



**Service Quality Innovation**

## **Laboratory Testing Capabilities**

TTI's new headquarters in Germany is equipped with state-of-the-art testing and production infrastructure, positioning us as pioneers in filtration product innovation. As we strive to exceed industry benchmarks, we use advanced equipment to ensure strict quality standards and continuous improvement of our product range.

### **Importance of Filtration Product Testing**

Testing industrial filtration products is paramount to ensuring their efficacy and reliability in diverse operational environments. Rigorous testing protocols are essential to validate performance metrics such as filtration efficiency, particle capture rates, pressure drops, and durability under real-world conditions.

Ongoing innovation is critical to the development of more sustainable and cost-effective solutions, ultimately enhancing operational efficiency and profitability for end-users. Whether it's through advancements in filtration media, novel design concepts, or integration of smart technologies for predictive maintenance, innovation drives improvements in performance, longevity, and overall value proposition.



# Testing Hardware and Features

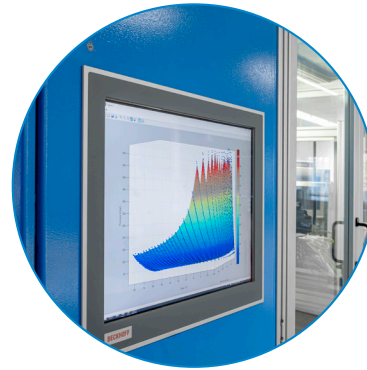
## Efficiency Test Stands

### Testing:

ISO 16889 – Multi-Pass Efficiency Test Method incl. DHC  
ISO 4548-12 – Filtration Efficiency for oil filters for internal combustion engines  
SAE J 1985 – Initial Single-Pass Efficiency Test Method  
TFEM – CleanUp Efficiency acc. to SAE 2001-01-0372  
ISO 2941 – Element Collapse Test

### Hardware Features:

- 3-Loop-Hydraulic-System with two main pumps to ensure turbulent flow conditions to a wide flow range
- Test operation with static and dynamic volume options
- Pressure mode, suction mode, and bypass mode
- SLS and HCB particle counting system for a wide range of particle size and Test Dusts



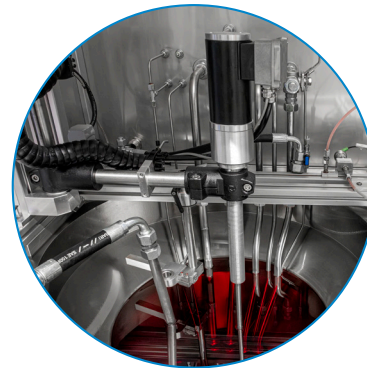
## Flow Characteristics Test Stands

### Testing:

ISO 3968 – Evaluation of differential pressures versus flow characteristics

### Hardware Features:

- 2-Loop-Hydraulic-System with two main pumps to ensure good decoupling of the thermal mixing with simultaneous quick adjustment of the measuring volume flows for a wide volume flow and temperature range
- Test operation with static and dynamic volume flow options
- Pressure mode and suction mode



## Climate Cabinet

### Hardware Features:

- Temperature range: -70°C up to +180°C
- Humidity range: 10% up to 98% r.H.
- Dew point range: -10°C up to +94°C
- Test room volume: 350l
- 2.2K/min temperature change speed with 55kg mass for cooling and heating within the temperature range
- 1.5K/min temperature change speed with 110kg mass for cooling and heating within the temperature range



## Additional Equipment

**Digital Video Microscope:** 2-Lens System with a wide range of magnification and features for 3D surface images and dimensional measurement

**Burst Pressure Test Stand:** Test of weld seamed plastic components, pressure range from 0 up to 60bar

**Universal/Tensile Testing Machine:** ISO 527 – Plastics  
Determination of tensile properties

**Air Permeability Test Stand:** ISO 9237 and ASTM D 737  
Determination of the air permeability of textiles

**Bubble Point Test Stand:** ISO 2942 Verification of fabrication integrity and determination of the first bubble point

**Technical Cleanliness Test Room:** ISO 16232

