The Vaisala HUMICAP® Structural Humidity Measurement Kit HM44 provides an easy and reliable solution for humidity measurements in structural material.

Excess moisture in structures can cause problems and economical losses. In new building projects, the tight time schedule may not allow enough time for structures to dry completely. Later, excess moisture can cause surface deterioration, room air impurities, and in severe cases – mold. These problems often lead to expensive repairs.

**Features/Benefits**

- Meets the new ASTM standard
- The Vaisala HUMICAP® Structural Humidity Measurement Kit HM44 is the ideal solution for measuring humidity in concrete. The HM44 includes the following parts:
  - HMI41 Indicator with batteries
  - HMP44 RH & T Probes
  - Protective cover with lid, 3 pcs (19268HM)
  - Rubber plugs, 12 pcs (19267HM)
  - Plastic tube set, 12 pcs (19266HM)
  - Carrying case
  - NIST traceable (certificate included)
- Accessories needed for wet concrete installations:
  - Plastic tube set, 12 pcs (19266HM)
  - Plastic flange set, 12 pcs (26529HM)
  - Long rubber plug set, 12 pcs (26530HM)

The sleeve enables measurements to be made at the correct depth, thus giving a true picture of the humidity in the concrete.

**Moisture Measurement Saves Time and Money**

Measuring the moisture ensures that the structure is dry enough before starting the next construction phase. Accurate moisture measurement optimizes the construction schedule and decreases the probability of future repairs while the project is under warranty and beyond. In renovations, accurate moisture measurement helps detect the actual source of the moisture and the scope of the damage.

**Reliable Bore-Hole Method**

Measuring relative humidity in a structural material such as concrete is a clear indication of whether the material is dry enough.

The Vaisala HUMICAP® Structural Humidity Measurement Kit HM44 is ideal for measuring humidity in concrete. First, a hole is bored at the required depth, cleaned out, and a plastic sleeve inserted. At this point, the probe can be pushed into the sleeve and sealed. The material at the bottom of the hole releases humidity into the space around the probe until equilibrium is reached. The Vaisala HUMICAP® Humidity Indicator HMI41 can then be connected to the probe cable and a reading taken. Alternatively, the sleeve can be plugged after insertion.

When the humidity in the hole has reached equilibrium, the probe is inserted and left to stabilize for a short time before a reading is taken. The supplied cover protects the probe on the construction site and against the effects of the ambient conditions. Concrete dries unevenly and is usually drier on the surface. A surface measurement alone may give misleading information.

Meets the ASTM Standard

Both methods, drilling into hardened concrete and pre-installation into wet concrete, meet the new ASTM standard, "F2170-02 Standard Test Method for Determining Relative Humidity in concrete Floor Slabs Using in situ probes."
# Technical Data

## HMP44 probe

<table>
<thead>
<tr>
<th>RELATIVE HUMIDITY</th>
<th>Measurement range</th>
<th>0 ... 100 %RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>0 ... 90 %RH</td>
<td>±2 %RH</td>
</tr>
<tr>
<td></td>
<td>90 ... 100 %RH</td>
<td>±3 %RH</td>
</tr>
<tr>
<td>Typical long-term stability in air</td>
<td>better than 1 %RH/year</td>
<td></td>
</tr>
<tr>
<td>Response time (90%) at +20 °C in still air</td>
<td>15s</td>
<td></td>
</tr>
</tbody>
</table>

Typical response time when the concrete and the probe are in the same temperature (stabilized hole) 30 min

- Humidity sensor: HUMICAP® 180
- Temperature sensor: Pt 1000 IEC 751 1/3 Class B

## TEMPERATURE

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>-20 ... +60 °C (-4 ... +140 °F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy at +20 °C</td>
<td>±0.4 °C (±0.72 °F)</td>
</tr>
<tr>
<td>Temperature sensor</td>
<td>Pt 1000 IEC 751 1/3 Class B</td>
</tr>
</tbody>
</table>

## GENERAL

- Operating temperature range for electronics: -40 ... +60 °C (-40 ... +140 °F)
- Probe diameter: 12 mm
- Cable length: 0.3 m
- Probe length: 69 mm
- Housing material: ABS plastic
- Housing classification: IP65
- Sensor protection: membrane filter 17039HM
- Bore hole diameter: 16 mm
- Measurement depth: min. 30 mm, max. 90 mm

## HMI41 indicator

- Maximum error caused by the indicator at +20 °C (+68 °F)
  - Humidity: ±0.1 %RH
  - Temperature: ±0.1 °C (±0.18 °F)
- Calculated quantities: dewpoint temperature, absolute humidity, wet bulb temperature, mixing ratio
- Resolution: 0.1 %RH/0.1 °C (0.1 °F)
- Power supply: 4 batteries, type IEC LR 6
- Battery operation time (alkaline batteries): 72 h continuous use
- Operating temperature range: -20 ... +60 °C (-4 ... +140 °F)
- Operating humidity range: 0 ... 100 %RH
- Non-condensing
- Storage temperature range: -40 ... +70 °C (-40 ... +158 °F)
- Display: two line LCD
- Housing material: ABS plastic
- Housing classification: IP53 (with connectors blocked)
- Weight (incl. batteries): 300 g

## General

Other probes to be used with the HMI41 indicator for the measurement of humidity in materials:

- HMP42: 23.5 cm probe, diameter 4 mm
- HMP44L: as HMP44 but with a 2.7 meter cable
- HMP46: 320 mm tube of stainless steel, diameter 12 mm

Electromagnetic compatibility: Complies with EMC standard EN61326-1, Portable Equipment

## Accessories needed for wet concrete installations:

- Plastic tube set, 12 pcs.: 19266HM
- Plastic flange set, 12 pcs.: 26529HM
- Long rubber plug set, 12 pcs.: 26530HM

## Installation of the HM44 kit

- Connector for the HMI41 indicator
- Protective cover (19268HM)
- Plastic sleeve is sealed with a rubber plug (19267HM)
- Plastic sleeve (19266HM)

- The humidity can be measured at the desired depth (min. 30 mm, max. 90 mm).
- The tip of the probe is in contact with the air that is in equilibrium with the concrete.

- Probe diameter: 12 mm
- Bore hole diameter: 16 mm

### For more information, visit
www.vaisala.com or contact us at sales@vaisala.com