LAB ENGINEERING

Email :
purchase@elabengineeringequipments.com
Phone: +91-9811375383

Product Name : Computerized Stefan Boltzman Apparatus	**Product Code :** HEMT0006

Description :

Computerized Stefan Boltzman Apparatus

Technical Specification :

The heat transfer trainer enables users to match the individual heat quantities to the corresponding type of transfer.
The core element is a heated metal cylinder located at the center of the pressure vessel.
The surface temperature of the heated metal cylinder is controlled.
Temperature sensors measure the surface temperature of the metal cylinder and the wall temperature of the pressure vessel.
In addition to the heating power of the metal cylinder, it is possible to study the heat transport from the metal cylinder to the wall of the pressure vessel.
The pressure vessel can be put under vacuum or positive gauge pressure.
In the vacuum, heat is transported primarily by radiation.
If the vessel is filled with gas and is under positive gauge pressure, heat is also transferred by convection.
It is possible to compare the heat transfer in different gases.
In addition to air, nitrogen, helium, carbon dioxide or other gases are also suitable.
A rotary vane pump generates negative pressures down to approx. 0,02mbar.
Positive gauge pressures up to approx. 1bar can be realized with compressed air.
Two pressure sensors with suitable measuring ranges are available for the pressure measurement: a Pirani sensor measures the negative pressure while a piezo-resistive sensor measures the positive pressure.
The measured values can be read on digital displays.
At the same time, the measured values can also be transmitted directly to a PC via USB, where they can be analyzed with the software.

FEATURES:
Experiments in vacuum
Heat transfer by radiation
Determination of the radiation coefficient
Determination of the heat quantity transferred by convection
Determination of the heat transfer coefficient based on measured values
Experiments at ambient pressure or positive gauge pressure
Heat transfer by convection and radiation
Theoretical determination of the heat transfer coefficient based on the Nusselt number
Comparison of the heat transfer in different gases
Heat transport between heating element and vessel wall by convection and radiation
Heating element
SPECIFICATION:
Pump for vacuum generation
Power consumption: 250W
Nominal suction capacity: 5m3/h
Final pressure with gas ballast: 3*10-3mbar
Final pressure without gas ballast: 3*10-3mbar
Output: 20W
Radiation surface area: approx. 61cm2
Pressure vessel :
Pressure: -1…1,5bar
Volume: 11L
Measuring ranges :
Negative pressure: 0,5*10-3…1000mbar
Pressure: -1…1,5bar rel.
Temperature: 0…250°C
Power: 0…23W
Required for Operation :
230V, 50Hz, 1 phase
230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase