SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Combustion Laboratory | ThermoFlux - 7081

Category: Thermodynamics Lab Equipment · **Country of Origin:** India

Product Overview

The Combustion Laboratory ThermoFlux - 7081 is a floor-mounted, mobile laboratory unit for studying combustion processes using a single-stage dual fuel burner rated at 22.6 to 34.3 kW on light oil (2 to 3 kg/h) or fuel gas (0.9 to 3.4 m³/h). The cylindrical water-cooled combustion chamber measures 460 mm diameter by 910 mm long, fitted with five 100 mm observation windows and a water-cooled sampling probe. This combustion laboratory unit is constructed on an anodized aluminium and stainless steel frame and is instrumented with digital indicators for air, oil, gas, and cooling water flow rates, cooling water temperature, and gas pressure, with UV sensor flame control. Optional LabVIEW-based DAQ software is available for Windows-based data acquisition and result processing.

View this product online: https://scienticoindia.com/product/combustion-laboratory-thermoflux-7081/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Combustion Laboratory ThermoFlux - 7081, Technical Specifications

Parameter	Value
Unit Type	Floor-mounted, dual fuel combustion laboratory
Frame Material	Anodized aluminium
Panel Material	Painted steel
Main Metallic Elements	Stainless steel
Mobility	Wheels fitted
Burner Type	Single-stage, dual fuel
Burner Fuels	Light boiler fuel oil, LPG, natural gas or mains gas
Burner Output (Light Oil)	22.6 to 34.3 kW
Fuel Consumption (Light Oil)	2 to 3 kg/h
Burner Output (Fuel Gas)	22.6 to 34.3 kW
Fuel Consumption (Fuel Gas)	0.9 to 3.4 m³/h
Fuel Pump	Self-aspiration, calibration pressure 12 kg/cm²
Gas Pressure	12 to 23 mbar
Flame Control	UV sensor

Parameter	Value
Air Adjustment	Manual
Electrical Power Supply	220V, 50Hz
Combustion Chamber Shape	Cylindrical
Combustion Chamber Dimensions	460 mm diameter x 910 mm long
Combustion Chamber Walls	Water-cooled
Observation Windows	5 x 100 mm diameter
Sampling Probe	Water-cooled
Cooling Jacket Instruments	Thermometer, manometer, pressure switch
Controls	Manual: air, oil, gas, cooling water
Instrumentation	Digital indicators for air, oil, gas, and cooling water flow rates; cooling water temperature; gas pressure

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Technical Data

Burner

Parameter	Value
Type	Single-stage, dual fuel (European)
Fuel Options	Light oil, natural gas, LPG

Burner, Light Oil Mode

Parameter	Value
Output	22.6 to 34.3 kW
Fuel Consumption	2 to 3 kg/h

Burner, Fuel Gas Mode

Parameter	Value
Output	22.6 to 34.3 kW
Fuel Consumption	0.9 to 3.4 m^3/h

Fuel Pump

Parameter	Value
Type	Self-aspiration
Calibration Pressure	12 kg/cm^2

Combustion and Observation Chamber

Parameter	Value
Shape	Cylindrical
Dimensions	460 mm diameter x 910 mm long
Wall Cooling	Water-cooled
Observation Windows	5 x 100 mm diameter
Sampling Probe	Water-cooled

Cooling Jacket

Parameter	Value
Instruments	Thermometer, manometer, pressure switch
Protection	Pressure switch to prevent overpressure

Control

Parameter	Value
Air Adjustment	Manual
Oil Control	Manual
Gas Control	Manual
Cooling Water Control	Manual
Gas Pressure	12 to 23 mbar
Flame Control	UV sensor
Electrical Power Supply	220V, 50Hz

Instrumentation

Parameter	Value
Parameters Measured	Flow rates of air, oil, gas, and cooling water; cooling water temperature; gas pressure
Display	Digital indicators with sensors

