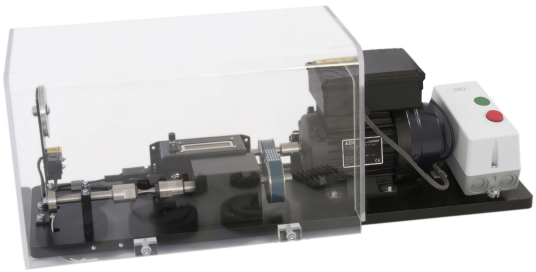
ROTATING FATIGUE MACHINE (ANALOGUE VERSION)

HSM19



Year 2
study

Features

- Fatigue testing based on Wohler
- Fully guarded system
- Variable speed
- Automatic motor cut-off following specimen fracture
- Digital interface
- 'Keyless' chucks
- Set of specimens supplied with spares optionally available

Description

This unit has been designed to introduce students to the effects of material fatigue using a sinusoidal variation of bending stress. A 2800rpm motor rotates a specimen through a gear and pulley arrangement between 5600 or 1400 rpm. The specimens are held within ‘keyless’ chucks and loaded using a cantilever arrangement, with the load being applied through a Load hanger and a set of weights. The loading system cancels its own self-weight enabling any desired value of bending stress to be applied. A digital interface displays the revolution count of the specimen. The revolution count can be tared before commencing testing. When specimen failure occurs, a micro switch stops the motor and the cycles to failure are registered on the digital interface. The count remains when the motor is not running. A safety guard shields all rotating parts. Specially machined necked test specimens are provided in steel. These have a 4mm nominal neck diameter. All tooling is provided to allow the removal and fitting of these specimens. A full technical Instruction manual is supplied, which details full unit operation, experimental technique, example results and relevant theory.

Related Laws/Applications

- Fatigue
- Maximum Stress
- Proof, Yield Stress
- Fracture
- Tensile stress
- Endurance Limit stress
- Stress variation
- Localised
- Wohler Fatigue
- Sinusoidal stress

Learning capabilities

- To make an introductory study of fatigue using a Wohler rotating fatigue apparatus, including the time to failure caused by various stress levels and materials
- Introducing students to S-N curves
- Varying materials on fatigue limits
- Specimen geometry

Technical Specification

- Motor speeds: 5600 or 1400rpm (approximately)
- Motor speed: 2800rpm nominal
- On-board starter box
- Timing pulley and belt drive system: 20t and 40t
- 10 x Standard specimens: Ø4mm neck diameter x 65(L) mm, steel
- Cantilever loading arrangement with self-weight compensation
- Clear safety guard
- Safety: Motor will remain inactive with safety guard removed

Recommended Ancillaries

- HSM19a
- HSM19b
- HSM19c

What's in the Box?

- 1 x HSM19
- 1 x Transformer (115V only)
- 1 x Interface
- 2 x Spanner
- 10 x Specimen
- 2 x Load hanger
- 1 x Hex wrench set
- 1 x Spare belt
- 5 x Spare fuse
- 1 x 1N; 2 x 2N; 1 x 5N; 3 x 10N
- Instruction manual
- Packing list
- Test sheet

You might also like

- HSM19D

Weights & Dimensions

- Weight: 26 kg
- Weight: 30 kg (115V version)
- Length: 715mm
- Width: 260mm
- Height: 280mm

Essential Services

- 220-240 Volts, Single Phase, 50Hz, (With earth/ground). Line current up to 6A at 230v.
- 110-120 Volts, Single Phase, 60Hz (With earth/ground). Line current up to 10A at 110V

Ordering information

To order this product, please call PA Hilton quoting the following codes:
HSM19/230
HSM19/115

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