



HEAT TRANSFER BY NATURAL AND FORCED CONVECTION DL DKT032S



The trainer is composed of tabletop equipment designed for the study of heat transfer by natural or forced convection.

The system operation consists of letting the air pass through a heated duct using heating elements with different geometric surfaces.

To allow the study of forced convection, it is supplied with a suitable fan.

The system is provided with a manual control module, and it can be connected and controlled to a computer through a USB. Software can be installed on the computer to visualize and read all different measurements. The same software can control air speed and heat regulation.

The decoupling of the fan by fast anchorage and hinges allows to have a duct totally free from all obstacles. In this way the calculation of convection can be more precise.

TRAINING OBJECTIVES

- Study of heat dissipation by natural convection.
- Study of heat dissipation by forced convection.
- Analysis of the heat transfer and its variations according to the use of different heatsink models.
- Heat transfer parameter calculation:
 - Efficiency.
 - Heat transfer coefficient.
 - Dissipated energy (or heat transfer).
- Calculation of the Reynolds and Nusselt number.

TECHNICAL DATA

- Convection tower section: 120x120mm.
- Convection tower length: 1 m.
- Air speed with forced ventilation: 0 ÷ 4 m/s.
- Heating elements power regulated: 0 ÷ 150W.
- Maximum flow: 200 m³/h.
- Double security system for heaters protection.
- A surface temperature sensor is supplied to measure the temperature in specific points of the heaters.
- The system is supplied with electronic control module with LCD display.

Requirements:

Power supply: single-phase from the mains, 50/60 Hz.



THERMOTRONICS



At least one of the following heaters (**not included with the trainer**) should be purchased with the following code and according to the shape:

- **DL DKT032S – HS1** - Heater tube bundle.
- **DL DKT032S – HS2** - Flat plate heater.
- **DL DKT032S – HS3** - Heater vertical fins.

Optional: Computer (not included).