

High Dilution System HDS 561

The High Dilution System HDS 561 is designed for measuring problems requiring very high and adjustable dilution factor. Due to the improved accuracy of the new dilution principle a very high degree of reliability and reproducibility is guaranteed.

Principle

The functional principle is based on a parallel set-up of a flow resistance for the aerosol (the capillary) and a bypass HEPA-filter system. By means of precise measurement of pressure loss over capillary the volume flow at the capillary is determined. The dilution factor is the result of the ratio of overall volume flow to capillary volume flow.

The adjustment and constancy of the dilution ratio is achieved by a micro processor control system. The used HEPA-filter system is characterized by its high degree of separation and first of all a very high particle storage capacity.

These characteristics guarantee a long service life and high operating reliability of the dilution system HDS 561.

Special Advantages

- Reliable and reproducible very high single-stage dilution
- Dilution factor adjustable in very wide ranges (e.g. 6,000 to 100,000)
- Factory-adaptable to volume flows of different particle counters: from 28 l/min to 100 l/min
- High operating reliability due to use of a capillary with relatively large diameter for aerosol guidance at a given dilution ratio
- Option of remote monitoring of dilution factor
- Option of remote-controlled setting up of dilution factor

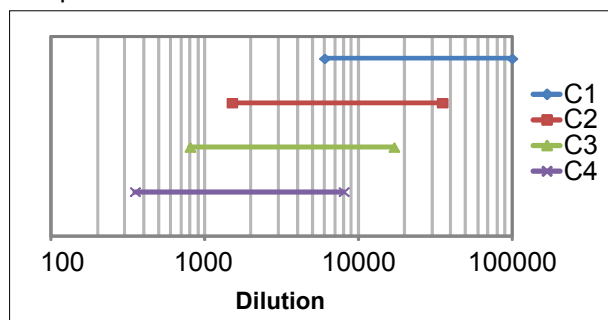
Applications

- Dilution for general purposes of measurement of high particle number concentrations in aerosols that are not directly measurable with a particle counter
- Dilution of the aerosol of aerosol generators to generate defined, especially diluted aerosols, such as in case of calibration and comparison of particle counters
- Monitoring of the particle production rate of aerosol generation systems, for instance in case of clean room monitoring systems

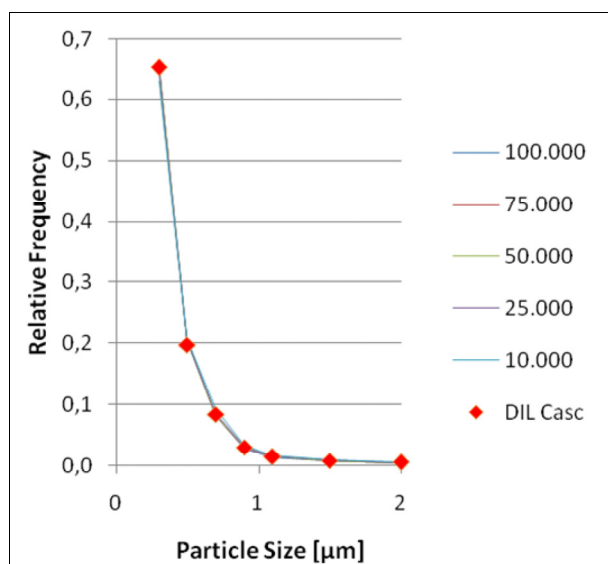
Specifications

Details

The dilution system is designed for a specific volume flow from 28 l/min to 100 l/min. The flow rate is adjusted and fixed for each device. The range of adjustment of the dilution ratio depends on the current total volume flow. For example, for a volume flow of 100 l/min dilution factors from 1,500 to 100,000 can be adjusted. The pressure loss of the system is very low because of the use of active components.



Range of dilution ratios using the example of a total volume flow of 28.3 l/min for various types of capillary (C1 ... C4, factory calibrated)



Aerosol distribution (DEHS) after dilution with the High Dilution System HDS 561 ($V=10,000$ to $100,000$), compared with cascaded Dilution Systems series DIL ($V=100,000$)

Technical Data

Dilution factor	Adjustable; depending on the fix total volume flow and type of capillary, e.g. 6000 ... 100,000
Pressure loss	100 ... 400 Pa, dependent on desired range of the dilution factor
Volume flow	Factory-adaptable 28 ... 100 l/min
Filter grade	HEPA
PC interface	USB
Power supply	115 ... 230 V AC
Dimensions (W x H x D)	300 x 200 x 130 mm
Weight	2.5 kg

The diagram on the left shows the aerosol distributions after dilution with HDS 561 compared with an aerosol distribution of the same aerosol diluted by cascaded single dilution systems series DIL 550 (2 x 1:100, 1 x 1:10).

Furthermore the diagram shows aerosol distributions of the same aerosol diluted with different applied dilution ratios (1:10,000 – 1:100,000) at High Dilution System HDS 561.

In both cases the distribution is the same for the single-stage dilution and the multi-stage dilution with standard dilution systems respectively. That is an important precondition for precise measurements of aerosol distributions with the aid of the High Dilution System HDS 561.

QMS certified to
DIN EN ISO 9001.



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