



## GEAR DAMAGE MODULE

### HTM90H



#### Features

- Allows for observation of a system underload
- Study and observe differing speeds and loads

#### Description

The HTM90H Gear Damage Module is a module which attaches to the HTM90 base unit to simulate a system under load which then enables the students to observe the vibrational affects produced at different speeds and load forces. The module creates the vibrations as a function of torque and resistance. The HTM90H module is used to simulate typical damage to gears and study its effects on vibration behaviour. Gear sets with tooth damage are supplied for this purpose. Undamaged gear sets are provided for comparative purposes. The difference between spur toothed and helical gearing can also be demonstrated. The influence of the centre distance and backlash can be studied using adjustable bearing plates. The type of lubrication has an influence on the vibration signal, so grease or gear oil can be used for lubrication. The housing has a transparent cover and allows the gears to be observed in operation whilst taking vibration measurements. The HTM90D load and brake module will be required to subject the gear unit to load as further experiments. Note: The HTM90H is recommended for use with the HTM90D to expand on parts of the experiment.

#### Learning capabilities

- Identification of gear damage from vibration behaviour
- Influence of gearing type, i.e. spur toothed or helical
- Influence of lubrication on meshing gears
- Fundamentals of measurement of shaft and bearing vibrations
- Adjustable shaft distances to investigate gear alignment and backlash

#### Technical Specification

- Spur and Helical gear sets for the machinery diagnostic system
- Faulty gears for both gear types to induce added vibrations
- Centre distance adjustable, testing of amount of backlash and vibrations caused
- Water tight gear box to allow further testing of lubricants on gears
- Clear gear box lid
- Adjustable distances in base unit- allowing to be tested against different shafts

#### Essential Ancillaries

- HTM90 Base Unit

**What's in the Box?**

- 1 x gear box
- 1 x transparent housing cover
- 1 x housing cover with sensor holes
- 1 x set of Spur gears damaged
- 1 x set of Spur gears undamaged
- 1 x set of Helical gears damaged
- 1 x set of Helical gears undamaged

**Weights & Dimensions**

- Net dimensions: 350mm (L) x 200mm (W) x 200mm (H)
- New weight: 6 Kg

**Ordering information**

To order this product, please call PA Hilton quoting the following code:  
HTM90G - Gear damage module

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