

DIGITEL PM10 pre-separator for 30 m³/h according to EN12341

Determination of the PM10 fraction of suspended particulate matter by means of the DIGITEL DPM10/30/00 according to the EUROPEAN STANDARD EN12341.

The pre-separator is unlocked by two swap-locks. The upper part is rocking, so that an easy access to the baffle plate without the use of tools is provided. In order to keep the weight low, all parts are made of aluminium or stainless steel. All aluminium surfaces are treated with the long lasting proven and tested 'Ematal' which is a highly corrosion-resistant and an extremely smooth coating (f.e. application close to the sea). The Ematal-surfaces haven't shown any effects so far on the particle substances of contents to be analysed.



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General

Due to the revision of EC Council Directives 80/779/EEC and 89/427/EEC new guide values and limits for Suspended Particulate Matter (SPM) in ambient air have been stated. Simultaneously the concept of sampling fine SPM below 10µm aerodynamic particles diameter (PM10) has been introduced. In order to perform and standardize PM10 monitoring within the EU a new sampling methodology has been defined. Consequently, reference methods and equivalence procedures were established and prescribed in guideline EN12341. Besides the important aim to achieve directly comparable measuring results within the EU, the revised regulation directs the sampling of SPM stronger to the health related size fractions (inhalable, thoracic, alveolic) of particulate matter in the environment: samplers with PM10 inlets agree with the CEN/ISO thoracic convention. Apart from above, sampling with an inlet of well defined size, selective behaviour is mandatory in various other applications, if measurement results have to be attributed to certain sources of physical resp. chemical processes, e.g.

- Traffic related measurements: Soot particles of elementary carbon have aerodynamic diameters well in the fine dust region. Their analysis requests to keep off coarse sized particles from the sampled material e.g. particles of biogenic origin.
- Investigations of the anthropogenic impact onto the aerosols found in the atmosphere are backed by size selective sampling
- Long range transport studies, fine

dust particles (besides favorably shaped coarse particles) primarily are involved in these phenomena

- Separation of undesired coarse salt particles out of the sample flow when sampling in maritime environment

Design

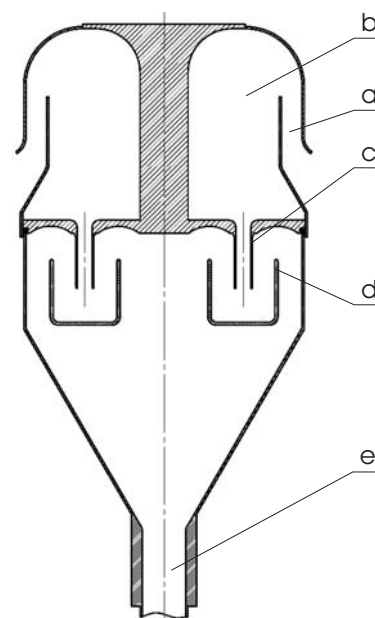
The DIGITEL PM10 Inlet is a single stage impactor designed to achieve its cut-off for 10 µm at a flow rate of 30 m³/h. This flow has been selected because many monitoring networks are sampling TSP with DIGITEL High Volume Samplers at this flow value since many years. The toroidal shaped impactor plate (baffle pot) can be removed for cleaning and greasing. In order to avoid icing of the impactor surface during winter time heating is provided. (Requests option HEATING SUPPLY for DIGITEL DHA-80 samplers). Using a short piece of the standard DIGITEL suction tube the PM10 can immediately be mounted onto the entrance sleeve of the DIGITEL High Volume Sampler.

Remark

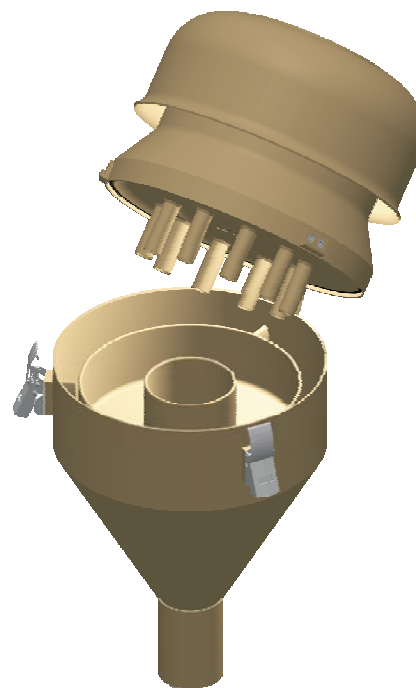
Comparison measurements and repeat determination with a small filter unit converted to a PM10 pre-separator unit and a EPA certified device were carried out as a result that the equivalence was confirmed. We refer to the UMEG inspection report (Rep. No 33-10/99 as well as to the method report of the German federal state committee of the immission measuring networks (LAI) of February 2000.

Options

- PM2,5 inlet for 30m³/h flow rate
- PM1 inlet for 30m³/h flow rate
- nozzle plate to convert PM10 inlet into PM2,5 inlet



- a air inlet
- b air calm chamber 6750 cm³
- c 10 nozzles
- d baffle pot
- e air outlet



DIGITEL PM10 inlet opened for maintenance

Specifications	DIGITEL DPM10/30/00
sampling flow rate	30 m ³ /h (500 l/min)
cut point	PM10
dimensions	d = 270 mm; h = 538 mm
weight	approx. 4,5 kg
material	aluminium, "Ematal"-coated
operating concept	single-stage impactor
connection	tube d = 44 mm

More information about our latest products is available under *NEWS* on our website: www.digitel-ag.com