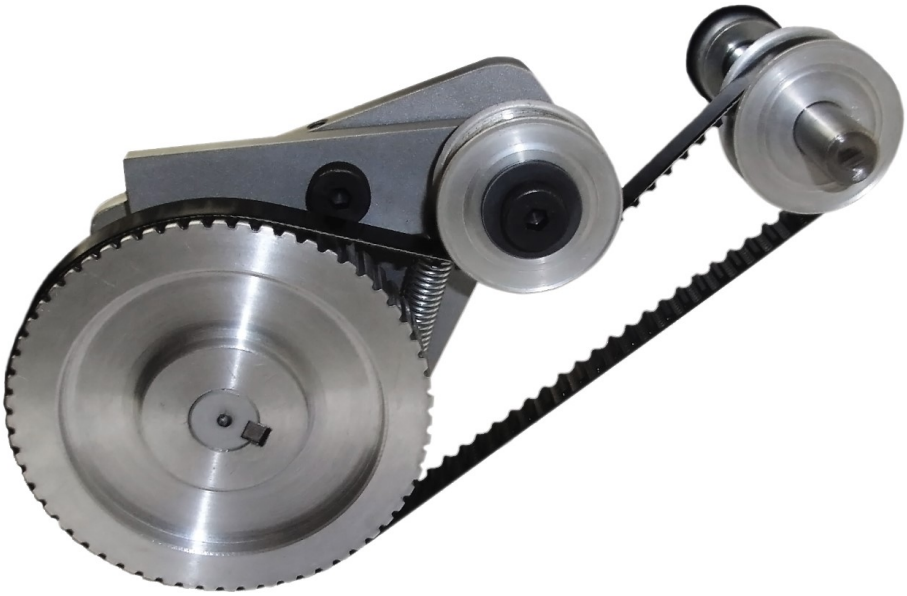
BELT, BRAKE AND CRANK MODULE

HTM90G



Features

- A study package that allows students to simulate a belt, brake and crank system
- System includes a magnetic brake
- Crank allows for adjustability
- System allows the con rod to disconnected so that seperate experiments can be carried out on the belt drive only

Description

The HTM9G Belt Drive Module attaches to the HTM90 base unit to simulate a system driven by a drive belt which then enables the students to observe the vibrational affects produced at different speeds and load forces. The module consists of a combined system of a belt drive (attached to base unit output shaft), a magnetic brake module with adjustable strength setting and crank mechanism with adjustable stroke and spring stiffness. The module creates the vibrations as a function of torque and resistance, this module also allows the stroke, mass balance and load on the crosshead of the crank drive to be adjusted. If required to be tested separately the con-rod can also be disconnected from the drive wheel to allow more specific experiments to be carried out on the belt drive part of the module. When properly designed, manufactured, and correctly set; belt drives are low-maintenance, low-noise, long-life drive units. It is important that the belt should not vibrate and/or slip. The HTM90G module attaches to the HTM90 base unit and is used to investigate conditions that cause vibration or slip. The effect of disparate elongation on belt drives can be demonstrated by means of an adjustable tensioning roller. The belt drive is a single belt drive with a belt tensioner. A small bored belt pulley and a belt are supplied for connection to the main shaft. The magnetic brake can increase the loading/ resistance to the HTM90 base unit. The unit shows relations between mechanisms for both the belt drive and crank mechanism, vibration readings can be taken directly off the belt drive module. Gas pressure forces such as that which occur in compressors or combustion engines can be simulated using springs. Experiments with gas pressure forces require higher torques the spring compression can be easily adjusted as can the stroke length. The crank mechanism attaches to the output shaft on the magnetic brake. The effective connecting rod length can be adjusted as well as the compression of the spring.

Learning capabilities

- Influence of belt tension on mechanical system vibration behaviour
- Influence of speed on vibration behaviour
- Experimental modal analysis of mechanical systems
- Influence of loading and forces in mechanism
- Inconsistent torque characteristic
- Change in vibrations with use of electro-magnetic brake
- Loading of mechanical system and length of crank displacement
- Influence of gas pressure forces on the vibration spectrum

Technical Specification

- Belt drive with tensioner unit for the machinery diagnostic system
- Belt Drive unit induces vibrations
- Adjustable braking torque through magnetic brake
- Stroke of crank adjustable: 50 - 100mm
- Pressure spring: relaxed length = 170mm spring stiffness approximately 0.55N/mm

Essential Ancillaries

- HTM90 Base Unit

What’s in the Box?

- 1 x tensioning roller set
- 1 x spare belt
- 1 x crank drive
- 1 x adjustable magnetic brake
- 1 x con rod, on disc wheel drive
- Shims

Weights & Dimensions

- Net dimensions: 500mm (L) x 500mm (W) x 300mm (H)
- Net weight: 10Kg

Ordering information

To order this product, please call PA Hilton quoting the following code:
HTM90G - Belt, brake and crank module