

Emission Test Instruments



AVL Particulate Size Classifier

The AVL Particulate Size Classifier is an impactor for the classification of different particulate sizes in the diluted exhaust gas.

At a flow rate of 70 L/min particulates are deposited on the greased collection foils of the 4 impaction stages with aerodynamic diameters bigger than 2,5 μm , 1 μm , 0,5 μm , and 0,2 μm . Smaller particulates are collected on the back-up filter.

Additionally the PSC can be used as a "Two Stage Impactor". Hereby the 0,5 μm and 0,2 μm stages are replaced by spacers and herewith large particulates from depositions in the exhaust pipe are collected on the first stages for the coarse particulates leaving only smaller particulates emitted during the actual test on the back-up filter.

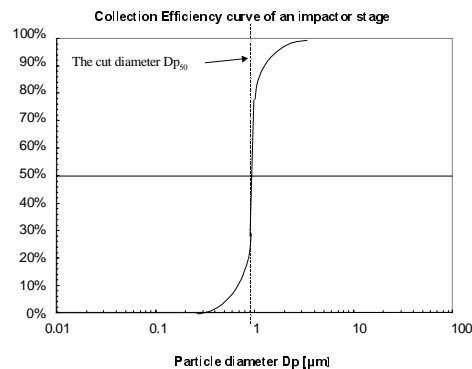
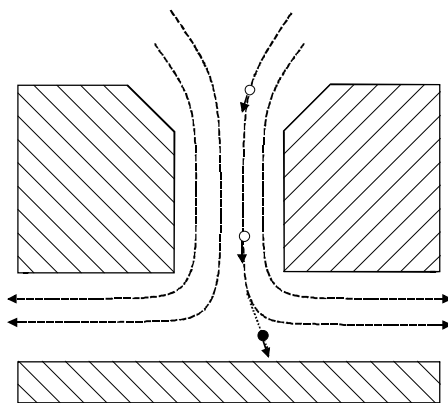
The result evaluation has to be done gravimetrically by weighing of the loaded collecting foils and back-up filter on a Micro Balance.

- The AVL PSC can be easily mounted on existing diluted Particulate Samplers between dilution tunnel and sampling pump.
- The simple function principle of the AVL PSC allows easy implementation to existing Samplers without any Software adaptation.
- Easy handling due to the small dimensions adapted to typical double filter holders.
- Large size of the back-up filter (70 mm diameter)
- For result evaluation a Micro Balance, which is usually already existing on site for diluted particulate tests, can be used.
- Increased reliability of test results by use of the "Two Stage Impactor" function.

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Technical Information

An impactor is used to collect selectively particles of different sizes. An impactor is a simple device having two co-linear plates of which the upper one has small nozzles in it. Aerosol passes through these nozzles with high speed and makes a sharp turn to flow between the plates. Particles larger than a certain size cannot follow the sharp turn and impact to the second plate. This "cutoff" size depends on the characteristic dimensions of the impactor stage. The "cutoff" diameter for an impactor stage is defined as the size of particles collected with 50 % efficiency. The plate with nozzles in it is called the jet plate and the second one the collection plate. Cascade impactors consist of several successive impactor stages with decreasing cutoff diameters. The highest stage (stage 4) in the AVL PSC Particulate Size Classifier impactor has a cutoff diameter of 2.5 μm and the lowest stage (stage 1) 200 nm at a flow rate of 70 L/min.



Technical Data

Impactor Inlet: ISO 1/2" Quick connector
 Impactor Outlet: ISO 1/2" Quick connector
 Collector: Aluminum foil
 Total dimension: 150 mm x 100 mm dia.
 Weight: 1,5 kg
 Nominal flow rate: 70 liter/min
 Acceptable flow rate: 50 ... 100 l/min
 Impactor stages: 0,2 μm , 0,5 μm , 1,0 μm , 2,5 μm at the nominal flow rate.
 The cutoff diameters at different flow rates are tabulated in the data sheet.
 Back up filters: Teflon coated glass fibre, 70 mm diameter

Scope of Supply

each consisting of:

- 1 AVL PSC-Impactor with 4 Impaction stages and one back-up filter stage
 Two spacers for the use as a 2-stage impactor are included.