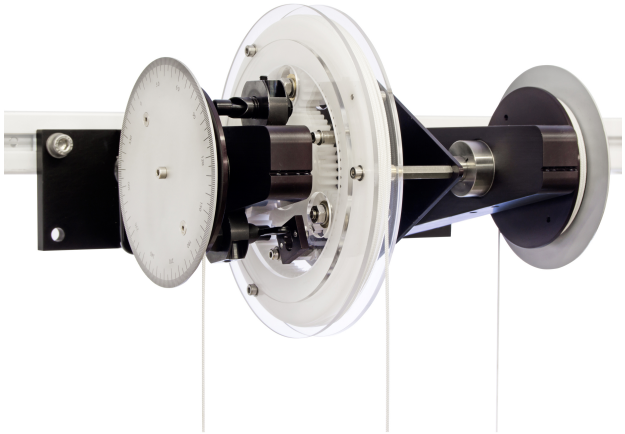
SINGLE EPICYCLIC GEAR TRAIN
HTM98



Year 2
study

Features

- Wall mounted single epicyclic apparatus.
- Can be mounted to HST1, HST100, HAC10, HAC14, HVT12f frames
- Sun, planet, carrier and ring gear
- Torque/gear/velocity ratios and efficiencies
- Input/output shafts and protractors
- Plastic gears for smooth operation and noise reduction
- Locking devices to stop rotation while setting up weights
- Transparent Gear Guard for safety and visibility
- Full set of weights and hangers supplied

Description

The wall mounted Single Epicyclic Gear Train consists of a single stage epicyclic gear train for laboratory demonstration of gear system similar to ones used in automotive applications. The gear train consists of a sun gear in the centre, three planet gears, a planet linkage and an internal or ring gear. The sun gear, ring gear and planet carrier all rotate about the same axis. The planet gears are mounted on shafts that turn in planet carrier and meshes with both the sun gear and the ring gear. Pulleys fitted with protractors are attached to the input and output shaft so that torque and velocity ratios may be determined. Torques can be applied to the shaft by adding weights on cords wrapped on the pulleys. Bearings are used in the entire unit to minimize friction losses. The apparatus can be operated in one a variety of modes. Locking pins are used to holding different parts of the apparatus in position. This gives the user different options on gear ratios that can be applied between the input and output shafts. By changing the combinations between the epicyclic gear parts a wide range of ratios and different output directions can be produced. The apparatus is supplied with all calibrated weights and Load hangers necessary to operate the apparatus.

Related Laws/Applications

- Automotive
- Epicyclic Gears
- Sun, planet, Annulus
- Gears
- Meshing
- Ratios
- Torque
- Efficiency
- Mechanical Advantage
- Load and Effort
- Machine Performance

Learning capabilities

- Calculate and experimentally observe the angular velocity ratios of gear trains
- Experimentally obtain the torque ratios of gear trains
- Compute the efficiencies of gear trains

Technical Specification

- 1 x Sun Gear: 48T, 72PCD, MOD1
- 3 x Planet Gear: 16T, 24PCD, MOD1.5
- 1 x Annulus Gear: 80T, 120PCD
- 2 x Protractor: 0..360°, 1° increments
- 2 x Pulley: Ø87.5mm
- Weights set: 4 x 0.1N, 3 x 0.2N, 1 x 1N, 2 x 2N, 2 x 5N, 2 x 10N, 1 x 20N
- 3 x Load hanger

Essential Ancillaries

- HAC14
- HAC10
- HST1
- HST100
- HVT12f

What's in the Box?

- 1 x HTM98 assembled
- 3 x Load hanger
- 4 x 0.1N, 3 x 0.2N, 1 x 1N weights
- 2 x 2N, 2 x 5N, 2 x 10N, 1 x 20N weights
- 1 x Tape measure
- Spare Cord
- Instruction manual
- Packing list
- Test sheet

You might also like

- HTM13
- HTM7

Weights & Dimensions

- Weight: 10 kg
- Length: 200mm
- Width: 250mm
- Height: 200mm

Essential Services

- Sturdy vertical support

Operational Conditions

- Storage temperature: -10°C to +70°C
- Operating temperature range: +10°C to +50°C
- Operating relative humidity range: 0 to 95%, non condensing

Ordering information

To order this product, please call PA Hilton quoting the following code: HTM98

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