

Dynamic Hotplate System (DHS)



A sweating guarded hotplate, or “skin model,” produces accurate, repeatable measurements of the thermal resistance (Rct) and vapor permeability (Ret) of textiles when tested under steady-state conditions.

Traditional hotplates run into problems when used to test the performance of textiles in conditions that are **not** steady-state. Thermetrics Dynamic Hotplate System (DHS) is an exciting evolution in hotplate technology that allows for measurement of Rct and Ret in situations of **positive or negative heat flux**, and with far greater accuracy in dynamic (transient) environments.

The innovative sensor technology used in our DHS generates instantaneous surface heat-flux measurements, and as a result the new DHS hotplate can be used for evaluating PCM samples, tests of heated fabrics and pads, or for textile testing under sustained solar loads and elevated ambient temperatures (up to 50°C)!

The DHS–8.2 model features an 8” (20.3 cm) test plate with 2” (5 cm) guard. The DHS–10.5 model features a 10” (25.4 cm) test plate with a 5” (12.7 cm) guard. Other sizes are available, including multi-zone test plate designs.

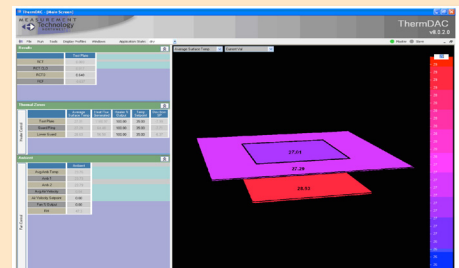
An integrated climate chamber is also available. The chamber system can be purchased with interchangeable “dynamic” DHS and “traditional” SGHP test plates, for added compliance with ISO 11092 and ISO 13029.

ASSOCIATED TEST METHODS

- ASTM F1868 (all models)
- DHS–10.5 model also complies with ASTM D1518 (Option II). Mesh fabric hood is available for Option I method
- Useful for steady state testing and as a research and development tool

FEATURES AT A GLANCE

- Test zone with lateral and lower thermal guards. Custom sizes are available, including multi-zone formats
- Composite test plate and guard ring with ultra-stable resistance wire heating to ensure uniform heat flux
- Two ambient temperature sensors and one relative humidity sensor
- Microprocessor-controlled fluid supply system precisely regulates flow volume for any sample
- Optional adjustable height airflow hood, with computer-controlled variable speed fans and air velocity sensor. Integrated chamber also available.



Thermetrics

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Specifications

Standard

- Proprietary composite test plate(s), guard ring(s)
- Resistance wire heaters and sensors
- Integrated heat flux sensor
- Two ambient temperature sensors
- One relative humidity sensor
- Signal conditioning electronics
- Power and control cabling
- Dell laptop PC with ThermDAC Control Software

Options

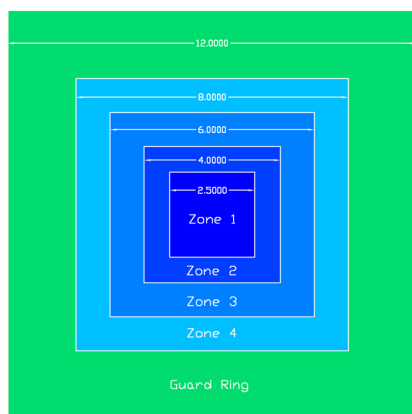
- Variable height airflow hood with variable speed fans
- Integrated climate chamber
- Mesh fabric hood for ASTM D1518¹ (Option I) testing
- Reference fabric for ASTM F1868 Part C testing
- Spacers for thick sample testing
- Cold capable upgrade (for ambient temps to -20°C)
- Cold Plate accessory for thermal conduction tests

Range / Performance / Accuracy

- Intrinsic thermal resistance: 0.001 to 2.0 K·m²/W
- Intrinsic evaporative resistance: 0 to 1000 Pa·m²/W
- ± 0.1°C temperature measurement
- ± 3% Relative humidity
- ± 2% Air velocity
- ± 1% Power measurement

¹ DHS-10.5 model only

DHS technology is perfect for labs that need the ability to test small prototype swatches.



An innovative multi-zone test plate design is available for samples ranging from 2.5" to 12" square.

Model Information

Model DHS-8.2

- 8" (20.3cm) square test plate
- 2" (5cm) guard ring
- Sample size: 12.2" ± 0.2" (31 ± 0.5cm)
- Minimum chamber size: 26"x24"x24" (66x61x61cm)

Model DHS-10.5

- 10" (25.4cm) square test plate
- 5" (12.7cm) guard ring
- Sample size: 20.2" ± 0.5" (51.3 ± 1.3cm)
- Minimum chamber size: 32"x28"x30" (81x71x76cm)

ThermDAC Control Software

ThermDAC is a Windows-based application that provides full device control, fault detection, data logging and analysis capabilities:

- User-defined test parameters allow operators to enter non-standard test conditions and custom tolerance criteria
- Multiple graph displays, with zooming feature to view device or test conditions in real-time
- Statistical functions can be applied to test data over any user-selected time range

Warranty and Service

All systems come with a one year warranty. Additional service options are available, including startup installation and training, extended warranty, and Annual Service Care Package, a periodic maintenance and service contract designed to keep your Thermetrics equipment calibrated and in top operating condition.

