



Engineering Science

ES13

Gear Trains Kit

Shows the characteristics of the most popular gear sets



- One of a series of 18 kits for experiments in fundamental engineering science topics
- For use on any engineering course from foundation to postgraduate
- Flexible and modular with sensible size parts – each kit fits onto the Work Panel (ES1) for experiments and simple classroom demonstrations
- Supplied in a hard-wearing storage tray with moulded insert to hold parts securely and a graphical list to help check the kit contents
- Rugged and durable parts for safe 'hands-on' experiments – allowing better understanding
- Contains a selection of the most popular gears and arrangements to show the efficiencies, advantages and disadvantages of each type of gear

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- An ISO 9001 certified company

ES13

Gear Trains Kit

Description



This versatile kit is part of a series that allows many experiments using different arrangements of their parts. Students, teachers or lecturers fit the parts of the kit to the Work Panel (ES1) (supplied separately) to study or show an engineering science topic.

This kit includes a selection of different gears for experiments to find their unique characteristics.

The gears include Spur Gears, a Bevel Gear and a Worm Drive. The spur gears have two sets of teeth on the same shaft, allowing extra experiments in compound gear trains.

Students test each set of gears to see how it works and note the differences in characteristics (such as efficiency, gear ratio and mechanical advantage) of each set.

The gear sets are a selection of the most common sets similar to those used in real applications, such as automobile gear boxes, domestic and industrial hand tools and clockwork instruments. Each has advantages and disadvantages that make them suitable for a particular job.

The kit introduces students to key engineering terms such as gear ratio, efficiency, mechanical advantage and velocity ratio.

TecEquipment supply a CD-ROM with the Work Panel (ES1). It includes all the worksheets, guidance notes and lecturer notes (with answers) needed for typical experiments with each kit. The selection of parts in the kits and the choice of fixing points on the work panel means that teachers or lecturers may extend the experiments to an even greater range.

Note: the kit is for use with the ES1 Work Panel (supplied separately).

Standard Features

- Five-year warranty
- Manufactured in accordance with the latest European Union directives

Experiments

- Characteristics of Spur Gears, including single and compound gear trains and the 'idler' gear
- Characteristics of a Bevel Gear
- Characteristics of a Worm Drive

Operating Conditions

For use in:

Well lit classroom or laboratory

Storage temperature range:

-25°C to +55°C (when packed for transport)

Operating temperature range:

+5°C to +40°C

Operating relative humidity range:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

Essential Services

A level bench or desktop of at least 500 mm wide x 500 mm front to back.

Essential Base Unit

Work Panel (ES1)

Specifications

Storage tray (with clip-on lid):

450 mm x 320 mm x 85 mm

Nett weight:

3.5 kg

Packed volume and weight:

Approximately 0.015 m³ and 4 kg

Main parts:

- Four spur gears of different teeth ratio
- Worm Drive set
- Bevel Gear set
- Weight hangers and weights

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