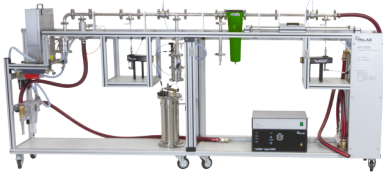


DFP 3000 Compressed air filter test rig



Description

The newly developed **compressed air filter test rig DFP 3000** delivers fully-automated measurements of fraction separation efficiency for compressed air filters under overpressure up to 7 bar, offering better results in the process than ISO 12500. On request we can also supply an additional filter holder for flat filter media. The fraction separation efficiency is measured with the new aerosol spectrometer **Promo® 3000 P**, which is equipped with pressure-resistant *welas*® aerosol sensors for raw gas and clean gas measurements. The system offers the following advantages (among others):

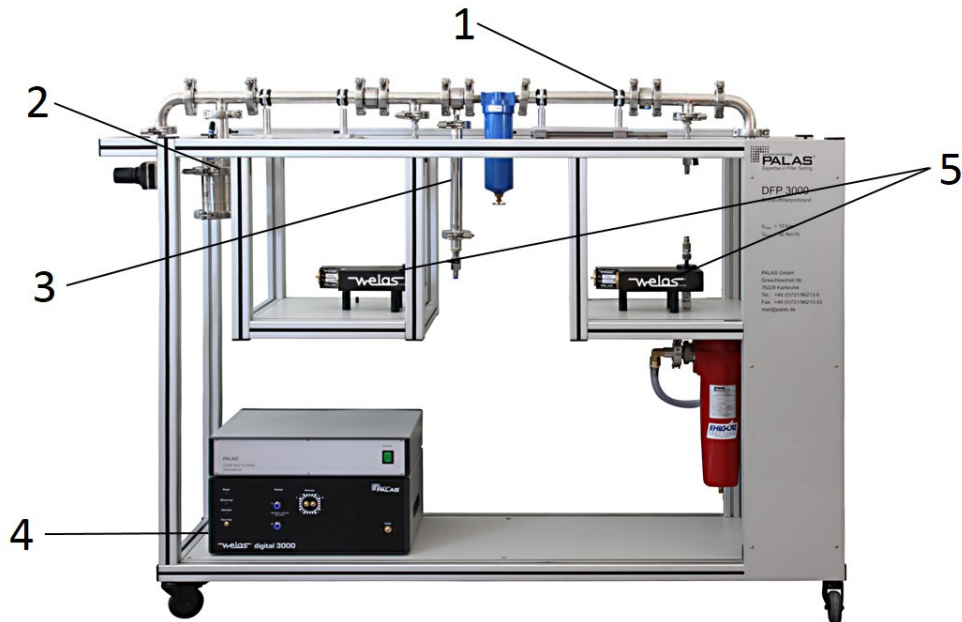
- Clear determination of the particle size and concentration directly under overpressure up to 10 bar
- Automatic adjustment of the sampling volume flow in the event of pressure changes
- No diffuser, no dilution required

The DFP 3000 can be equipped with three different aerosol generators:

- For measurement of the fraction separation efficiency with oil: **PLG 3000**
- For burden tests, short burdening times with oil: **AGF 3000**
- For tests with solid particles up to 3 bar: **RBG 1000 D**

The largely automated setup of the test sequence together with the clearly defined individual components and the individually adjustable sequence programs of the filter test software FTControl deliver the high reliability of our measurement results. All air volume flows and the overpressure in the system are automatically monitored and adjusted. The results are presented in detailed form in tables and diagrams and analyzed. With more than 120 complete filter test systems manufactured and delivered in over 16 different versions, Palas® is the world-leading manufacturer of filter test systems.

Our quality in detail



1. Mobile test set-up, easy filter changes thanks to the movable clean gas section: Thanks to the movable clean gas section, filter housings of different sizes can be used without difficulty

2. Variable aerosol generation Thanks to the use of different dispersers for DEHS, dusts etc.; shortened measurement times are possible e.g. through increased aerosol concentration

3. Wall flow separator With drain valve, prevents the transport of separated oil particles on the walls of the duct in the raw gas into the filter housing

4. Light scattering aerosol spectrometer Promo® 3000 P for clear particle measurements directly under overpressure up to 10 bar; the integrated automatic regulation of the sampling volume flow under pressure changes ensures that the measurement conditions are correct

5. Flexible, pressure-resistant aerosol sensors in the welas® 2xxx P series in raw gas and clean gas for clear particle measurements directly under overpressure up to 10 bar; thanks to the use of welas® aerosol sensors, which are fine-tuned to the different aerosol concentrations in the raw gas and clean gas, no dilution systems are needed

Aerosol generation

The DFP 3000 can be equipped with three different aerosol generators:

- For measurement of the fraction separation efficiency with oil: **PLG 3000**



The **PLG 3000** is used for measurement of the fraction separation efficiency and for burdening with oil aerosols. The oil quantity can be adjusted via the volume flow of the disperser between values of approximately 0.2 and 12 g/h.

- For burden tests, short burdening times with oil: **AGF 3000**



The **AGF 3000** is used to burden the filters with oil aerosols. Thanks to its special nozzle, the unit is capable of generating mass flow rates of up to 29 g/h. This minimizes the burdening time. This generator features an automatic refilling unit for the oil supply.

