



FLAME PROPAGATION and STABILITY UNIT C552



Year 1
study

Features

- Enables Students to Investigate the Design Criteria of Simple Gas Burners on a small laboratory scale.
- Safe, and Suitable For Student Operation.
- Provides Graphic and Interesting Experiments that Hold Student Attention
- Operates on all Normal Low Speed Gaseous Fuels.
- Wide range of experimental accessories
- Suitable for project design based on understanding gained from experimental use.
- Designed to operate on US style 1 Phase (115V version)

Description

An instrumentation console provides an adjustable and measured flow of both air and gas. Two flowmeter in series, ensure that a wide range of typical slow burning gaseous fuels (e.g. Propane, Butane, Methane LPG) can be used and measured accurately. For operator safety an interlock ensures that gas flow can only be initiated with an operator actively in attendance. Both air and gas are separately introduced into a mixing block designed to accommodate a variety of burner mixing tubes and adapters. Various settings of air fuel ratios allow the stability characteristics of a gas flame to be examined, and the upper and lower stability limits of both "lift off" and "light back" plotted on a stability diagram. The dual structure of pre-aerated flames is illustrated with the aid of the "Smithells" separation experiment. A length of heat resistant glass tube and supporting ring is provided to enable the primary and secondary flames to be separated.

Related Laws/Applications

- Gas Turbines
- Chemical Engineering
- Marine Engineering
- Mechanical Engineering
- Plant And Process Engineering
- Fuel Technology
- Energy Conservation

Learning capabilities

- Demonstrates the processes of Flame Lift Off and Flame Light Back
- Provides data for the construction of flame stability diagrams
- Enables students to investigate methods of improving flame stability limits
- Allows investigation of the relationship between flame speed and air – fuel ratio for a variety of slow burning gaseous fuels.
- May be used for student projects, for example:-
- Methods of arresting or quenching moving flames in the flame speed tube.
- Investigation of horizontal and vertical flame movement.
- Effect of changing cross-section on flame speed.
- Effect of directional change on flame speed.

Technical Specification

- Panel: Vacuum formed in which all controls, fan and instruments are mounted.
- Airflow: Glass variable area flowmeter.
- Gas Flow: Glass variable area flowmeter to cover wide range of load speed combustible gases(e.g. Propane, Butane, Methane LPG).
- Burner Tubes: 4 inter-changeable steel burner tubes in a range of diameters.
- Stabiliser Cups: two brass conical cups to fit two of the burner tubes.
- Smithells Tube: heat resistant glass tube and brass adapter.
- Igniter: Handheld manual.
- Safety: Gas control solenoid valve with foot switch. Combined overload cut out and on /off switch, earth leakage circuit breaker.
- Flame Speed System: Long, large diameter clear tube, with mains driven high-voltage spark igniter and two adapters each with flame traps.
- Miniature circuit breaker (MCB)
- Residual Current Circuit Breaker (RCCB)

What's in the Box?

- 1 x C552
- 1 x Transformer (115V only)
- 4m gas hosing
- 1 x stop watch
- 1 x spark lighter
- Fittings
- Gloves
- 1 x tube to wall mounting pack
- Instruction manual
- Test sheet
- Packing List
- 2 year spares

Weights & Dimensions

- Weight: 25 kg
- Length: 440mm
- Width: 300mm
- Height: 440mm

Essential Services

- 220-240 Volts, Single Phase, 50Hz(With earth/ground).
- Line current up to 8A at 230v.
- 110-120 Volts, Single Phase, 60Hz(With earth/ground).
- Line current up to 16A at 110v.

Ordering information

To order this product, please call PA Hilton quoting the following codes:
C552/230
C552/115

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS