



Excellence in Particle Measurements



Dekati® Gravimetric Impactors Product Range

- Accurate collection of ultrafine, PM2.5 and PM10 mass fractions
- Suitable for post-collection chemical analysis with multiple methods
- Accessories available for various applications



Dekati®

Low Pressure Impactors

DLPI+

HT-DLPI+

Description

The DLPI+ (Dekati® Low Pressure Impactor) is a 14-stage cascade impactor that is used to determine airborne particle mass size distribution. The DLPI+ classifies and collects particles into 13 size fractions in the range of 16 nm - 10 µm. In each size fraction, the particles are collected on 25 mm collection substrates that are weighed before and after the measurement to obtain gravimetric size distribution of the particles. A chemical analysis of the size classified particles can also be performed. The DLPI+ impactor can be used in various particle measurement applications and the High Temperature version of the DLPI+ can also be heated up to 180 °C for direct sampling of high temperature aerosols.



Housing, inlet and 14-stage impactor of the Dekati® DLPI+

Applications

- Combustion process studies
- Air quality measurements
- Occupational health and safety studies
- Engine exhaust measurements
- Blow-by gas emission measurements
- Nanoparticle measurements

Accessories

- Spare set of impactor collection plates
- Aluminium and polycarbonate collection substrates Ø25 mm
- Dekati® Collection Substrate Spray for substrate greasing
- Sampling lines for emission measurements
- Sampling inlets for air quality measurement



Dekati® DLPI+ and High Temperature HT-DLPI+

Features

- Gravimetric particle size distribution 16 nm - 10 µm
- 14 size fractions, uppermost stage collects >10 µm particles
- 10 lpm sample flow rate
- Particle collection area Ø25 mm
- Integrated impactor low pressure (40 mbar) measurement and adjustment, no flow control needed
- Well characterized impactor with low inter-stage particle losses
- Can be upgraded into a complete ELPI®+ (Electrical Low Pressure Impactor) system for real-time measurements
- Provided with a data processing spread sheet
- Stainless steel stages for operation even in harsh environments
- Standard DLPI+ suitable for samples up to 50 °C
- Sampling from up to 180 °C with the High Temperature DLPI+
- Each unit manufactured and calibrated in Finland
- Complete measurement solutions available for different applications

Impactor Cut Points

Stage	D50 [µm]
15	10
14	5.3
13	3.6
12	2.5
11	1.6
10	0.94
9	0.60
8	0.38
7	0.25
6	0.15
5	0.094
4	0.054
3	0.030
2	0.016

Each DLPI+ unit is individually calibrated before delivery; the calibration includes detailed determination of the exact sample flow rate and D50% values. The values presented in this table are nominal values at 20 °C. Effect of temperature on the impactor calibration values can be calculated with the provided data processing spread sheet.

Dekati® PM10 Impactor

Description

The Dekati® PM10 Impactor is a three-stage cascade impactor for determining particle gravimetric mass size distribution. The operating principle of the Dekati® PM10 impactor is based on inertial size classification and gravimetric or chemical analysis of the collected, size classified particle samples. This impactor has cutpoints of 10, 2.5 and 1 µm making it an ideal choice for PM10, PM2.5 and PM1.0 measurements. The impactor is manufactured of stainless steel, which enables direct sampling from high temperatures and heating the impactor unit up to 200 °C.

Applications

- Air quality measurements
- Occupational health and safety studies
- Combustion process studies
- Emission measurements



Dekati® PM10 Impactor

Features

- PM10, PM2.5 and PM1.0 detection
- Size fractions: > 10 µm, 10-2.5 µm, 2.5-1.0 µm, < 1 µm
- Also available as PM10+PM2.5 and PM10+PM1.0 impactor stage configurations
- 25 mm substrates used in the impactor stages, 47 mm filters at the final stage for smallest particle size fraction
- Calibrated with aluminium and quartz fiber filters
- 10 and 30 lpm sample flow rate versions available
- Stainless steel construction for operation even in harsh environments
- Can be heated up to 200 °C
- ISO23210 compliant for PM10 and PM2.5 measurements from stationary sources
- Provided with calculation spread sheet
- Each unit manufactured and calibrated in Finland
- Complete measurement solutions available for different applications



PM10 Impactor with its impactor stages

Accessories

- Spare set of impactor collection plates
- Impactor heating jacket for heating the impactor up to 200 °C
- Aluminium and polycarbonate collection substrates Ø25 mm
- Dekati® Collection Substrate Spray for substrate greasing
- Ø47 mm filters for the final collection stage
- Sampling lines for emission measurements
- Sampling inlets for air quality measurements



Dekati® Gravimetric Impactor DGI

Description

The Dekati® Gravimetric Impactor (DGI) is a high sample flow rate cascade impactor for low concentration particle measurement applications. The DGI measures gravimetric particle mass size distribution of particles < 2.5 µm in five size fractions.

Typical measurement applications of the DGI impactor include engine emission measurements, air quality studies and other low concentration applications where a high sample flow rate is needed. The DGI collects size classified particles on Ø47 mm substrates that are analyzed gravimetrically or chemically after the measurement. The smallest particle size fraction is collected on a Ø70 mm filter.

Applications

- Outdoor air quality measurements
- Occupational health and safety measurements
- Engine emission measurements
- Low concentration particle measurement applications

Features

- Particle mass size distribution in five size fractions <2.5 µm
- Enables chemical analysis of the size classified particles
- High sample flow rate; each unit calibrated for 50, 60, 70, 80, 90 and 100 lpm
- High sample yield even in low concentration measurements
- Easy-to-use & robust stainless-steel construction
- Each unit manufactured and calibrated in Finland
- Complete measurement solutions available for different applications



Dekati® Gravimetric Impactor DGI

Specifications

Stage cutpoints	@ 70 lpm: 2.5 – 1.0 – 0.5 – 0.2 µm
Sample flow rate	70 lpm nominal, calibration values provided for 50, 60, 70, 80, 90 and 100 lpm. Mass flow controller recommended for flow control
Collection Substrates	Ø47 mm, aluminium foils
Backup filter	Ø70 mm, Teflon coated fiberglass
Inlet	ISO ½" female (Male quick connect fitting R1/2" provided)
Outlet	ISO ½" female (female quick connect fitting R1/2" provided)
Weight	2,25 kg
Dimensions	H 110mm x W 130mm

Stage D50 Cutpoints

Sample flow rate lpm	50	60	70	80	90	100
Stage 4, µm	3.0	2.7	2.5	2.3	2.2	2.1
Stage 3, µm	1.2	1.1	1.0	0.9	0.9	0.8
Stage 2, µm	0.61	0.55	0.50	0.46	0.43	0.40
Stage 1, µm	0.26	0.23	0.20	0.18	0.15	0.13

For more information, please contact: sales@dekati.com



Dekati Ltd. is a world leader in designing and manufacturing innovative fine particle measurement solutions. We have over 30 years of experience in providing measurement instruments and complete measurement solutions to a wide variety of environments and sample conditions. All Dekati® Products are developed and manufactured in Finland and are available with up to five-year warranty.

