

## GMN International GmbH

is the worldwide leading supplier of Test Stands and test equipment used mainly in automotive and filter industries. Our core competence lies in the development and the production of test equipment that is used for testing various kinds of filters.

Our special testing machines and equipment are produced on the highest technological standards and is adjusted to your special requirements and needs. We manufacture our products at our own plant located in Hatzfeld, Germany. Also a very extensive network of partners, who provide us with expert assistance, distinguishes us from our competitors.

Over the past few years, GMN International GmbH has supplied nearly every well-known filter manufacturer with testing equipment of a different kind.

### Our products for Automotive- / Industrial Filter Manufacturer and R&D Center:

- Multi Pass Test Stand acc. ISO 16889
- Oil filter Test Stand acc. ISO 4548 (SAE HS 806)
- Fuel filter Test Stand acc. ISO 4020
- Fuel filter Test Stand acc. ISO 19438
- Dry tightness Test Stand for different kind of filter application
- Oil separator Test Stand acc. ISO 12500 und ISO 8573
- Customized machines and systems

### Other products and service:

- Service & maintenance
- System validation and calibration

### Experience in the field of testing and production equipments since 1990

First Multi Pass Test Stand acc. ISO 4572 in 1994

### Customer in Europe and USA:

- 3M
- Ahlstrom USA
- Argo Hytos
- Baldwin Morocco
- Boll + Kirch
- Bosch
- Brano
- Donaldson Poland
- Freudenberg
- Hengst
- Hollingsworth & Vose (Hatzfeld)
- IBS Filtran
- J.C. Binzer
- Knowlton Technologies LLC
- Mahle
- Mann + Hummel
- Neenah Gessner
- Saati
- Sefar
- Unitech
- Vorwerk
- VW / SGS
- Wix Dana

### Customer in Asia:

- Ahlstrom Korea
- Anhui Phoenix International Co., Ltd
- Brano Ningbo
- CAF Changchun (now Freudenberg)
- China Changchun Mann+Hummel Faway Filter Co. Ltd
- China Leemin Hydraulic Co., Ltd
- Chongqing Zaisheng Technology Co., Ltd
- Cummins Wuhan
- Factory 116 Xinxiang
- FAW R&D Center Changchun
- Filda Filter Corp.
- Fleetguard Shanghai
- Hengst Kunshan
- Hollingsworth & Vose (Suzhou) Co., Ltd.
- Mahle Shanghai
- Mann+Hummel Shanghai
- Mann+Hummel India
- Northwest Institute for Non-ferrous Metal Research (NIN)
- QAP
- Shan Dong Ren Feng Special Materials Co., Ltd
- Thai Yang Bangkok
- Wuxi Hualing
- Wuxi WeiFu
- YCWY Engineering (YL) Co., Ltd Yulin
- Zhejiang Yinlun Machinery Co., Ltd



ideas become reality

www.gmn-gmbh.net

## Test Stands • Customized Machines and Systems

### Multi Pass Test Stand (ISO 16889, ISO 19438 & ISO 4548-12)



#### Filter types:

spin on filter, filter elements,  
flatsheet filter media

#### Flow range:

3 loops: 0,3 – 420 l/min

#### Differential pressure:

16 bar

#### Dosing pump:

50 – 250 ml/min

#### Max. diluting HCB:

5:1 (25 ml/min sample flow)

#### Max. diluting SLS:

50:1 (10 ml/min sample flow)

#### Flatsheet test head:

200 cm<sup>2</sup> (max. 16 bar)

