



# SISTEMA-MK

SISTEMA-MK GMBH | RICARDA-HUCH-STRASSE 32 | D-73760 OSTFILDERN | GERMANY

## AEROSOL DILUTOR SERIES DIL 554



### PRODUCT DESCRIPTION

The dilution system DIL 554 is designed to accurately dilute aerosols to produce a defined particle concentration. It's equipped with a stainless steel housing and is battery-operated (9V).

The main application is the verification of test aerosols for testing clean rooms. EN ISO 14644-3 defines the necessity of appropriate dilution systems when using test aerosols for verification. According to Standard VDI 2083 for testing clean rooms and work benches it is compulsory to carry out measurements with increased concentrations in the incoming aerosol.

### ADVANTAGES

- ✓ Constant and reproducible aerosol dilution even under changing operation conditions
- ✓ Continuous control and display of actual dilution ratio
- ✓ By default aerosol dilution ratio of 1:100 at 28,3l/min intake flow rate of a particle counter
- ✓ Designed for mobile use (no auxiliary pressurized air and additional exhaust needed)
- ✓ Long term lifetime and reliability, minimum maintenance required
- ✓ Precise operation in both over and under pressure mode
- ✓ Modifications to user defined requirements such as alternative flow rates (2,83 LPM) and dilution ratios (1:10, 1:1000)available
- ✓ In combination with particle counters self-priming system

Further dilution systems of the DIL series can easily be cascaded in order to achieve higher dilution ratios. For instance by cascading a 1:100 and a 1:10 dilution system one gets an overall dilution ratio of 1:1000.

Dilutor Version	Flow Rate	Dilution Rate	Connector Type
DIL 554	28,3 LPM	1:100	3/8"
DIL 554.Z	28,3 LPM	1:10	3/8"
DIL 554.T	28,3 LPM	1:100	1/4"
DIL 554.H	50/56,6 LPM	1:100	3/8"
DIL 554.DYN	28,3 LPM	1:10 – 1:300	3/8"

Other flow volumes and dilution factors are available on request. Please contact us for details.



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### APPLICATIONS

- ✓ Testing of HEPA and ULPA filter media
- ✓ Validation of laminar air flow boxes/benches and clean rooms
- ✓ Evaluation of filtration efficiency
- ✓ Measurement of highly concentrated aerosols

### TECHNICAL DATA

- ✓ Power supply: 9V-bloc (6F22, 6LR61) Alkali-Mangan-Batteries preferred, alternatively with optional wall power supply
- ✓ Battery Operating Time: ± 100 h (Alkali-Mangan-Batteries) to ± 240 h (U9VL - Lithium-Manganoxid)
- ✓ Application Pressure Range: ± 30 kPa (300mbar)
- ✓ Accuracy of Adjusted Sample Volume Flow: ± 5 %
- ✓ Dimensions (H x L x W): 195 mm x 300 mm x 120 mm
- ✓ Weight: 3.2 kg
- ✓ Filter efficiency: 99,9 7% @ 0.3 µm DOP Particle (ASTM D2986-71) Minimum lifetime of 60000h guaranteed at volume flow of 28 l/min with 1000 particles/cm<sup>3</sup> (<1 µm)

### TECHNICAL PRINCIPLE

From the aerosol stream to be diluted a sample is taken through a thin capillary. Particle concentration of the capillary flow rate remains unchanged whereas a HEPA filter removes nearly all particles from the bypassing flow rate. After the capillary and filter both streams are mixed together again and the dilution ratio results from the ratio between the two single flow rates.

A major advantage of this dilution technique is, that no auxiliary pressurized air is needed for dilution. Therefore no surplus aerosol to be exhausted is generated and chemical composition of carrier gas remains unaffected.

In the applied principle that corresponds to the standard VDI 3491-15, particles are removed from the sample according to the specified dilution ratio – the particle size distribution remains unchanged.

Optical particle counters do have a physical limit up to which concentration they work accurate. Is this concentration exceeded errors (false counts) will inevitably occur. By using the dilutor DIL 554 upstream of a particle counter a dilution of up to 100 can be achieved. For higher dilution ratio cascading is possible.

Accessories (Item #)	Item Description
DEHS.80	DEHS aerosol liquid, 80ml plastic bottle
DEHS.500	DEHS aerosol liquid, 500ml plastic bottle
DEHS.1000	DEHS aerosol liquid, 1L plastic bottle
DEHS.20000	DEHS aerosol liquid, 20L plastic tank
AU.1470	Rectangular Sampling Probe for testing of filters in clean rooms, laminar flow boxes, safety benches according to EN ISO 14644-3 and VDI 2083-3