CAM, CRANK AND TOGGLE KIT

ES12

Demonstrates the characteristics of a mechanical toggle, crank motion and the most popular shaped cams: pear, heart, round and snail.

KEY FEATURES

- 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, each kit fits onto the work panel (ES1) for experiments and 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 all parts needed for experiments with a mechanical toggle, crank motion and four popular shapes of cam

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CAM, CRANK AND TOGGLE KIT

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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 crank and slider to show the relative forces during crank motion. It also includes four popular cam shapes to show their different characteristics. Another set of parts in the kit shows the characteristics of a mechanical toggle.

Students fit the crank and slider with weights and a spring balance to see the change in linear and rotational forces (moments) as the crank turns. They also use the slider with different followers on a set of four popular shape cams -heart, pear, spiral and round. This gives several cam and follower combinations to help students understand the different characteristics of each cam and why engineers choose between them for different applications.

The last set of parts in the kit has a simple linkage that allows students to see the characteristics of a toggle mechanism. Its shows the relative forces and angular conditions of the toggle in its initial state and how they affect the point at which it locks or 'snaps' into a horizontal state.

The kit introduces students to key engineering terms such as a 'flat follower', a 'roller follower' and 'toggle action'.

TecQuipment supplies 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
- ISO9001 certified manufacturer

LEARNING OUTCOMES

- Displacement and angle characteristics of pear, heart, round and spiral cams
- Characteristics of a mechanical toggle
- Turning moments and forces during crank motion

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

TecQuipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

STORAGE TRAY (WITH CLIP-ON LID):

450 mm x 320 mm x 85 mm

NETT WEIGHT:

3.4 kg

PACKED VOLUME AND WEIGHT:

Approximately 0.015 m^3 and 3.9 kg

MAIN PARTS:

- Pear, round, heart and spiral cams
- Set of followers
- Toggle linkage
- Crank and slider
- Masses

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