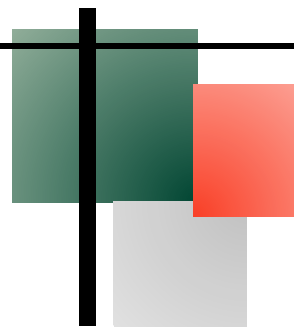


P5226 ANGULAR ACCELERATION APPARATUS



INTRODUCTION

Cussons P5226 Angular Acceleration Apparatus is a modern design of a classical experiment in the subject of study which is variously known as Theory of Machines, Kinematics, Dynamics or more simply as Mechanics.

The study of the angular acceleration of a cylindrical solid body caused by the action of a falling mass allows a number of simple experiments to be performed relating to the kinematics and dynamics of rotating systems.

EXPERIMENTAL CAPABILITIES

Newton's second law applied to a rotational system:

- ◆ Angular acceleration proportional to torque
- ◆ Angular acceleration inversely proportional to moment of inertia
- ◆ Rate of change of moment of momentum proportional to applied torque
- ◆ Change in momentum proportional to impulse

Interchange between potential energy and kinetic energy.

Moment of Inertia.

- ◆ Moment of inertia proportional to mass
- ◆ Confirmation of parallel axis theorem applied to moment of inertia

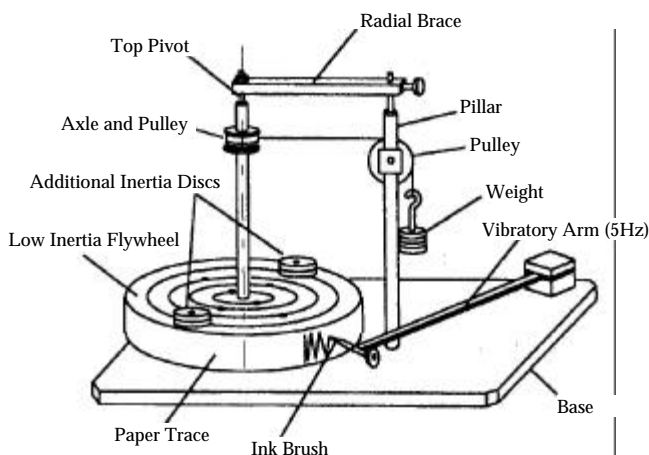
DESCRIPTION

The apparatus consists essentially of a low inertia circular disc mounted onto a vertical axle that can be rotated under the action of a falling mass.

The low inertia circular disc, which is 300 mm diameter and 50.8 mm thick, is manufactured from plywood and is keyed to a 12 mm diameter by 305 mm long stainless steel axle. A 50 mm diameter pulley is attached to the axle. The circular disc and axle are mounted with the axle vertical between pivots, one on the base and one on a radial brace from a vertical pillar. The upper surface of the circular disc is scribed with circles of 100 mm, 150 mm, 200 mm and 250 mm diameter and two holes are provided on each circle as sites to locate additional inertia discs. Four inertia discs are provided, each disc is 50 mm diameter by 15 mm and is manufactured from brass with a mass of 250 gm.

A spring steel vibrator, fitted with a fine brush, is supported from the base on a block so that it vibrates at a natural frequency of 5 Hertz. The brush is attached to the vibrator by a hollow screw which allows its position to be readily adjusted so that it draws a fine line on a paper strip fastened to the cylindrical rim of the circular disc.

A 10 gram mass hanger and a set of brass masses of 3 off 50 gm, 2 off 20 gm and 1 off 10 gm are provided to accelerate the system via a 1/16" cord passing over a pulley mounted on the vertical pillar and fastened to the pulley on the circular disc axle. A release mechanism is provided which will simultaneously release the vibrator and the circular disc.



SHIPPING SPECIFICATIONS

Case size: 74 x 56 x 57 cm
Weight: 20 kg nett, 42 kg gross