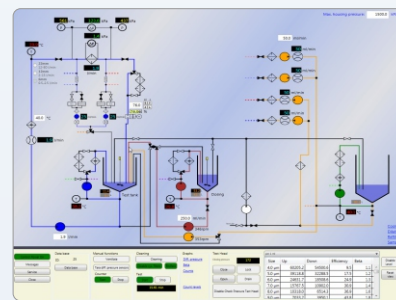
#### Particle counter:

online particle counter (Pamas)  
calibrated per ISO 11171

4 – 70 µm(c) HCB,

1,5 – 20 µm(c) SLS

32 channels up- / 32 downstream



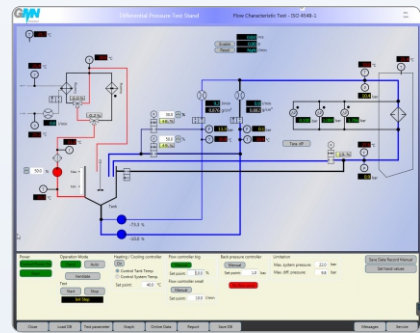
- Evaluating filtration performance of Spin on- and filter element
- Evaluating filtration performance of flat sheet filter media
- Particle retention ability and contamination holding capacity
- Differential pressure characteristics
- The Test Stand can be also configured and quoted according to customer individual specification

GMN International GmbH • Edertalstrasse 27a • 35116 Hatzfeld / Germany  
phone: +49 (0) 6467 915 888 • fax: +49 (0) 6467 915 879  
web: www.gmn-gmbh.net • email: info@gmn-gmbh.net

## Differential pressure / Oil filter Test Stand (ISO 4548-1 & ISO 3968)



Filter types: spin on filter and filter elements  
 Filter diameter: 60 – 180 mm  
 Filter height: 40 – 500 mm  
 By-pass valve connection: adapter with 3 set tooling for 3 different by-pass valves  
 Pipe diameter/type: 1"/EO2  
 Flow range: 1 - 12.000 l/h  
 Flow sensor type: carioles Principe  
 Flow sensor size: DN 4 and DN 25  
 System pressure: 0 – 15 bar  
 Oil temperature: 15 – 105 °C  
 Tank capacity: 300 l  
 Hydraulic medium: mineral to synthetic oils, e.g. SAE oils (SAE 30 ... SAE 140)

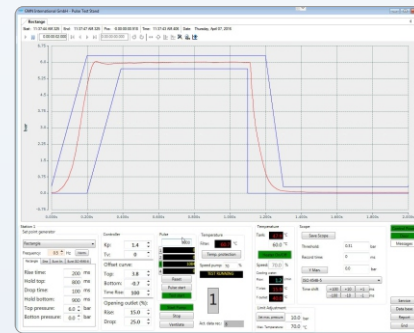
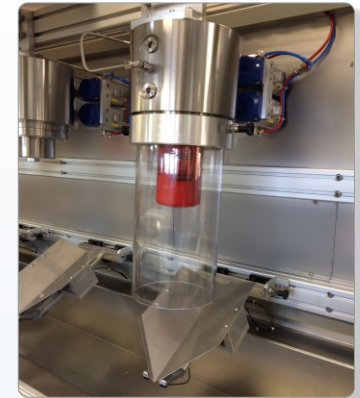


- Differential pressure characteristics acc. ISO 4548-1 and ISO 3968
- Flow rate ramp
- Differential pressure characteristics of by-pass valve
- Opening pressure of by-pass valve
- Leakage volume of by-pass valve
- Features according customer technical specification can be provided and quoted

## Pulsation and burst pressure Test Stand (ISO 4548-5, ISO 4548-6 & ISO 4020-6.8)



Filter type: spin on hydraulic, oil, fuel filter (other types are also possible)  
 Filter diameter: 65 – 140 mm  
 Filter height: 65 – 350 mm  
 No. of test stations: 4 parallel stations  
 Servo valve type: company Moog®  
 Pulsation pressure: 0,2 – 40 bar  
 Pulse wave: trapezoidal, sinusoidal, special waves controlled by PLC  
 for sinusoid waveform: 0,5 – 15 Hz programmable  
 for square waveform: 0,5 – 3 Hz programmable  
 Burst pressure: 0 – 140 bar  
 Oil temperature: 37 – 150 °C ± 12 °C



- Square wave pulse test acc. ISO 4548-5
- Square wave pulse test acc. ISO 4020
- Sinusoidal wave pulse test
- Static burst pressure test acc. SAE HS-806 and ISO 4548-6
- The Test Stand is designed as a High Speed Dynamic Impulse Test Stand as part of the features according customer technical specification can be provided and quoted