MFP 1000



The MFP filter test rig is a modular filter testing system for flat filter media and small filters. The MFP 1000 can be used to determinepressure loss curve on the medium without a dust coating,fraction separation efficiency, orburden and fraction separation efficiency during application of the burdenwithin shortest times – reliably and therefore cost-effectively.

The corresponding aerosol generator can be used depending on the standard or application.

Model Variations



MFP 1000 HEPA
Version with additional dilution for measuring high filter efficiencies

OPERATION PRINCIPLE

QUALITY CONTROL AND DEVELOPMENT OF FLAT MEDIA AT 120 NM

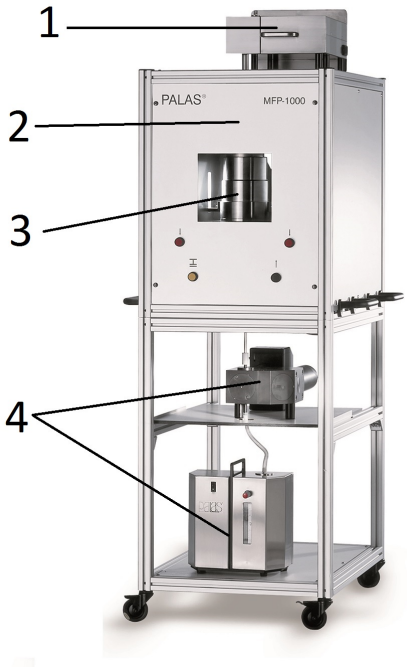


Fig. 1: MFP 1000

Corresponding test aerosols are generated using various selectable aerosol generators (1). Optionally, aerosol neutralization follows using the CD 2000 discharge system (2).

The aerosol and mixed air feed is pressure-operated on the upstream side. Mass flow controllers precisely control the required air volume flows on the inlet side. Data such as volume flow and differential pressure at the filter are automatically recorded. The aerosol is homogeneously mixed in the test channel.

Aerosol extraction for particle measurement is representative, taking isokinetic into account. The measuring device used is the Promo® 1000, which covers particle sizes from 0.12 - 40 μm. (4)

Here, the unambiguous particle measurement, also in high concentrations of up to 5 - 10^5 particles/cm^3 (SAE-Fine), is carried out with integrated Windows test rig software.

The next step is the clean gas measurement. The filter material is inserted in the test channel. The filter holder can be easily opened pneumatically. (3)

Individual adapters also allow the testing of small filter elements of different designs. The pressure drop, the clean gas concentration, and the clean gas aerosol's size are determined, and the fractional efficiency is calculated. In the case of loading measurement, the fractional collection efficiency is decided until the loading time has elapsed or the final pressure drop has been reached.

The integrated FTControl software controls the system automatically. Individual sequence programs ensure that the measurements are carried out reliably.

The strictly vertical design of the test system with only one sampling probe ensures precise measurement even of large particles up to 40 μm, as sedimentation losses are excluded. This enables reliable separation efficiency determination over the entire measuring range for all particle sizes.

Extensions/Accessories

Aerosol generation

Thanks to the modular design, various test aerosols can be generated, depending on the aerosol generator used: DEHS, oils, kerosene oil, NaCl or KCl, and test dust such as ISO A2 Fine.

Aerosol discharge

Depending on the application, the aerosol is discharged via the electrical corona discharge CD 2000 or the X-ray source XRC 049, which is not subject to approval.

Benefits

- Particle size measurements from 120 nm
- Internationally comparable measurement results
- High reproducibility of the testing method
- Easy use of different test aerosols, e.g. SAE Fine and Coarse, NaCl/KCl, DEHS
- Sequence programs for pressure loss measurements, measurements of fraction separation efficiency and burden measurements
- Short set-up times
- Cleaning and calibration can be performed by the customer
- Easy use of the measurement technology components – even in other applications
- Mobile setup, easy to move on castors
- Validation of the clear function of individual components and the overall system during pre-delivery acceptance testing and upon delivery
- Low-maintenance

Norms and certificates

ISO 11155-1, ASHRAE 52.2, ISO 5011, ISO 16890, ISO 29463-3, EN 1822-3 (HEPA), ISO 29463-3 (HEPA), EN 779, EN 1822

DATASHEET

Aerosols	Dusts (e.g., SAE dusts), salts (e.g., NaCl, KCl), liquid aerosols (e.g., DEHS)
Test area of the medium	100 cm^2
Measurement range (size)	0.12 – 40 μm
Measurement range (mass)	Up to 1,000 mg/m^3 (depending on the version)
Volume flow	1 – 35 m^3/h - pressurized operation
Power supply	115 – 230 V, 50/60 Hz
Differential pressure measurement	0 – 1,200 Pa selectable, 0 – 2,500 Pa selectable, 0 – 5,000 Pa selectable
Inflow velocity	5 cm/s – 1 m/s (others on request)
Compressed air supply	6 – 8 bar
Dimensions	1,800 • 600 • 900 mm (H • W • D)

Applications

- For filter media and small mini-filters
- Product development and during production monitoring
- Fast and cost efficient testing of fractional efficiency with dust, oil or salt based on ISO 11155-1 (cabin air filters), ISO 5011 (engine pre-air filters), EN 779/ Ashrae 52.2/ ISO 16890 (room air filters)

Mehr Informationen:
https://www.palas.de/en/product/mfp1000