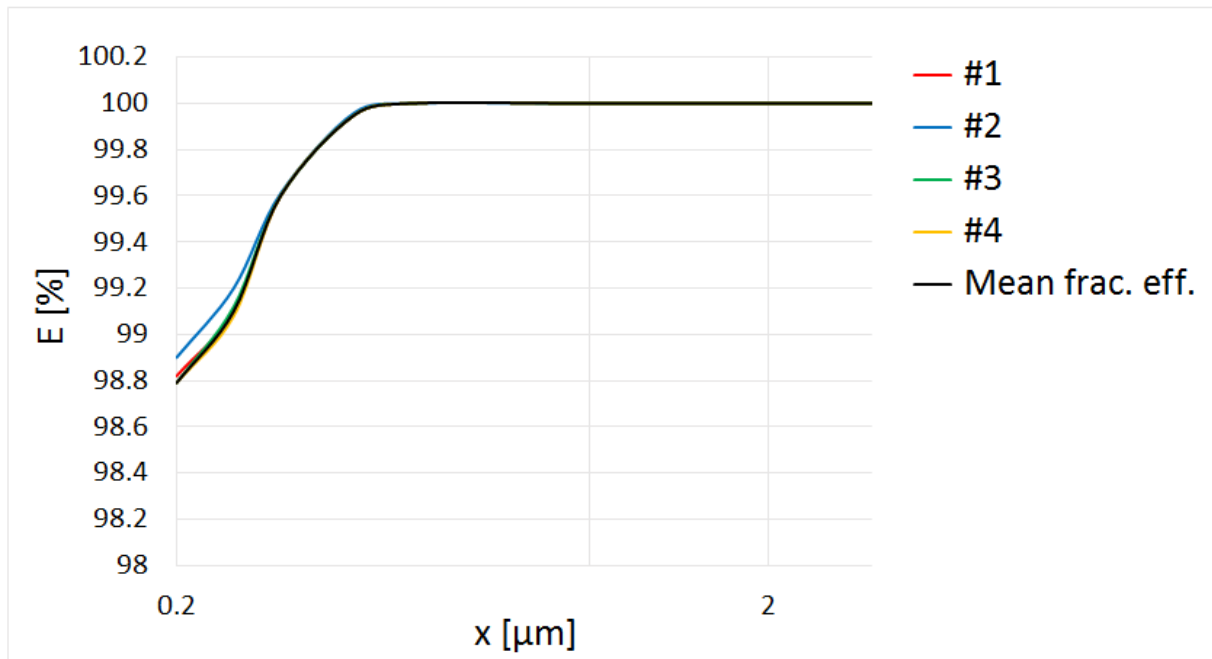
- For tests with solid particles up to 3 bar: **RBG 1000 D**



The **RBG 1000** is used for measurement of the fraction separation efficiency and for burdening with dusts. Thanks to its interchangeable solids containers, the RBG 1000 P offers a particularly wide concentration range during dispersal.

Automation The DFP 3000 is equipped with integrated mass flow controllers for regulation of the volume flow and for regulation of the dispersal volume flow through the aerosol generators. A pressure control valve on the inlet of the system allows automatic setting of the system pressure for the filter test. **Filter test software FTControl** With the aid of pre-programmable sequence programs for the measurement procedure, filter tests can be performed individually and automatically. The sequence programs enable both the test parameters to be pre-defined (including the main volume flow, the system pressure and the control of the aerosol generators) and the sequence of the filter test to be specified:

- Performance of measurements of the fraction separation efficiency during burdening; pressure loss or measurement time can be pre-selected as the abort criterion



- Determination and representation of the pressure loss curve and retention curve in diagram and table form
- Representation of the particle diameters at 80 % and 95 % separation efficiency
- Comparison of the fraction separation efficiencies during the different burdening steps
- Shortening of the measurement times, e.g. through increased aerosol concentration

Integrated sensor data such as the volume flow, system pressure and differential pressure at the filter are also recorded automatically during the filter test.

Benefits

- Particle measurements at a glance
- Internationally comparable measurement results
- High reproducibility of the testing method
- Easy use of different test aerosols, e.g. DEHS, SAE Fine and Coarse
- Flexible filter test software FTControl
- Flexibly programmable sequence programs for pressure loss measurements, measurements of fraction separation efficiency and burden measurements
- Fully-automatic and reproducible test sequence including pressure and volume flow control
- Easy to operate, even untrained personnel can be instructed quickly in the use of the equipment
- Short set-up times
- Cleaning and calibration can be performed autonomously by the customer
- Easy use of the measurement technology components – even in other applications
- Mobile setup, easy to move on castors
- Reliable operation
- Validation of the clear function of individual components and the overall system during pre-delivery acceptance testing and upon delivery
- Low-maintenance
- The unit will reduce your operating costs

Datasheet

| <i>Parameter</i> | <i>Description</i> |
|--|--|
| Measurement range (size) | 0.2 – 40 μm , 0.3 – 40 μm (at 7 bar _g) |
| Volume flow | 1 – 60 Nm ³ /h or 10 – 200 Nm ³ /h (pressurized operation) |
| Power supply | 115/230 V, 50/60 Hz |
| Dimensions | 300 • 130 • 60 cm (W • H • D) |
| Differential pressure measurement | 0 – 3.000 Pa |
| Aerosols | Liquid aerosols, e. g. DEHS |
| Aerosol concentrations | up to 10 ⁶ particles/cm ³ |
| Compressed air supply | 10 bar _g |
| Pressure | 1 – 7 bar _g relative |

Applications

- Testing of complete filters better than ISO 12500
- Testing of filter media
- Determination of the drainage amount during burdening

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