

Thermal Hand Test System



This fourth-generation thermal hand model was developed to provide accurate test measurements for all types of handwear.

Through precise measurement of heat loss, our Thermal Hand Test System is capable of quantifying the effects of glove design, insulation, and ventilation with repeatable accuracy to $\pm 0.1^{\circ}\text{C}$ and is built to reliably perform testing sequences in environmental conditions ranging from -20°C to $+40^{\circ}\text{C}$.



Shown with wicking fabric sweating skin

Glove performance and properties can be determined without the variation inherent in human test subjects.

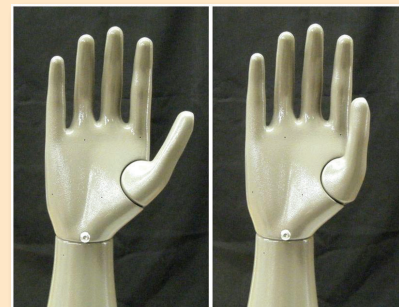
The Thermal Hand Test System is available in both dry and sweating models. The sweating hand model includes a removable wicking fabric skin and a network of sweat pores with software-controlled fluid delivery.

ASSOCIATED TEST METHODS

- EN 511

FEATURES AT A GLANCE

- Quantifies the effects of glove design, insulation, and ventilation on the human hand
- 75th percentile Adult Male right hand
- 8 thermal zone model, standard. Custom formats available
- Dry and Sweating Skin models available
- Articulated thumb allows for easy fitting of hand wear
- Ultra-stable resistance wire heating provides uniform heat flux
- System includes a Dell laptop computer installed with ThermDAC control software



Articulated Thumb



Thermetrics

Thermal Hand Test System

Specifications

Standard

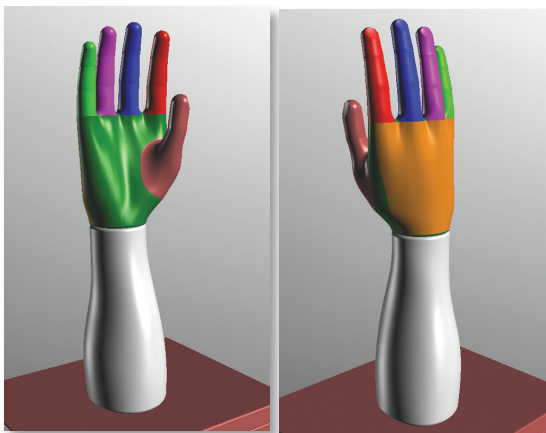
- Thermally conductive carbon-epoxy shell
- 75th percentile (Western Male) right hand with articulated thumb
- Glove size: Large
- 8-zone configuration (as shown below)
- Ultra-stable resistance wire heating
- Distributed wire sensors for each zone
- Two ambient temperature sensors
- Signal conditioning electronics
- Power and control cabling
- Dell laptop computer (Windows OS) with ThermDAC control software

Options

- Alternate zone configurations
- Removable fabric sweating skin system with distribution pumps, reservoir, and tubing
- Ambient RH sensor, Windspeed sensor

Range / Performance / Accuracy

- $\pm 0.1^{\circ}\text{C}$ temperature measurement
- $\pm 1\%$ power measurement accuracy
- $\pm 3\%$ relative humidity measurement
- -20°C to $+40^{\circ}\text{C}$ ambient range. Manikin must be preheated before use in below-freezing conditions
- 0 to 100% R.H. including condensation
- Maximum heat generation: 1000 W/m²
- Sweating system: 0–1000 ml/hr



8-zone segmentation
(Fingers, thumb, palm, dorsal, and wrist)

Model Information

- Unit Dimensions: 16"x12"x18.5"H (40.6 x 30.5 x 47cm)
- Minimum Operating Space: 20"x20"x20"H (51 x 51 x 51cm)
- Power Requirements: 90-265 VAC, 50/60Hz, Single-phase

ThermDAC Control Software

ThermDAC is a Windows-based application providing full device control, fault detection, data logging and analysis capabilities. Manikin system configuration and calibration can be carried out within ThermDAC.

- Define non-standard test conditions and custom tolerance criteria
- View multiple device and ambient variables on a single graph screen
- Apply real-time statistical functions to test data over any user-selected time range
- Color coded manikin pictorial displays, selectable for any manikin variable (temperature, heat flux, resistance, etc.)
- Automatic steady state detection
- Manikin control modes: temperature regulation, constant heat flux, and comfort equation

Service

All systems come with a one year warranty. Please ask about these service options:

- Startup installation and training
- Extended warranty
- Annual Service Care Package - a periodic maintenance and service contract designed to keep your Thermetrics equipment calibrated and in top operating condition

