

## TE19

## Thermal Conductivity Experiment

**Shows heat conduction in different metals at ambient temperature**

Works with  
**VDAS®**



Screenshot of the optional VDAS® software

- Bench-mounting apparatus that demonstrates heat conduction along metal test specimens
- Uses low temperatures to reduce heat losses, for accurate results
- Test area pressure can be reduced to a vacuum for accurate results (needs optional vacuum pump)
- Supplied with a selection of different metal specimens
- Specimens are reusable and easily changed
- Connects to TecEquipment's optional Versatile Data Acquisition System (VDAS®) for automatic data acquisition

- TecEquipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK
- **T** +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecquipment.com • **W** www.tecquipment.com
- An ISO 9001 certified company
- VDAS is a registered trademark of TecEquipment Ltd

# TE19

## Thermal Conductivity Experiment

### Description

The Thermal Conductivity Experiment (TE19) is in two parts:

1) A base unit with a Peltier cooler, a vacuum gauge and a moulded glass dome (vacuum vessel).

2) A separate control module, with heater and cooler controls and a multiline display. It also includes a connection for TecEquipment's optional VDAS® and a suitable computer (not supplied) for automatic data acquisition.

Included with the equipment are specimens of different metals. Each specimen has a small resistive heater at one end, the other end clamps to the cooler of the base unit. The heater at one end and the cooler at the other give a controlled heat flow along the specimen. Attached to the specimen are two thermocouples at a precise distance apart, near to each end. Students use the temperature difference between the thermocouples to find the thermal conductivity of the material. They then compare it with other materials and with given values.

The glass dome covers the area around the specimen. The students may use a suitable vacuum pump (not supplied) to remove the air inside the dome. This reduces heat loss due to convection, to give more accurate results.

For quick and reliable tests, TecEquipment can supply the optional VDAS® (Versatile Data Acquisition System). VDAS® gives accurate real-time data capture, monitoring and display, calculation and charting of all important readings on a computer (computer not included).

### Standard Features

- Supplied with comprehensive user guide
- Two-year warranty
- Manufactured in accordance with the latest European Union directives

### Essential Ancillaries

- Laboratory Vacuum Pump (RE19)

### Recommended Ancillaries

- VDAS-B

A bench-mounted version of the Versatile Data Acquisition System

### Experiments

- Thermal conductivity of different metals

### Essential Services

*Electrical supply:*

Single-phase, 230 V/110 V, 50/60 Hz, 0.5 A

*Bench space needed:*

Solid, level bench top 1300 mm x 400 mm, plus space for the optional vacuum pump.

### Operating Conditions

*Operating environment:*

Laboratory environment

*Storage temperature range:*

-25°C to +55°C (when packed for transport)

*Operating temperature range:*

+5°C to +40°C

*Operating relative humidity range:*

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

### Sound Levels

TE19 – Less than 70 dB(A)

Refer to the manufacturer's details for sound levels of any vacuum pump that you use with this equipment.

### Specifications

*Nett dimensions and weight:*

Base Unit: 650 mm x 350 mm x 600 mm and 20 kg

Control Module: 600 mm x 350 mm x 180 mm and 11 kg

*Heater:*

Electrical resistance, fitted at the end of each specimen

*Cooler:*

Peltier device with heat sink

*Thermocouples:*

K-type

*Vacuum gauge:*

0 to -1 bar

*Specimen metals:*

- Brass
- Aluminium
- Copper

- TecEquipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK
- **T** +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecequipment.com • **W** www.tecequipment.com
- An ISO 9001 certified company
- VDAS is a registered trademark of TecEquipment Ltd

