



CIF 3000 test rig for standard tests on motor vehicle passenger compartment filters in accordance with DIN 71460 part 1 and ISO/TS 11155-1

Description

Palas® offers the CIF 3000 test rig with the welas® digital 3000 unit for standard tests on motor vehicle passenger compartment filters in accordance with DIN 71460 part 1 and ISO/TS 11155-1. **The volume flow is automatically regulated and adjustable from 60 to 800 m³/h. the aid of the CIF, both the fraction separation efficiency and the burden on the complete filters or filter media are measured and evaluated.** Particle dosing for the filter test is performed with the brush generator RBG 1000, which has been internationally established for over 30 years. On the CIF 3000, overall and fraction separation efficiency are determined with the high-resolution light scattering spectrometer welas® digital 3000. The main advantage of the **welas® digital 3000 systems** lies in the use of fiber optic technology. Thanks to this, the sensor heads can be positioned directly at the measurement site, as a result of which line losses are minimized. **Furthermore, with the aid of the Promo® 3000 it is possible to use different sensors for raw gas and clean gas**, which leads to a reduction in the measuring time. **With the Promo® 3000 measuring systems, reliable tests to determine the separation efficiency and burden tests can be performed across the entire measurement range for all particle sizes.** Following ISO/TS 11155-1, the test rig is also equipped with the salt aerosol generator AGK 2000. In the testing conduit, filter media up to a size of approx. 220 x 500 mm can also be tested under the conditions stated above. In order to test the influence of real ambient conditions on the separation behavior of filters, Palas® offers an upgrade to the CIF test rig with climate technology components for **adjustment of the temperature between +18°C and +90°C and the relative humidity between 30% and 70%**. As an option, the test rig can be upgraded after provision of the measuring equipment for gas analysis for investigations of the adsorption and desorption dynamics following DIN 71460 part 2 and ISO/TS 11155 part 2. **Automation** The CIF is equipped with a **high-pressure ventilator**, which can be throttled on the pressure side with infinitely variable adjustment and is frequency-controlled, and which can be automatically regulated via the FTControl filter test software for regulation of the volume flow. Furthermore, sensor data such as the volume flow, temperature, relative humidity and differential pressure at the filter are also recorded automatically during the filter test. The aerosol generators and the corona discharge can be actuated via the FTControl software.

Measurement of the fraction separation efficiency

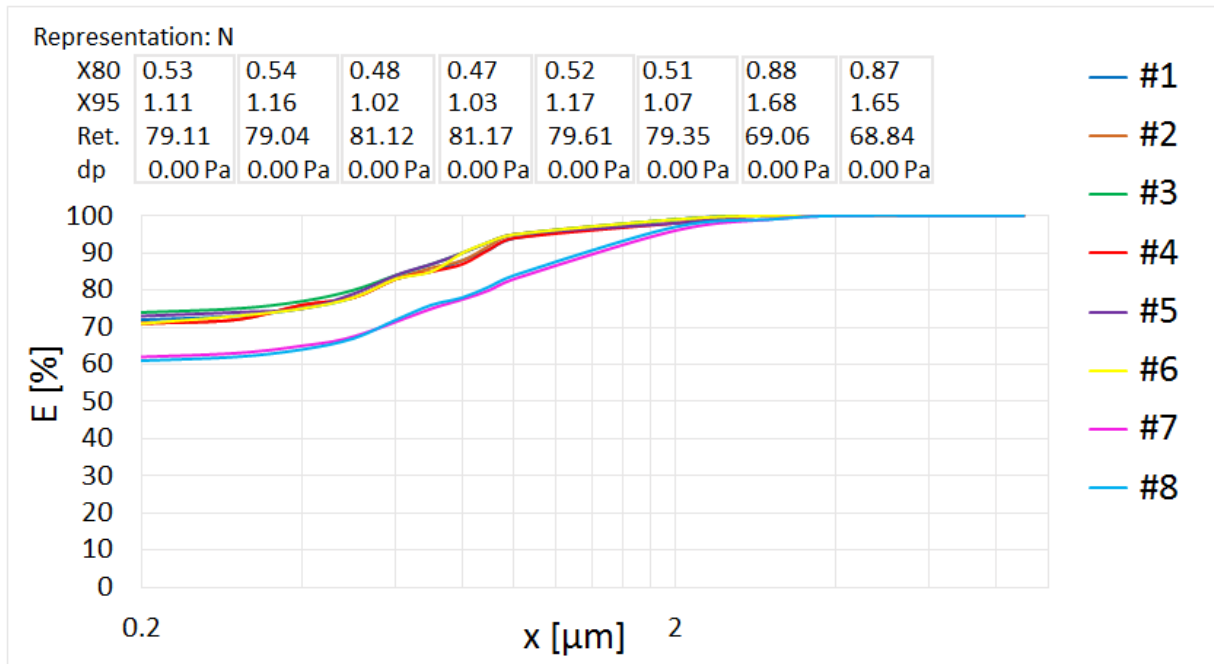


Fig 1: Example showing a comparison of fraction separation efficiencies

- Clear demonstration of the separation efficiency of your filters or filter medium throughout the entire measurement range from 0.2 to 40 µm with the Promo® system
- Highest measurement reproducibility and repeatability highlight even fine differences in the separation efficiency
- Short measurement times of around 2 minutes per separation efficiency measurement thanks to optimized application
- Simple comparison of separation efficiency curves, calculation of mean values also possible

