DC 10000

The DC 10000 consists of four cascaded special dilution systems with a dilution factor of 1:10. The DC 10000 dilution cascade has one aerosol inlet and four aerosol outlets. Depending on which aerosol outlet is connected to the measuring device, the aerosol with the dilution factors 1:10, 1:100, 1:1,000, or 1:10,000 are diluted.

The DC 10000 can be operated with all standard optical particle counters (OPC) according to ISO 12501-4 or optical aerosol spectrometers (OAS) according to ISO 12501-1. The DC 10000 can be used up to a particle size of approx. 5 μm.

OPERATION PRINCIPLE

DILUTION CASCADE WITH ELECTRICAL OPERATING PUMP

Fig. 1: Functional principle

Particle-free air with the volume flow V_R circulates through an annular passage around the suction nozzle. Thus, according to Bernoulli, a volume flow V_{An} is generated in the suction nozzle.

The dilution factor V_F is calculated according to the formula:

$$V_F = \frac{(\dot{V}_R + \dot{V}_{An})}{\dot{V}_{An}}$$

Fig. 3: Formula for the dilution factor V_F.

The DC 10000 needs no compressed air connection. So only an electrical power supply is necessary for operation.

Type	Dilution factor* V_F	Pressure - resistant up to 10 bar	Chemically resistant	Heatable up to ... °C	dp_{max} in μm	Compressed air 4 - 8 bar	Cascadable	Voltage
DC 100	10, 100				< 5			115 V / 230 V
DC 1000	10, 100, 1000				< 5			115 V / 230 V
DC 10000	10, 100, 1000, 10000				< 5			115 V / 230 V
KHG 10	10		x	150	< 20	x	x	115 V / 230 V
KHG 10 D	10	x	x	150	< 20	x	x	115 V / 230 V
PMPD 100	100		x	200	< 5	x		115 V / 230 V
PMPD 1000	1000		x	200	< 5	x		115 V / 230 V
VDD 10	1 - 10				< 10	x		115 V / 230 V
VKL 10	10				< 20	x	x	
VKL 10 E	10		x		< 20	x	x	
VKL 10 ED	10	x	x		< 20	x	x	
VKL 10 V	10				< 20	x	x	
VKL 27	27				< 10	x	x	
VKL 100	100				< 2	x	x	

Table 2: Characteristics dilution systems

Table 1: Technical characteristics of Palas® dilution systems

BENEFITS

- No compressed air connection; only electrical power supply 115 - 230 V, 50 - 60 Hz
- Dilution factors 1:10, 1:100, 1:1,000, 1:10,000
- The user can perform a simple functional test on-site
- The dilution systems can be combined with all common particle counters
- The dilution systems from Palas are characterized unambiguously. This is documented with a calibration certificate for each individual device.

NORMS AND CERTIFICATES

DIN 1946-4, EN 1822, ISO 12501-1, ISO 14644-3, ISO 29463, SWKI VA 105-1

DATASHEET

Volume flow (clean air)	72 – 180 l/min
Volume flow (suction flow)	2 – 5 l/min
Power supply	115 – 230 V, 50/60 Hz
Isokinetic suction nozzles	2 – 5 l/min, 15 – 37 l/min
Maximum particle size	< 5 µm
Dilution factor	1 : 10, 1 : 100, 1 : 1,000, 1 : 10,000
Dimensions	Approx. 500 • 230 • 150 mm (H • W • D)
Weight	Approx. 10 kg

APPLICATIONS

- Aerosol dilutions in filter media test systems, e.g. MFP 1000 HEPA and MFP Nano plus according to EN 1822 and ISO 29463
- Aerosol dilution in clean rooms
- Aerosol dilution in the operating room to determine the level of protection according to SWKI VA 105-1 and DIN 1946-4
- Recovery tests according to ISO 14644-3

Mehr Informationen:
https://www.palas.de/en/product/dc10000