

Automatic temperature calibration with the temp offset tool

Authors

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In order to obtain correct measurement results from tests with a rotational rheometer, it is of utmost importance that the sample temperature is adjusted correctly. The temperature reading displayed in the Thermo Scientific™ HAAKE™ RheoWin™ software represents the temperature of a temperature sensor inside the temperature control module. Depending on the individual measurement conditions, the actual sample temperature can differ significantly from this reading. Conditions that affect the offset between instrument reading and actual sample temperature include:

- the difference between test temperature and ambient temperature
- the applied measuring geometry
- the utilization of a sample cover

It is therefore strongly recommended to determine the temperature offset between temperature reading and sample temperature.

Depending on the temperature range and the number of temperature steps, this calibration can be very time consuming. With the optional temp offset tool, the temperature calibration runs automatically without user intervention during the run.

The temp offset tool consists of a digital thermometer and an add-on module for the HAAKE RheoWin software. Depending on the type of measuring geometries used, a thin thermocouple for concentric cylinder geometries or a thicker thermocouple for parallel plate geometries is available (Fig. 1 and Fig. 2).

The digital thermometer connects to the computer via a USB port and can be used by HAAKE RheoWin software afterwards. The user enters the range of temperature, the number of steps to divide it into and the precision needed. With this input, the calibration can be started and will run unattended (Fig. 3).



Fig. 1: Temperature offset tool in combination with a HAAKE Viscotester iQ rheometer for concentric cylinders.



Fig. 2: Temperature offset tool in combination with a HAAKE Viscotester iQ rheometer: detailed view for parallel plates.

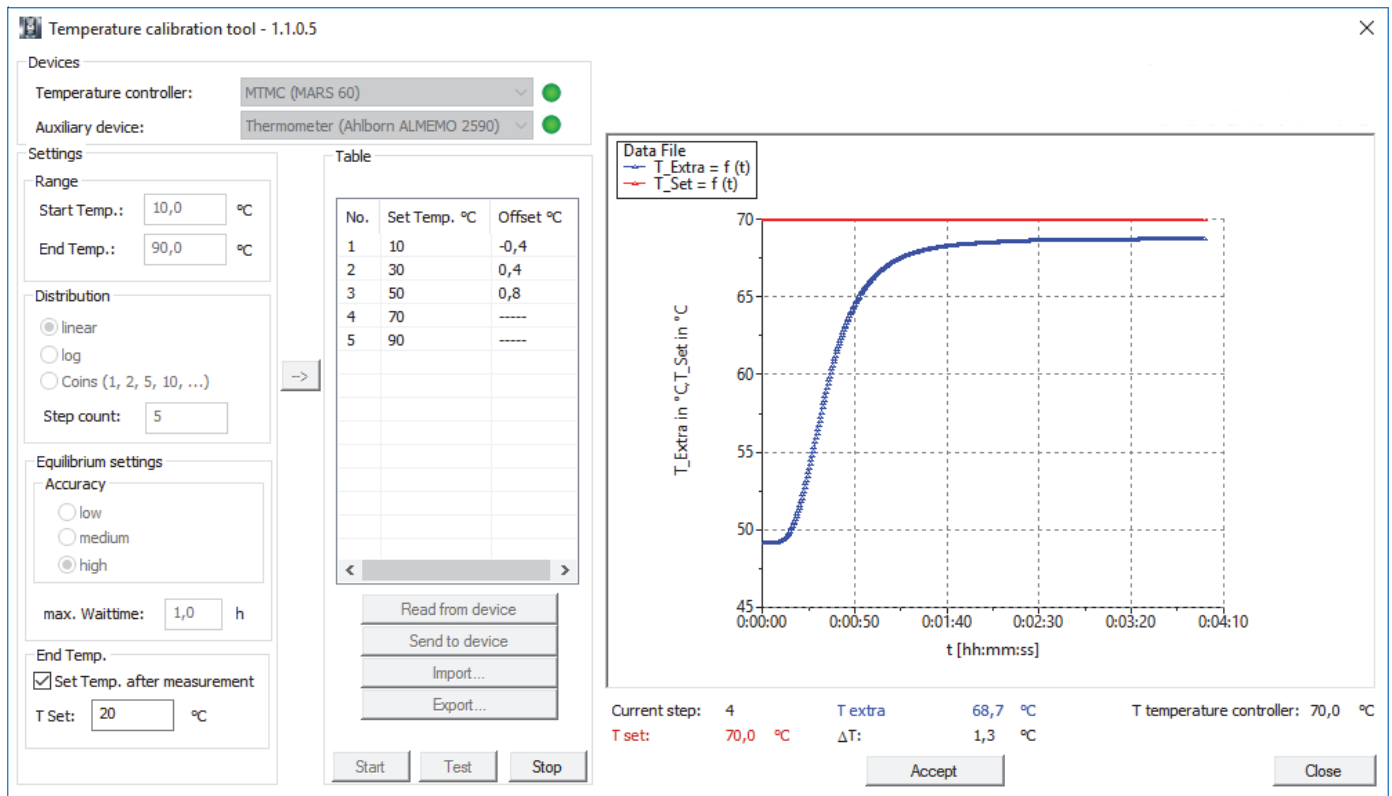


Fig. 3: The temp offset tool during operation. On the left side, the user-defined parameters can be entered and the offsets already determined are shown. On the right side, progress of the temperature equilibration of the current temperature step is shown.

It is important to use the same configuration of the rheometer during temperature calibration that will afterwards be used for the sample measurement. This includes the temperature control unit, measuring geometry and sample cover, if used.

After the calibration run has finished, the temperature can go to a user-defined temperature, for example the start temperature of the next rheological measurement.

The temp offset tool can be used with the Thermo Scientific™ HAAKE™ Viscotester™ iQ, the Thermo Scientific™ HAAKE™ RheoStress™ 600(0) and the Thermo Scientific™ HAAKE™ MARS™ rheometers using their own temperature controller or a HAAKE SC or AC circulator.

Ordering information

The temp offset tool consists of the base unit including the HAAKE RheoWin software Add-on. Depending on the measuring geometries used, the suitable temperature sensors have to be selected.

Product	Cat. No.
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Temp offset - tool for automatic temperature offset determination (Almemo 2590)	222-2206
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Necessary accessory

Temperature sensor for plates and cones or coaxial cylinders	
Temperature sensor option for parallel plates	222-2210
Temperature sensor option for coaxial cylinder	222-2211

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