

P1150

STATIC AND DYNAMIC BALANCING MACHINE

FEATURES

- ◆ Allows both static and dynamic balancing to be studied
- ◆ Self-contained bench mounted unit
- ◆ Cradle in which rotor supported only has one degree of freedom
- ◆ Linear variable displacement transducer and read-out system for amplitude measurement
- ◆ Low pass filter to eliminate bearing and motor noise
- ◆ Stroboscope for angle measurement
- ◆ 3 Disc Rotor and Simulated Armature available as an option
- ◆ 4 Cylinder Automobile Crankshaft available as an option

PRINCIPLE EXPERIMENTS

- ◆ Four vector method of balancing, two- or three-vector method
- ◆ Pivot cradle balancing
- ◆ Nodal point balancing
- ◆ Static balancing
- ◆ Graphical analysis of unbalance
- ◆ Analytical analysis of unbalance

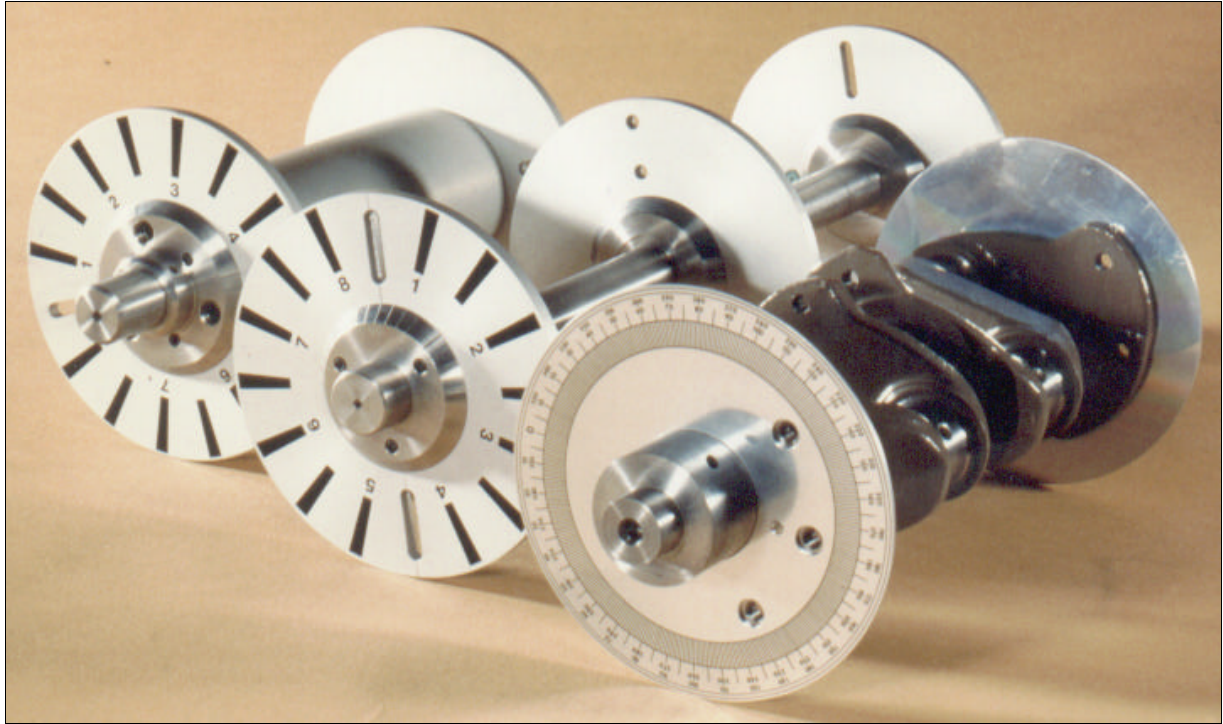
DESCRIPTION

The Cussons Static and Dynamic Balancing Machine has been developed to provide means for accurate experimental work in the balancing of rigid rotors. The design of the machine adheres to industrial practice and the machine can be used to balance real rotors of up to 152 mm (6") diameter and 450 mm long in addition to the five-disc rotor provided.

The main feature of the machine is that the cradle, in which the rotor to be balanced is supported, has only one degree of freedom which is that of rotation in a horizontal plane about the axis of the crossed spring pivot. The position of the rotor in the cradle is adjusted so that one of the correction planes contains the axis of the cradle suspension and the rotor is balanced for moments about this correction plane by adjustments in the other correction plane. The rotor is then turned round in the cradle and balanced for moments about the other correction plane, or alternatively it is balanced statically. In either case the rotor is then completely balanced, both statically and dynamically.

The magnitude of the out-of-balance moment is obtained from the amplitude of the cradle motion which is determined by the transducer with analogue read-out. The angular position of the moment is determined by a stroboscope triggered by the motion of the cradle.

Alternatively, the two- or three- vector method of balancing, often used in practice, in which the magnitude and angular position of the out-of-balance moment are determined from readings of amplitude of motion alone can be used to balance the rotor.



OPTIONS P1152, P1151 AND P1153

In an experiment the five-disc rotor is used with an arbitrary but known out-of-balance system of masses added to the centre three discs and the results for the balancing masses required on the outer two discs are compared with those obtained theoretically. A control box provides a low voltage supply and includes readout of cradle amplitude.

A set of masses, steel rule, Allen keys (3), pointer with magnetic base and drive belt are also included.

TENDER SPECIFICATION

Comprising cradle supported on crossed spring pivot and furnished with ball bearing system and variable speed electric drive with provision for testing rotors of different diameters all mounted on a substantial base plate and provided with transducer and read-out system for amplitude measurement and stroboscope for angle measurement.

Supplied complete with five-disc rotor on which the discs are adjustable for angular position and provided with means for fitting out-of-balance and balancing masses; masses also included.

OPTIONAL ACCESSORIES

P1151 A THREE DISC ROTOR

450 mm long shaft fitted with two balancing and one plane disc of 152.4 mm diameter

P1152 A SIMULATED ARMATURE

360 mm long shaft of 75 mm diameter and fitted with two balancing discs of 152.4 mm diameter

P1153 AN AUTOMOBILE CRANKSHAFT

367 mm long crankshaft (4 cylinder) fitted with two 360° protractor scales

SERVICES

For connection to 220/240 volt single phase 50 to 60Hz supply. For connection to other voltages to special order.

SHIPPING DETAILS

Case size: 100 x 75 x 58 cm
Gross weight: 110 kgs
Nett weight: 80 kgs

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