

Journal Bearing Friction Simulator

Overview

The journal bearing apparatus is an educational unit which is designed to investigate the operation of journal bearing and drive the correlations involved with journal bearings experimentally. The unit is composed of electrical motor, radial journal bearing, drip-feed lubricator, mechanical loading device, thermocouple and control unit.



Specifications

- The control unit contains all the switches necessary to control the unit such as ON/OFF switch, emergency switch, motor speed control switch, and the digital displays as well.
- The unit consists of a drip feed lubricator with specific oil of viscosity grade: ISO VG 32, for continuous lubrication feeding.
- The unit consists of a three-phase electric motor with a variable speed control.
- The motor is loaded using a mechanical lever (loading device). The loading device is made of belt mechanism.
- The load on the motor can be varied by adding weights to the mechanical loading lever.
- The speed of the motor is measured via a proximity sensor.
- The temperature of the lubricating oil is measured at the bearing housing using a j-type thermocouple.
- The measured rotating speed and lubricant temperature are digitally displayed on the control unit.
- The unit is equipped with box contains 5 kg weights.

- The unit contains balance beam with precise ruler imprinted to simulate different moments applied on the journal bearing.

- The unit is very compact and table top mountable.

Experiments

- Investigating operation of journal bearing.
- Driving correlations involved with journal bearings experimentally.

- Investigating effect of speed, bearing load and lubricant and lubricant temperature on friction in a journal bearing.

Technical Data

Shaft

- » Ø=30mm, Steel

Journal Bearing

- » steel
- » Journal Diameter d = 30 mm
- » Bearing Diameter D = 45 mm

Motor

- » 3phase induction motor 750 KW

Oil

- » viscosity grade: ISO grade 32

- » Weights

- » 1x 50N, 1x 20N, 2x 10N, 2x 5N.

Lever

- » Transmission ratio 5:1

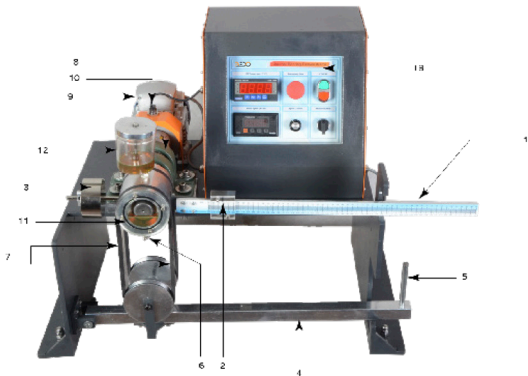
Thermo-couple

- » Type: K
- » Temperature Range -50 up to 200oC

Speed sensor

- » Type: Proximity sensor
- » Measuring Range 100 to 3000 min-1

Components



1	Balance Beam with precise ruler imprinted	2	Movable weight
3	Fixed Weight	4	Loading Device
5	Weight Hanger	6	Radial Journal Bearing
7	Belt mechanism	8	Coupler
9	3Φ Induction Motor	10	Proximity Sensor
11	Thermocouple J Type	12	Drip-Feed Lubricator
13	Control Unit		

Scope of Delivery

- Journal Bearing Friction Simulator (DN - 029)
- Hard copy user manual

Options

- Digital content (BI-01)