

Variable Dilution System

VDS 562



Variable Dilution System VDS 562 for moderate to high dilution, to be calibrated for various flow rates.

For optimal aerosol-analytical conditions, several measurement and test applications require a defined reduction of the particle number concentration (VDI 3491). Depending on the application, dilution factors between > 1 up to 1.000.000 can become necessary. In practice, especially the realization of high dilution factors (> 1.000) is complicated (e.g.: cascading of dilution systems) and is accompanied either by a considerable pressure drop or by an excessive air consumption.

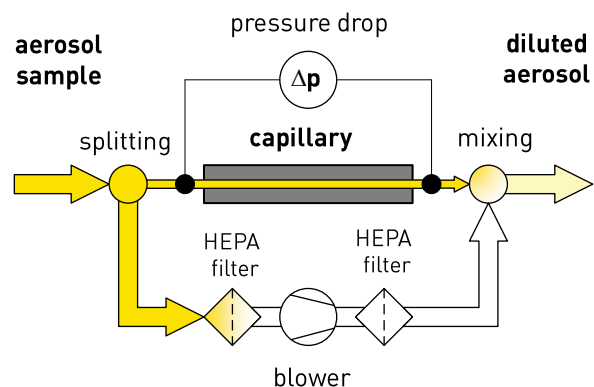
The Variable Dilution System VDS 562 was especially developed to lower the concentration level of highly concentrated aerosols to adequate concentration levels by one device, without external particle-free air supply and negligible pressure drop. The dilution ratio can be varied within each operation range over approximately one decade. According to the customer's requirements, one and the same VDS 562 device can be calibrated for various flow rates from 28,3 l/min up to 100 l/min.

Principle of operation

The principle of operation of the VDS 562 is based on the approved dilution principle used by Topas, where the inlet aerosol flow is split at first due to a flow resistance (capillary). After particle separation

from the bypass (HEPA filter), both the capillary flow and bypass flow are mixed back. This results in a reduced concentration at the outlet of the dilution system.

A controlled blower within the bypass compensates pressure drop (of the capillary) and serves for automated readjustment of the capillary flow rate to ensure a constant dilution over time.



Principle of operation of the Variable Dilution System VDS 562.

Applications

- reduction of high particle concentrations to analytically-suited levels for common measurement applications
- dilution of raw gas concentrations for approval/validation of clean rooms (VDI 2083)
- reduction of particle number concentration in sampling lines for process monitoring to avoid agglomeration (coagulation)
- validation of optical particle counters for clean room applications (ISO 21501-4)



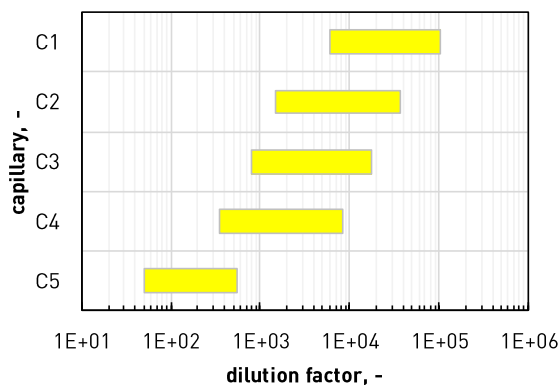
Specifications

Features

- considerable high, infinitely variable dilution by one device (up to 1:100.000)
- pressure drop compensation due to implemented blower (active dilution)
- wide setting range of dilution
- to be calibrated for various flow rates between 28,3 l/min ... 100 l/min, multiple calibrations of flow rate(s) and dilution range at factory
- remote-controlled adjustment of set point flow rate and set point dilution
- automated readjustment of set point dilution by implemented micro processor
- long-term operation readiness due to high separation capacity of integrated HEPA filters
- aerosol-based, number-weighted calibration

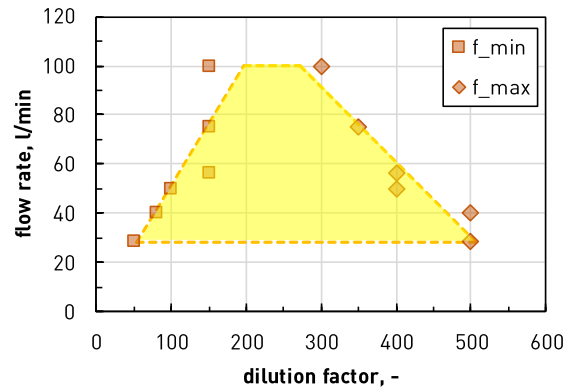
Details

The dilution range of the VDS 562 depends on the used capillary type and the operation flow rate. For calibration at factory, the flow rate(s) and the main range of dilution (capillary) have to be specified. Exchange of capillary type necessitates also a device calibration at factory.



Dilution range of various capillaries (C1 ... C5) for an operation flow rate of 28,3 l/min.

The adjustment of the operation flow rate and set point dilution is done via USB by the associated control software "VDS562WIN". Respective calibration data are transferred to the dilution system via "VDS562WIN" and are thus available for operation.



VDS 562 operation range example, calibrated for six flow rates with nominal dilution of 50 ... 500 (capillary C5) at 28,3 l/min.

Technical specifications

dilution factor	variable, based on type of capillary and operation flow rate (e.g.: 6.000 ... 100.000)
pressure drop	100 ... 400 Pa, depends on dilution range
flow rate	several flow stages between 28,3 ... 100 l/min, calibration at factory
control response time	< 2 min
filter category	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

QMS certified according to DIN EN ISO 9001.



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For further information please visit our website: www.topas-gmbh.de

Specifications are subjected to be changed without notice.

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