# TMA 402 *****F1/F3******Hyperion*®

## Thermomechanical Analyzer - Vertical Dilatometer

The heart of the TMA 402 Hyperion® is a highly precise inductive displacement transducer (LVDT).  
This technology has stood the test of time; it is also used for dilatometers and allows measurement of even the smallest of length changes, into the nanometer range (digital resolution of 0.125 nm).

**Simultaneous measurement of force and displacement signal**

The force operating on the sample is generated electromagnetically in the TMA 402 Hyperion®. This guarantees a quick response time for experiments with a changing load, e.g. tests on creep behavior. A highly sensitive force sensor (digital resolution < 0.01 mN) continuously measures the force exerted via the push rod and readjusts it automatically. This sets the TMA 402 Hyperion® apart from other instruments, which use only preset values.

#### **Benefits for you**

* Modular Concept with interchangeable furnaces (compatible with other NETZSCH instruments) for easy and cost-effective expansion and retrofitting
* Gas flows with up to 4 MFCs, controllable via software with programmable atmosphere change for the analysis of e.g. oxidation behavior without manual valve operation
* Digitally programmable force or displacement control up to 4 N (only for **F1**, 3 N for ***F3***)  with linear or stepwise force alteration and continuous force modulation for determining visco-elastic properties like relaxation, creep and stress/strain
* Various accessories for an expanded application range, e.g., for measuring powders, liquids, pastes or metals