



### Specification:

- Steady state and unsteady state heat transfer trainer is used to study steady and unsteady state heat transfer to bodies of different shape and thermal conductivity.
- The trainer is used to investigate the steady and unsteady heat conduction in metals, determine the thermal conductivity  $\lambda$ .
- The trainer consists of a heat source and a heat sink, between which cylindrical samples made of different five metals are inserted.
- Test shapes of different dimensions and materials to give different heat transfer areas and thermal conductivities.
- Each sample is fitted with 12 temperature measurement points, the temperature measurement points are designed to have as little influence on the temperature as possible and the core temperature of the sample is measured.
- The heat source consists of an electrically heated hot water circuit.
- A temperature controller 'PID controller' is used to switch the power to an electric heater to keep a constant 'bulk' water temperature inside the vessel.
- The heat sink is realised by means of a water-cooling system.
- The trainer includes elevated tank with overflow to ensure a constant cooling water flow rate.
- A temperature jump can be generated by appropriate regulation of the cooling water flow.
- A PC can be used to display the transient temperature distribution in the sample over time and place.
- The temperatures of the sample, heating and cooling water, as well as the electrical heating power and the cooling water flow rate are displayed digitally on the switch cabinet and can be transmitted simultaneously via USB directly to a PC where they can be analysed using the software included.

### Experiments:

- Study the steady heat conduction state.
- Study the Transient temperature changes with sudden immersion (unsteady state).
- Determine the temperature/time profiles.

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



Export Sales: +91-9829132777  
 India Sales: +91-9588842361



IT-2013, Ramchandrapura Industrial Area,  
 Sitapura Extension, Jaipur-302022, India.



info@tesca.in  
 www.tescaglobal.com



- Study how materials of different thermal conductivity affect heat transfer.
- Calculate thermal conductivity  $\lambda$  of different metals.

#### Technical Data:- Heater

- Output: 800W
- Temperature: 20...85°C

#### Samples, Ø 40mm

- 3x 450mm (copper, aluminium, brass)
- 2x 300mm (steel, stainless steel)
- **Heating tank: 2 Liter**
- Cooling tank: 0,5 Liter
- Elevated tank: 6 Liter

#### Temperature sensors

- 12x thermocouple type K, along the sample
- 2x Pt100, in the cooling water
- 1x Pt100, in the heating water

#### Measuring ranges

- Temperature: 14x 0...100°C
- Power: 0...1000W
- Flow rate: 0,1...2,5L/min

#### Supply voltage

- 1 phase, 220V, 50Hz

#### Scope of Delivery:-

- Steady state and unsteady state heat transfer trainer
- Hard copy of the user manual.

#### Required for Operation:-

- Laborator

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



Export Sales: +91-9829132777  
India Sales: +91-9588842361



IT-2013, Ramchandrapura Industrial Area,  
Sitapura Extension, Jaipur-302022, India.



info@tesca.in  
www.tescaglobal.com