Burden / hold time measurement and record of the pressure loss curve

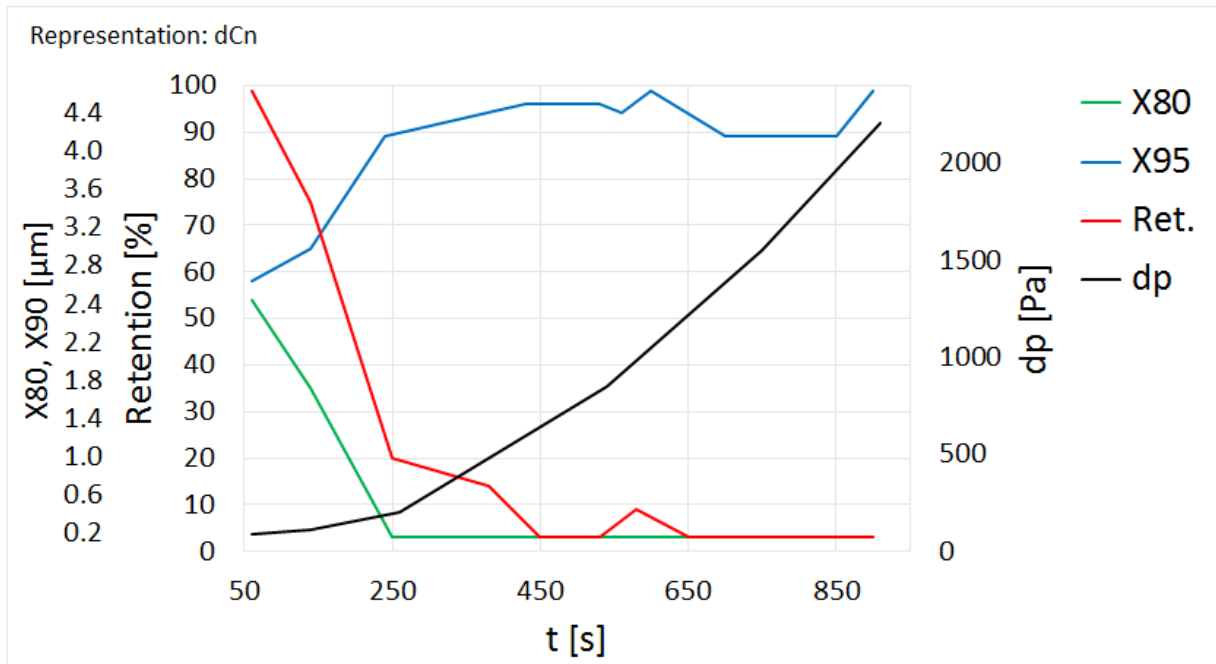


Fig. 2: Example of the hold time measurement

- Performance of measurements of the fraction separation efficiency during dust application; 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 The representation of the particle diameters at 80% and 90% separation efficiency provides additional information.
- Comparison of the fraction separation efficiencies during the different burdening steps
- Shortening of the measurement times, e.g. through increased aerosol concentration

Benefits

- Particle measurements from 200 nm
- Virtually simultaneous raw gas and clean gas measurement
- Measurement and evaluation of fraction separation efficiency and burden
- Automatic data acquisition for barometer pressure, temperature, humidity, differential pressure
- Temperature control (+18°C to +90°C) and moisture control (30 - 70%)
- Automatic actuation of all test rig components
- Automatic performance of the measurement processes
- Individual programming of measurement processes for filter testing using the FTControl software
- Separate measurement and analysis parts - this saves time and money, as the analysis can be performed while the measurement is still on-going
- Printouts and saving of complete test records
- Easy access to all data for the recorded measurement signals from the up to 6 external sensors
- Low-maintenance
- Easy operation
- Reliable operation
- The unit will reduce your operating costs

Datasheet

Parameter	Description
Measurement range (size)	0.2 – 40 µm
Volume flow	60 m ³ /h – 800 m ³ /h (cycle operation)
Dimensions	Test rig: 1,000 • 2,800 • 4,200 mm, filter holder: 300 • 600 mm (filter and others on request)
Material	Stainless steel V2A, 2 mm
Temperature regulation	+18°C – +90°C
Luftfeuchterege­lung	30% up to 70%
Temperature- und humidity sensor	- measuring range: -20°C - +80°C, 0 - 100 % rH, - accuracy: ± 0.1°C (20°C), ± 1 % rH (0 - 90 % rH), ± 2 % rH (90 - 100 % rH)
Barometric pressure gauge	- measuring range: 600 - 1100 hPa, - accuracy: ± 0.10 hPa
Differential pressure gauge	- Messbereich: < 2500 Pa, - Linearitätsfehler: < 0,2 % vom Endwert
Measurement of the air velocity	- measuring range: 0.5 - 40 m/s, - accuracy: < +/- 0.05 m/s (up to 20 m/s), < +/- 0.08 m/s (20 - 30 m/s), < +/- 0.1 m/s (30 - 40 m/s)
Preconditions	3 phases, 400 V, neutral, earth connection of approx. 3 KW and provision of pressurized air max. 8 bar

Applications

- Complete filter test in accordance with DIN 71460 part 1 & ISO/TS 11155 part 1
- Test of filter media in accordance with DIN 71460 part 1 & ISO/TS 11155 part 1
- Testing of other complete filters and filter media

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