

## HAAKE MARS 40/60 Rheometer application packages for measurements at higher pressures and temperatures

Order numbers: 379-0347, 379-0348, 379-0650, 379-0660

### Application

Thermo Scientific™ HAAKE™ MARS™ Rheometers are designed to meet the most demanding requirements from quality control to research & development. For performing rheological tests at elevated pressures, different pressure cell packages are available for the HAAKE MARS 40/60 Rheometers.

Packages are available for two different pressure cell models. The first package includes a pressure cell made of titanium, for measurements up to 400 bar (5800 psi) and 300 °C. The second package includes a pressure cell made of Hastelloy® and is suitable for testing even highly corrosive samples. The maximum pressure of this cell is 75 bar (1087 psi) and the maximum temperature 300 °C. Both packages are available for the HAAKE MARS 40 and 60 Rheometers.

Depending on the required temperature range, liquid or electric temperature control modules options are available separately. For testing different types of samples the following measuring geometries are also available:

- Cylindrical rotors with different diameters for homogeneous liquids (1)
- Vane rotors for suspensions with larger particles (2)
- Double gap geometry for testing low-viscosity samples (3)

### Typical samples, measuring routines and material properties

#### Crude oil industry

- Measuring the viscosity of crude oils at different temperatures and pressures to simulate the conditions in the oil well or during pipeline transport
- Investigating the effect of additives for polymer flooding fluids in enhanced oil recovery (EOR)



Figure 1: HAAKE MARS Rheometer with pressure cell.

- Testing the stability of fracturing fluids at higher pressures and temperatures
- Measuring the yield stress of drilling fluids

#### Food industry

- Simulating production and preservation processes
- Low temperature cooking processes to retain vitamins

#### Construction materials

- Simulating the conditions during long distance or vertical transport of building materials
- Measuring the rheological properties of building materials for special constructions such as underground deposits

## Features of the HAAKE MARS Rheometer pressure cell application packages

- High-end rheometer platform for individual demands
- “Connect Assist” quick coupling and automatic recognition of temperature control modules and pressure cells
- Multilingual and easy to use HAAKE RheoWin™ Software. Ideal for beginners as well as advanced users
- Pressure cells with low friction sapphire-bearing for measuring geometries, to perform low torque measurements
- Powerful magnetic coupling between motor drive shaft and measuring geometry for high torque measurements
- Pressure cells and measuring geometries made of titanium or Hastelloy for high resistance
- Large sample volume for representative test results for inhomogeneous materials
- Broad variety of cylinder and vane rotor geometries available

## Ordering information

| Product  | Order no. |
|--|-----------|
| HAAKE MARS 40 Rheometer with pressure cell D400/300 includes:<br>HAAKE MARS 40 Rheometer with HAAKE RheoWin Software (379-0340)<br>Pressure cell D400/300 incl. accessories* and hand pump (222-2261)<br>Outer magnet with “Connect Assist” (222-2253) | 379-0347  |
| HAAKE MARS 40 Rheometer with pressure cell D75/300 Ha includes:<br>HAAKE MARS 40 Rheometer with HAAKE RheoWin Software (379-0340)<br>Pressure cell D75/300 Ha incl. accessories* (222-2560)<br>Outer magnet with “Connect Assist” (222-2253)           | 379-0348  |
| HAAKE MARS 60 Rheometer with pressure cell D400/300 includes:<br>HAAKE MARS 60 Rheometer with HAAKE RheoWin Software (379-0600)<br>Pressure cell D400/300 incl. accessories* and hand pump (222-2261)<br>Outer magnet with “Connect Assist” (222-2253) | 379-0650  |
| HAAKE MARS 60 Rheometer with pressure cell D75/300 Ha includes:<br>HAAKE MARS 60 Rheometer with HAAKE RheoWin Software (379-0600)<br>Pressure Cell D75/300 Ha incl. accessories* (222-2560)<br>Outer magnet with “Connect Assist” (222-2253)           | 379-0660  |
| <b>Necessary accessories</b>   |           |
| Air compressor or standard filter unit for on-site compressed air lines  |           |
| Measuring geometry for pressure cell (coaxial cylinder (1), vane rotor (2) or double gap rotor (3))  |           |
| Powerful, electrical temperature control unit for temperatures up to 300 °C (222-1857) or liquid temperature control unit (222-1862) for use with circulator   |           |
| <b>Optional accessories</b>  |           |
| Hand pump for pressurization (included in pressure cell D400/300)  | 222-2129  |

\* Accessories include: rupture disk, temperature sensor, block valve, pressure sensor with digital manometer, holder for pressure cell outside rheometer and safety cover made of PEEK

## References

1. F. Meyer, Cylinder rotors for pressure cells, Thermo Fisher Scientific Product information P074
2. C. Küchenmeister-Lehrheuer, F. Meyer, Vane rotors for pressure cells, Thermo Fisher Scientific Product information P021
3. C. Küchenmeister-Lehrheuer, J. Nijman, Double gap geometry for pressure cells, Thermo Fisher Scientific Product information P036

For more information, please visit  
[thermofisher.com/rheometers](https://thermofisher.com/rheometers)

thermo scientific

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