

Product Name :
Bending Elasticity In Rotors

Product Code :
TN333



Description :

Bending Elasticity In Rotors

Technical Specification :

Bending Elasticity In Rotors

The unit is perform the following experiments and investigations:

Learning Objectives / Experiments:

Investigate bending vibrations and resonance of a rotating shaft

Determine critical speeds with different arrangements of the bearing and masses on the rotor shaft and compare with theory

Investigation of the rotor's self-centering effect

To be supplied with:

System for data acquisition

PC1 Computer-System with 21" TFT-Monitor Win 10 engl.

Specification:

Investigation of bending vibrations and resonance in rotors

2 self-aligning ball bearings to support the rotor shaft, position able at any point

2 masses to be secured at any point

Safety bearing and transparent protective cover for safe operation

Three-phase motor: 2 pre-selectable speed ranges; speed electronically controlled and continuously adjustable

Digital speed display

System for data acquisition

Technical Data:

Three-phase motor

Power: 0,25kw

Max. Speed: 3000rpm

Rotor shaft

L=500mm

∅ 6mm

High tensile steel

Mass 2x, disk-shaped

m=965g

∅ 80mm

Hardened steel

Rotor bearing

2x self-aligning ball bearings

2x safety bearings

Safety bearing play: ± 3 mm

Adjustable bearing clearance: 300...470mm

Measuring ranges

Speed: 300...3000rpm

Scale for measuring distance: 0...500mm

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase

Dimensions and Weight

Length x Width x Height: 1150x390x375mm

Weight: 49kg

1. System for Data Acquisition

In conjunction with the bending elasticity in rotors unit

Investigation and representation of the vibration amplitude of a rotating shaft

Recording of signals over time

Investigation of how amplitude depends on speed and location

Representation of the orbit

Specification:

Data acquisition and analysis of shaft vibrations for Bending elasticity in rotors unit

2 inductive, non-contact displacement sensors

Measuring amplifier and A-D converter for signal processing

Software for data acquisition via USB under Windows 7, 8.1, 10

Including PC1 Computer-System with 21" TFT-Monitor Win 10 engl.

Technical Data:

2 displacement sensors

Measuring principle: inductive, non-contact

Output signal: analogue 1...9v

Measuring distance: 5...10mm

Dimensions and Weight

Length x Width x Height: 230x200x80mm

Weight: 2kg

Naugralabequipments

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