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PRODUCT DATA SHEET
Catalogue reference for product evaluation

Phone: +91 7015865225 **Email:** info@scienticoindia.com **Web:** scienticoindia.com **Address:** #71, Industrial Area, Ambala Cantt, Haryana, India

Cross Flow Heat Exchanger | ThermoFlux - 7078

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

Product Overview

The Cross Flow Heat Exchanger ThermoFlux - 7078 is a laboratory unit for investigating heat transfer by forced and free convection using three interchangeable heating elements: a pipe, a pipe bundle, and a finned pipe bundle. Each element is rated at 500 W with adjustable heating power and variable airflow up to 13 m³/min through a 120 x 120 mm vertical duct. Electronic sensors measure temperature (2x -100 to 400°C), power (0 to 500 W), and air velocity (0 to 10 m/s), with all values displayed digitally on the front panel. This cross flow heat exchanger calculates flow rate, Reynolds number, and Nusselt number, and supports optional PC data transfer with LabVIEW-based DAQ software.

View this product online: https://scienticoindia.com/product/cross-flow-heat-exchanger-thermoflux-7078/



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

Technical Specifications

Cross Flow Heat Exchanger ThermoFlux - 7078, Technical Specifications

Parameter	Value
Flow Channel Cross-Section	120 x 120 mm
Radial Fan Max. Power Consumption	250 W
Radial Fan Max. Pressure Difference	430 Pa
Radial Fan Max. Flow Rate	13 m³/min
Temperature Measuring Range	2x -100 to 400°C
Power Measuring Range	0 to 500 W
Air Velocity Measuring Range	0 to 10 m/s

Technical Data

Flow Channel

Parameter	Value
Cross-Section	120 x 120 mm

Radial Fan

Parameter	Value
Max. Power Consumption	250 W
Max. Pressure Difference	430 Pa
Max. Flow Rate	13 m³/min

Heating Elements

Pipe

Parameter	Value
Power	1x 500 W
Heating Surface	1x approx. 0.01 m²

Pipe Bundle

Parameter	Value
Power	1x 500 W
Heating Surface	1x approx. 0.005 m²

Finned Pipe Bundle

Parameter	Value
Power	1x 500 W
Heating Surface	1x approx. 0.014 m²

Measuring Ranges

Parameter	Value
Temperature	2x -100 to 400°C
Power	0 to 500 W
Air Velocity	0 to 10 m/s

Key Features

Key Features

- **Heat Exchanger Type:** Cross flow configuration, vertical air duct
- **Cross Flow Heat Exchanger Application:** Forced and free convection investigation
- **Heating Elements:** Pipe, pipe bundle, finned pipe bundle (interchangeable)
- **Heating Power per Element:** 1x 500 W, adjustable
- **Pipe Heating Surface:** approx. 0.01 m²
- **Pipe Bundle Heating Surface:** approx. 0.005 m²
- **Finned Pipe Bundle Heating Surface:** approx. 0.014 m²
- **Pipe Bundle Row Positioning:** Adjustable for flow effect investigation
- **Air Flow:** Adjustable via radial fan, max. 13 m³/min
- **Fan Max. Pressure Difference:** 430 Pa
- **Fan Max. Power Consumption:** 250 W
- **Flow Channel Cross-Section:** 120 x 120 mm
- **Sensors:** Electronic sensors for temperature, differential pressure, power
- **Temperature Range:** 2x -100 to 400°C
- **Power Range:** 0 to 500 W

- **Air Velocity Range:** 0 to 10 m/s
- **Data Display:** Digital display on front of instrumentation unit
- **PC Connectivity:** Direct data transfer to PC (optional)
- **Calculated Parameters:** Flow rate, Reynolds number, Nusselt number
- **Software:** Optional DAQ software, ThermoFlux - 7078, LabVIEW-based

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Experiments

- Investigation of convection processes
- Comparison of heat transfer for different heating elements
- Comparison between different heating elements
- Demonstration of the relationship between heat transfer, area of heat transfer and flow velocity (Nusselt)

Construction and Design

The Cross Flow Heat Exchanger ThermoFlux - 7078 is built around a vertical air duct as its primary structural element. A radial fan draws air through the duct and delivers a maximum flow rate of 13 m³/min at up to 430 Pa pressure difference. The duct cross-section measures 120 x 120 mm. Three interchangeable heater inserts are included: a single pipe, a pipe bundle, and a finned pipe bundle. Each insert is rated at 500 W. The pipe bundle insert can be positioned in different pipe rows to vary the cross flow heat exchanger flow arrangement during experiments. Electronic sensors integrated into the system measure temperature across two channels (range: -100 to 400°C), power (0 to 500 W), and air velocity (0 to 10 m/s). All sensor readings are shown on a digital display mounted on the front panel of the instrumentation unit. The unit also supports direct PC data transfer for further analysis.

Software

ThermoFlux - 7078 Software (Optional)

- Developed in the National Instruments LabVIEW environment
- Designed specifically for data acquisition with this apparatus
- Records, stores, and calculates experimental results
- Compatible with any Windows operating system
- Electronic sensors are included when the software option is selected

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Scope of Delivery

- 1 experimental unit
- 1 pipe bundle
- 1 pipe element
- 1 finned pipe bundle
- 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 heating elements are included with the Cross Flow Heat Exchanger ThermoFlux - 7078?
Three interchangeable heating elements are included: a pipe, a pipe bundle, and a finned pipe bundle. Each operates at 500 W.

Q2: Can the airflow rate be adjusted during experiments?
Yes. The radial fan allows variable airflow, with a maximum flow rate of 13 m³/min and a maximum pressure difference of 430 Pa.

Q3: Is the software included as standard?
No. The ThermoFlux - 7078 DAQ software is optional. When selected, it includes the required electronic sensors and runs on any Windows operating system.

Q4: What parameters does the system calculate automatically?
The unit calculates flow rate, Reynolds number, and Nusselt number from sensor data. It can also display temperature-time relationships and the dependence of Nusselt number on Reynolds number graphically.

Q5: Can the pipe bundle be repositioned within the duct?

Yes. The heater insert for the pipe bundle can be positioned in different pipe rows within the duct to investigate the effect of flow position on heat transfer performance.

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