Vaisala HUMICAP® Structural Humidity Measurement Kit SHM40 offers an easy and reliable solution for humidity measurements in concrete and other structures.

Measuring Humidity under the Surface
Concrete dries unevenly and is usually drier on the surface, consequently it is important to measure beneath the surface conditions. The borehole method provides information about the humidity profile under the surface. In this method, a humidity probe is left in the borehole until the humidity in the hole has reached an equilibrium state and the stabilized values can be read.

SHM40 is All You Need for Borehole Humidity Measurement
The Vaisala HUMICAP® Structural Humidity Measurement Kit SHM40 is an ideal solution for the borehole method. The starter kit is comprised of an HMP40S probe, HM40 indicator and accessories for the borehole method in a weather-proof case, optimized for use in harsh and humid construction sites.

Additional accessories for the SHM40 can be used to prepare a moisture measurement hole in fresh concrete. Pre-formed holes eliminate the need for drilling and the risk of damaging heating elements or tubing embedded in the concrete.

Easy Measurement with Multiple HMP40S Probes and Quick Connectors
HMP40S measurement probes are interchangeable. The probes connect easily to the HM40 indicator with a snap-on connector enabling convenient use of multiple probes with one indicator. The measurement data can be displayed in numeric, statistic or graph views.

Features
- Truly interchangeable measurement probes
- Accurate measurement data in numeric, statistic or graph views
- Conforms to ASTM standard F2170
- IP65 classified measurement probe and case

Standard Contents of SHM40
- HM40 indicator with adapter
- 1 piece HMP40S RH&T probe with a cable
- 12 pcs plastic tubes (19266HM)
- 12 pcs rubber plugs (233976)
- 3 pcs protective covers with lid (19268HM)
- Traceable calibration certificate
- Weather-proof carrying case with a shoulder strap
## Technical Data

### HMP40S Probe Measurement Performance

#### Relative Humidity

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>0 ... 100 %RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy (incl. non-linearity, hysteresis, and repeatability)</td>
<td></td>
</tr>
<tr>
<td>temperature range: 0 °C ... +40 °C</td>
<td>0 ... 90 %RH: ± 1.5 %RH</td>
</tr>
<tr>
<td></td>
<td>90 ... 100 %RH: ± 2.5 %RH</td>
</tr>
<tr>
<td>temperature range: -40 °C ... 0 °C and +40 °C ... +80 °C</td>
<td>0 ... 90 %RH: ± 3.0 %RH</td>
</tr>
<tr>
<td></td>
<td>90 ... 100 %RH: ± 4.0 %RH</td>
</tr>
<tr>
<td>Factory calibration uncertainty at +20 °C (68 °F)</td>
<td>0 ... 90 %RH: ± 1.1 %RH</td>
</tr>
<tr>
<td></td>
<td>90 ... 100 %RH: ± 1.8 %RH</td>
</tr>
</tbody>
</table>

#### Stability

- Humidity sensor: HUMICAP® 180R
- Stability: ± 2 %RH over 2 years

#### Temperature

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>-40 °C ... +80 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy over temperature range:</td>
<td></td>
</tr>
<tr>
<td>0 ... +40 °C: ± 0.2 °C</td>
<td></td>
</tr>
<tr>
<td>-40 ... 0 °C, +40 ... +80 °C: ± 0.4 °C</td>
<td></td>
</tr>
</tbody>
</table>

Temperature sensor: Pt1000 RTD Class F0.1 IEC 60751

### HMP40S Probe Mechanical Specifications

- Probe weight with standard cable: 31 g
- Probe housing material: stainless steel
- Probe filter and sensor protection: membrane filter with chrome coated ABS plastic
- Cable material: Wire PVC / jacket PU
- Cable connector: TRRS male 3.5 mm
- Probe housing classification: IP65
- Borehole diameter needed: 16 mm
- Measurement depth with standard accessories: min. 30 mm, max. 90 mm

### Operating Environment

- Operation temperature range for probe: -40 °C ... +80 °C
- Operation temperature range for indicator: -10 °C ... +60 °C
- Storage temperature range: -30 °C ... +70 °C

### HM40 Indicator Mechanical Specifications

- Weight: Indicator with adapter: 240 g
- Indicator case with standard content: 3.7 kg
- Indicator materials: PC/ABS blend, acrylic display lens
- Indicator adapter materials: Nickel plated brass and plastic overmolding
- Indicator housing classification: IP54
- Mechanical drop endurance: 1.0 m without the probe

### HM40 Indicator - General

- Power-up time: < 3 s
- Alkaline batteries: 2 x AA sized, 1.5V (LR6)
- Operation time (Alkaline batteries): typical 100 hours (without backlight)
- Calculated variables: Td, Tw, a, x, h
- Menu languages: English, German, French, Finnish, Spanish, Swedish, Chinese (simplified), Russian, Japanese
- Display: LCD (140 x 160 pixels)
- Electromagnetic compatibility (EMC): European Union directive EN61326-1 for portable equipment

### Spare Parts and Accessories

- HM40 indicator with adapter and cable probe: HM40S
- RH&T probe with cable: HMP40S
- HM40 indicator with adapter: HM40SINDI
- Quick connection adapter: HM40SADAPTER
- Cable for RH&T probe: HMP40SCABLE
- Long cable (2.7 m) for RH&T probe: HMP40SCABLE2
- Plastic tube set (12 pcs): 19266HM
- Long (200 mm) plastic tube set (12 pcs): 245789
- Rubber plugs (12 pcs): 233976
- Protective cover with lid (3 pcs): 19268HM
- Weather-proof carrying case with SHM40 filling: 233815
- USB charger for HM40 indicator: 229249SP
- Plastic grid with membrane filter for HMP40S probe: DRW010525SP
- Accessories for Wet Concrete:
  - Plastic flange set (12 pcs): 26529HM
  - Long rubber plug for wet concrete (12 pcs): 26530HM

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