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Product Name :

Cross Flow Heat Exchangers

Product Code :

SLE/EA/29



Science Lab

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Description :

Cross Flow Heat Exchangers (Product Code: SLE/EA/29) is a horizontal wind tunnel apparatus used to measure forced-convection heat transfer from a cylinder in a bank of rods in engineering heat transfer laboratories. Students replace any one rod of the working-section matrix with a copper element of known thermal capacity and a built-in thermocouple, then monitor how quicklyit cools in the air flow. It is made by **Jain Scientific Equipments Pvt Ltd (ScienceLab)**, an OEM supplying lab equipment for technical institutes, at its own factory in Ambala, India.

Specifications

Parameter	Detail
Configuration	Horizontal wind tunnel
Tunnel sections	Contraction cone, working section, diffuser, constant speed fan and exhaust with silencer
Air flow control	Variable slide valve
Working section	Series of rods arranged in a matrix at right angles to the air flow; any one rod can be removed
Test element	Cylindrical copper element of known thermal capacity with a built-in thermocouple
Inlet air temperature	Second thermocouple at the wind tunnel inlet
Air velocity	Pitot traverse measuring velocity at any vertical point, before or after the rods
Pressure tappings	Two static pressure tappings in the base of the working section, one before and one after the rods
Product code	SLE/EA/29
Manufacturer	Jain Scientific Equipments Pvt Ltd (ScienceLab) — OEM
Country of origin	India (made in Ambala, Haryana)

What Is the Cross Flow Heat Exchanger Used For?

In a cross flow heat exchanger one fluid passes at right angles to tubes carrying the other, and this apparatus models the air side of that arrangement with a rod bank inside a wind tunnel. Students place the copper element in the rod matrix, set the air flow with the slide valve and log the element temperature as it cools, while the inlet thermocouple gives the temperature of the incoming air. Because the element's thermal capacity is known, its rate of cooling gives the forced-convection heat transfer rate quickly, without a long wait for steady conditions.

Moving the element to different positions in the matrix shows how upstream rods disturb the flow and change heat transfer deeper in the bank. The pitot traverse maps air velocity at any height before or after the rods, and the two static pressure tappings give the pressure difference across the b and chem meas

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