Rheological measuring cell for building materials

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In order to carry out measurements on samples with medium and large particles, a special measuring geometry is often the only way to get meaningful data with high reproducibility. For inhomogeneous materials a large volume has to be used in order to measure a representative sample.

A measuring cell with a volume of 570 ml has been developed for building materials, which can be used with the Thermo Scientific[™] HAAKE[™] MARS[™] and Thermo Scientific[™] HAAKE[™] Viscotester[™] iQ rheometers. Whereas classic coaxial cylinder cells have a fixed inner surface, the inner surface of this special cell can be modified with so-called lamellas to reduce or avoid wall slippage. These lamellas are interchangeable vertical metal stripes protruding from the inner wall into the cell's volume. Using different lamellas of 0 mm, 1 mm or 2 mm depth, the user can create a multitude of patterns to fit the individual samples properties. The 2 mm lamellas are included in the base package of the measuring cell. The 0 mm and 1 mm lamellas can be added as optional accessories. Other lamella depths are available on request.



Figure 1: Measuring cell for building materials with vane rotor (left) and interchangeable lamellas (right).

The measuring cell is made of stainless steel and designed to be very robust. The surface's optimised structure guarantees easy cleaning. Two vane rotors with diameters of 52 mm and 59 mm and a design to avoid blockage due to larger particles are available.

When using the cell for construction materials in combination with a HAAKE MARS rheometer or with the HAAKE Viscotester iQ with dedicated stand (Figure 2), the temperature can be controlled with a water jacket connected to a suitable circulator. A temperature sensor can be mounted above the measuring cell to measure the temperature within the sample. A measuring cell cover is available as an optional accessory to reduce evaporation from the sample's surface.



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Figure 2: HAAKE MARS iQ rheometer with measuring cell for building material (left), HAAKE Viscotester iQ rheometer with lab stand and untempered measuring cell for building material for measurements at ambient temperature (center), HAAKE Viscotester iQ rheometer with stand for special measuring cells incl. building material with temperature control (option) and convenient gap adjustment by handwheel (right).

Table 1. Ordering information

Product	Order no.
Measuring cell for building materials for HAAKE rheometers, incl. 2 mm profile	222-1792

Table 2. Optional accessories

Product	Order no.
Rotor FL26 2B-CMC/SS with "Connect Assist"	222-2203
Rotor FL29.5 2B-CMC/SS with "Connect Assist"	222-2204
Set of lamellas with profile depth 1 mm (8 pcs.)	222-1793
Set of lamellas with profile depth 0 mm (8 pcs.)	222-1794
Set of lamellas with profile depth 2 mm (8 pcs.)	222-1795

Table 3. (Optional) accessories for the temperature control of the measuring cell for building

Product	Order no.
Adaptation plate for construction materials	222-1801
Liquid temperature control unit for construction material cell or individual measuring cells, with inner diameter of 94.2 mm +0.1 mm, circulator required	222-1799
Temperature sensor for HAAKE MARS 40/60 rheometer	222-2238
Sample hood (two-part)	222-1798
Temperature sensor with holder for HAAKE MARS iQ rheometer	222-2408
Sample hood (two-part)	222-2409
Temperature sensor with holder for HAAKE Viscotester iQ rheometer	222-2065
Sample hood (two-part)	222-2409

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