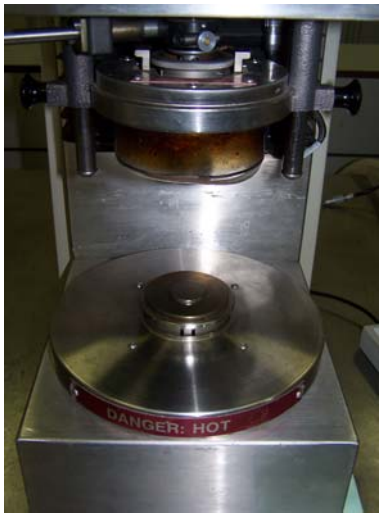
Dynamic Stress Rheometer (DSR200)

The DSR is a stress-controlled rheometer suitable for steady, dynamic and transient testing of both melts and fluids. Stresses are applied through a low-inertia AC eddy current motor attached to the upper geometry. The resulting angular velocities are measured by means of an optical encoder.



Geometries

A broad variety of measurement geometries is available in the laboratory: plate-plate (∅ 25 / ∅ 40, plastic and aluminium); cone-plate (∅ 25-0.1 / ∅ 40-0.04, plastic and aluminium); couette cell (aluminium); disposable plates (∅ 25)

Temperature control

Three different temperature control units are available: a recirculating fluid bath, a Peltier system (allowing temperature ramps up to 50°C/min) and an oven that consist of electrically heated plates with an optional N2-purge for temperatures up to 350°C.

Instrument specifications

The instrument has a torque range of 0.001 up to 20 mNm with a torque resolution of 0.0001mNm at 0.1 mNm. The instrument can achieve a rotational rate up to 954 rpm and has an angular resolution of 4.2 µrad. Its dynamic frequency range is between 10^{-5} and 500 rad/s. The machine can be used as well to perform parallel superposition measurements.

Orchestrator software (Rheometrics) is used as an interface between user and instrument.

Typical measurements

A broad spectrum of measurements can be performed with this instrument: e.g. the determination of yield stresses, monitoring the kinetics of crystallization, curing, ... using different time-temperature profiles, the determination of the morphology of blends by means of dynamic testing after different preshear histories, ...