### Technical Specifications

#### HFM 446 Lambda Series

<table>
<thead>
<tr>
<th>Standards</th>
<th>ASTM C518, ASTM C1784*, ISO 8301, JIS A1412, DIN EN 12667, DIN EN 12664*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Stand-alone, with integrated printer</td>
</tr>
<tr>
<td>Air-tight system</td>
<td>Sample compartment with possibility to introduce purge gas</td>
</tr>
<tr>
<td>Motorized plate</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Thermal conductivity range

- **Small**: 0.007 to 2 W/(m·K)**
- **Medium**: 0.004 to 2 W/(m·K)**
- **Large**: Up to 0.5 W/(m·K)

Lambda small and medium: 2.0 W/(m·K) achievable with optional instrumentation kit, recommended for hard materials and those with higher thermal conductivity.

**Performance data:**
- **Accuracy**: ± 1% to 2%
- **Repeatability**: 0.5%
- **Reproducibility**: ± 0.5%

→ All performance data is verified with NIST SRM 1450 D (thickness 2.5 cm)

#### Plate temperature range

-20°C to 90°C, optional for the HFM 446 Medium: -30° to 90°C

#### Transducer metering

- **Small**: 102 mm x 102 mm
- **Medium**: 102 mm x 102 mm
- **Large**: 254 mm x 254 mm

#### Chiller system

External; constant temperature setpoint over plate temperature range

#### Plate temperature control

Peltier system

#### Plate motion

Operator-actuated plate opening for fast sample change, quick return to setpoint

#### Plate thermocouples

Three thermocouples on each plate, type K (two extra thermocouples with instrumentation kit)

#### Thermo-couple resolution

± 0.01°C

#### Number of setpoints

Up to 10

#### Specimen size

- **Small**: 203 mm x 203 mm
- **Medium**: 305 mm x 305 mm
- **Large**: 611 mm x 611 mm

#### Specimen thickness (max.)

- **Small**: 51 mm
- **Medium**: 105 mm
- **Large**: 200 mm

#### Variable load/contact force

- **Small**: 0 to 854 N (21 kPa on 203 x 203 mm²)
- **Medium**: 0 to 1930 N (21 kPa on 305 x 305 mm²)
- **Large**: 0 to 1900 N (5 kPa on 611 x 611 mm²)

Precise load control and possibility to vary density of compressible materials; contact pressure calculated by software based on load sensor signal.

#### Thickness determination

- Four-corner thickness determination via inclinometer
- Compliance to non-parallel specimen surfaces

#### Software features

- **SmartMode** (incl. AutoCalibration, report generation, data export, wizards, user methods, predefined instrument parameters, user-defined parameters, Cₚ determination, etc.)
- Storage and restoration of calibration and measurement files
- Plot of plate/mean temperatures and thermal conductivity values
- Monitoring of heat flux transducer signal

* not HFM 446 Large

** Please note: In the very low thermal conductivity range, precision of Lambda (λ) values can be restricted.