Key Features

Key Features

- **Combustion Laboratory Unit Type:** Floor-mounted, mobile, dual fuel combustion unit with industrial-scale burner
- **Burner:** Single-stage, dual fuel, light oil and gas, 22.6 to 34.3 kW output
- **Light Oil Fuel Consumption:** 2 to 3 kg/h
- **Fuel Gas Consumption:** 0.9 to 3.4 m^3/h
- **Fuel Pump:** Self-aspiration, calibration pressure 12 kg/cm^2
- **Gas Pressure Range:** 12 to 23 mbar
- **Flame Control:** UV sensor
- **Air Adjustment:** Manual
- **Combustion Chamber:** Cylindrical, 460 mm diameter x 910 mm long, water-cooled walls
- **Observation Windows:** 5 x 100 mm diameter ports for flame observation
- **Sampling Probe:** Water-cooled, for flue gas composition analysis
- **Cooling Jacket:** Thermometer, manometer, and pressure switch fitted
- **Frame:** Anodized aluminium with painted steel panels, stainless steel metallic elements
- **Mobility:** Wheels fitted for repositioning
- **Controls:** Manual control for air, oil, gas, and cooling water
- **Instrumentation:** Digital indicators for flow rates (air, oil, gas, cooling water), cooling water temperature, and gas pressure
- **Power Supply:** 220V, 50Hz
- **Software:** Optional LabVIEW-based DAQ software, Windows compatible

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Experiments

- Familiarization with the adjustment and operation of a commercial oil or gas burner

- Assessment of a burner using clean light boiler fuels, natural gas, or LPG including:
  - Firing rate
  - Turndown range
  - Flame stability, flame shape, and flame radiation
  - Smoke emission
- The effect of air/fuel ratio on combustion efficiency as measured by flue gas constituents, temperature, and heat transfer
- Energy balance
- Comparison of flue gas analysis with theoretical predictions
- Comparison of oil and gas burners
- Comparative performance of different fuels or fuel additives

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Construction and Design

The Combustion Laboratory ThermoFlux - 7081 is a floor-mounted unit constructed on an anodized aluminium frame with painted steel panels. All main metallic structural elements are stainless steel. Wheels are fitted to the base to facilitate mobility. The single-stage dual fuel burner is mounted to fire into a cylindrical water-cooled combustion and observation chamber measuring 460 mm in diameter and 910 mm in length. Five observation windows of 100 mm diameter are fitted along the chamber for direct flame observation. A water-cooled sampling probe is installed for flue gas sampling and composition analysis.

The cooling jacket surrounding the combustion chamber is equipped with a thermometer, manometer, and pressure switch to prevent overpressure in the jacket. The self-aspiration fuel pump is calibrated at 12 kg/cm². Gas pressure at the burner is controlled between 12 and 23 mbar. Flame control is managed by a UV sensor. All controls for air, oil, gas, and cooling water are manual. This combustion laboratory unit is fitted with sensors and digital indicators measuring flow rates of air, oil, gas, and cooling water, as well as cooling water temperature and gas pressure. The complete assembly is arranged at a convenient working height for laboratory use.

Software

ThermoFlux - 7081 Software (Optional)

- Developed in the National Instruments LabVIEW environment
- Designed specifically for data acquisition with this apparatus
- Measures, processes, and stores experimental results on a PC
- A set of electronic sensors is included when the software option is selected
- Compatible with any Windows operating system

Scope of Delivery

- 1 experimental unit
- 1 instructional manual

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1: What fuels can the Combustion Laboratory ThermoFlux - 7081 burn?
The unit uses a single-stage dual fuel burner capable of burning light boiler fuel oil, LPG, and natural gas or mains gas. Both fuel modes deliver an output of 22.6 to 34.3 kW.

Q2: What are the dimensions and features of the combustion chamber in this combustion laboratory unit?
The cylindrical combustion and observation chamber measures 460 mm in diameter and 910 mm in length with water-cooled walls. It is fitted with five 100 mm diameter observation windows for flame observation and a water-cooled sampling probe for flue gas analysis.

Q3: How is the flame monitored and controlled?
Flame control is performed by a UV sensor. Air adjustment is manual. Gas pressure at the burner is maintained between 12 and 23 mbar.

Q4: What parameters does the instrumentation measure and display?
Digital indicators with sensors measure and display the flow rates of air, oil, gas, and cooling water, as well as cooling water

temperature and gas pressure. A flue gas analyser can be used to determine flue gas composition and relate it to the air-to-fuel ratio.

Q5: Is the unit mobile and what is its frame construction?

Yes. The unit is fitted with wheels for ease of mobility. The frame is constructed from anodized aluminium with painted steel panels. All main metallic elements are stainless steel.

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