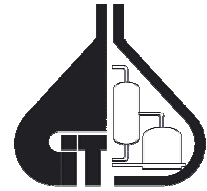


# Advanced Rheological Expansion System (ARES)



The ARES is a capable and versatile all-purpose rheometer that incorporates a Standard HR Motor and a Force Rebalance Transducer™. The ARES is appropriate for characterizing a diverse variety of materials over a broad spectrum of medium to high viscosity fluids, including polymer melts, composites, solids and reactive materials.

## Geometries

Various measurement geometries including parallel plate, cone and plate, concentric cylinder, disposable, and torsion solid clamps are available in the lab. The geometries have a variety of sizes and materials of construction to satisfy any measurement requirement.

## Temperature control

Three different temperature control units are available: a recirculating fluid bath, a Peltier system and a forced convection oven. The temperature of the recirculating bath and the Peltier system is  $-10^{\circ}\text{C}$  to  $150^{\circ}\text{C}$ . The forced convection oven is an air convection oven that is primarily used for polymer melts with a temperature range up to  $600^{\circ}\text{C}$ .

## Transducer

Two FRT transducers are available in the lab, a 100 g and a 2 kg transducer. Due to the separate torque measurement, these transducers are capable of providing inertia-free dynamic measurements over a wide frequency range, independent of the material viscosity. The low axial runout combined with the quasi infinite stiffness of these transducers, makes them very suited for measuring transient normal stresses, as well as fast transients. The transducer electronics are also adjusted to allow superposition measurements. Both parallel as well as orthogonal superposition measurements are possible.



## Possible measurements

With the instrument, a broad spectrum of measurements is possible: steady state shear flow, linear viscoelastic measurements using oscillatory measurements, transient shear tests (including transient normal forces, relaxation experiments, ...), parallel and orthogonal superposition measurements.

