of oil film thickness and detection of metal to metal contact based on electrical resistance between journal and housing.
- Radial loading of the bearing of up to 500N is applied vertically by weights via an hydrostatic pad.
- Direct measurement of bearing friction torque.
- Instrumented for oil pressure and temperature, and drive motor current.

Technical Specification :

Experimental Capability:

1. Friction Torque in a Journal Bearing assembled with any combination of 3 shaft sleeves and any 3 bearing shell widths:

Preparation of torque-load parameter curves under different conditions of journal speed, load and including boundary lubrication conditions.

During running-in of the bearing shells.

Comparison of friction torque with that predicted by the Petroff equation.

2. Bearing Attitude.

Measurement of bearing attitude for different conditions of load and speed.

Measurement of approximate running-in wear.

3. Pressure Distribution in a Journal Bearing.

Comparison of summated pressures with applied load under different conditions including conditions of limited boundary lubrication.



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