

FET 300



The FET 300 enables the testing of filter elements up to 305 × 305 mm, such as ventilation filters, HEPA/ULPA filters, vacuum cleaner filters, and automotive cabin filters. Designed for optimal flow control, the channel can also be used for smaller filter elements with the aid of adapters. Coarse filters up to ULPA filters are tested for particle size separation and differential pressure. Thanks to individual adapters and customer-specific adjustments in the air channel, the FET system can be used for a wide variety of filter elements.

OPERATION PRINCIPLE

TEST SYSTEM FOR MEDIUM FILTER ELEMENTS UP TO A CROSS-SECTIONAL AREA OF 305 • 305 MM

A controlled fan sucks a defined test volume flow from the environment via a HEPA inlet filter through the test duct and a protective filter.

The aerosol and pressure are operated on the upstream side of the FET 300. In the vertically constructed test duct, the aerosol is then homogeneously mixed and directed onto the filter element.

The aerosol extraction for the particle measurement is representative on the raw and clean gas side, considering the isokinetic. Two measuring devices can be used simultaneously, or only one measuring device with a measuring point switch.

The measuring instruments used are the Palas **U-SMPS**¹ or the aerosol spectrometers of the **Promo**® system², which can cover a measuring range from 0.01 to 40 µm, depending on the selection.

Now the filter element is inserted into the test channel. The filter holder can be easily and quickly opened pneumatically for this purpose. Individual adapters can be made for different designs of filter elements.

Now the filter element is tested. The pressure drop, clean gas concentration, and size of the clean gas aerosol are determined, and fractional separation efficiency is calculated.

The system is easily controlled via the integrated **FTControl**³ test rig control system. Individual sequence programs ensure that the measurements are carried out safely.

A comprehensive analysis section allows a simple and fast evaluation of the measurement results.

¹U-SMPS: <https://www.palas.de//product/usmps>

²Promo® system: <https://www.palas.de//product/promo>

³FTControl: <https://www.palas.de//product/ftcontrol>

Extensions/Accessories

Aerosol generation

Due to the modular design, a wide variety of test aerosols can be generated depending on the aerosol generator used:

DEHS, oils, paraffin oil, NaCl or KCl, and test dust such as ISO A2 Fine.

Aerosol discharge

Depending on the application, the aerosol discharge is carried out via the electrical corona discharge [CD 2000⁴](#) or the X-ray source [XRC 049⁵](#), which is not subject to approval.

Aerosol dilution

The dilution systems of the [VKL series⁶](#) are to be used especially when measuring high HEPA filter qualities (filter efficiency >99.95%). When using dilution systems, a measuring point switch for the dilution factor (1,10,100,1000,10000) is used for easy filter testing.

Aerosol measurement

The aerosol measurement takes place

- in the range from 0.01 to max. 1.2 μm with the Palas [U-SMPS⁷](#),
- in the range from approx. 0.12 to 100 μm with the aerosol spectrometer of the [Promo[®] system⁸](#).

The two measuring instruments can be combined and used simultaneously as a [U-Range⁹](#) for the entire range.

⁴CD 2000: <https://www.palas.de//product/cd2000>

⁵XRC 049: <https://www.palas.de//product/xrc049>

⁶VKL series: <https://www.palas.de//product/vkl>

⁷U-SMPS: <https://www.palas.de//product/usmps>

⁸Promo[®] system: <https://www.palas.de//product/promo>

⁹U-Range: <https://www.palas.de//product/seriesurange>

BENEFITS

- Measurement according to ISO 29463-5 and ISO 16890 (ISO ePM₁; ISO ePM_{2,5}) in one channel
- Double channels on request
- Particularly wide range of applications for separation efficiency measurement from 0.02 to 40 µm
- Measurement of dust storage capacity possible
- Customization possible for optimal test execution
- Horizontal design to minimize particle losses
- Easy to use for filter elements as well as for material testing (adapter required)
- Protooled results based on the relevant standards
- Test benches tested and calibrated ex works

DATASHEET

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|-------------------------------------|---|
| Aerosols | Dusts (e.g., SAE dusts), salts (e.g., NaCl, KCl), liquid aerosols (e.g., DEHS), latex particles (PSL) |
| Measuring range (total penetration) | Up to 0.0005 % |
| Measurement range (size) | 0.02–100 μm |
| Volume flow | 2–200 m^3/h - pressurized operation |
| Differential pressure measurement | 0 – 1,200 Pa selectable, 0 – 2,500 Pa selectable, 0 – 5,000 Pa selectable |
| Size filter element | 305 • 305 • 305 mm (H • W • D) |

APPLICATIONS

- Development
- Quality control for
 - Cabin filters
 - HEPA/ULPA clean room filters
 - Cabin air filters
 - Engine air filters
 - Compressor supply air filters
- Measurement of MPPS according to ISO 29463-5
- Measurement of the fractional separation efficiency according to ISO 16890
- Determination of the pressure loss at different volume flows
- Determination of dust holding capacity



Mehr Informationen:
<https://www.palas.de/product/FET300>