STIRLING ENGINE
H112R



Year 1
study

Features

- Demonstrates the principles of a heat engine
- A Stirling engine uses the Stirling cycle, which is unlike the cycles used in internal-combustion engines
- Allows students to look at alternative heat engines in a lab environment and to understand the relative efficiency levels

Description

A bench top accessory designed to allow students to experimentally investigate one of the methods available to convert heat energy directly into work. The engine consists of a water cooled power cylinder and a transfer cylinder connected via a common duct. A single acting power piston and double acting displacer piston are connected to a flywheel. The cycle of the engine consists of two isothermal processes and two constant volume processes. Heat to expand the captive gas charge and drive the power piston is provided by an electrical element controlled from the standard instrumentation console. As the unit is water cooled, unlike competing models, the Hilton H112R can operate continuously. A belt brake dynamometer allows the mechanical output of the engine to be measured. Control and measurement of the heater input power and shaft output torque and speed allows system overall performance to be measured at a range of speeds and heater temperatures. The standard instrumentation console allows heater input and system temperatures to be recorded.

Related Laws/Applications

- Mechanical Engineering
- Nuclear Engineering
- Chemical Engineering
- Control and Instrumentation
- Plant and Process Engineering
- Building Services
- Engineering Physics
- Refrigeration
- Marine Engineering

Learning capabilities

- Demonstration of a direct conversion of heat energy into shaft power.
- Investigation of the cycle efficiency.
- Investigation of the parameters affecting the cycle performance.

Technical Specification

- Engine works to 600°C
- Utilises a 600 watt heater
- Maximum engine speed 400 RPM (unloaded)
- Automatic heater control
- Measures mechanical torque & power

Essential Ancillaries

- H112 Base Unit (230v or 115v)
- H112/HC Computer Linked Base Unit, if you are using the Computer Linked version of this accessory

What's in the Box?

- 1 x H112R
- 1 x Console
- 2m water supply hose
- 1 x Drain hose
- 1 x Tube of Grease
- Instruction manual
- Packing List
- Test Sheet

You might also like

- H112R/230/HC - Stirling Engine Computer Linked
- H112R/115/HC - Stirling Engine Computer Linked

Weights & Dimensions

- Weight: 20 kg
- Length: 350mm
- Width: 300mm
- Height: 230mm

Essential Services

- H112 Base Unit either 230v or 115v

Data logger channel inputs where applicable*

Where the D103 Hilton Data Logger (HDL) is fitted, the following data can be recorded (where applicable):
H1112R/230/HC* & H112R/115/HC*

- Heat °C
- Heat Sink °C
- Torque
- Input Volts
- Input Amps
- RPM
- Supply Volts

Ordering information

To order this product, please call PA Hilton quoting the following codes:
H112R/230 - Stirling Engine
H112R/115 - Stirling Engine
H112R/230/HC* - Stirling Engine Computer Linked
H112R/115/HC* - Stirling Engine Computer Linked

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