



Excellence in Particle Measurements



PRO

With adjustable
dilution
factor



Dekati® eDiluter™ Pro

Portable sample conditioning and dilution system

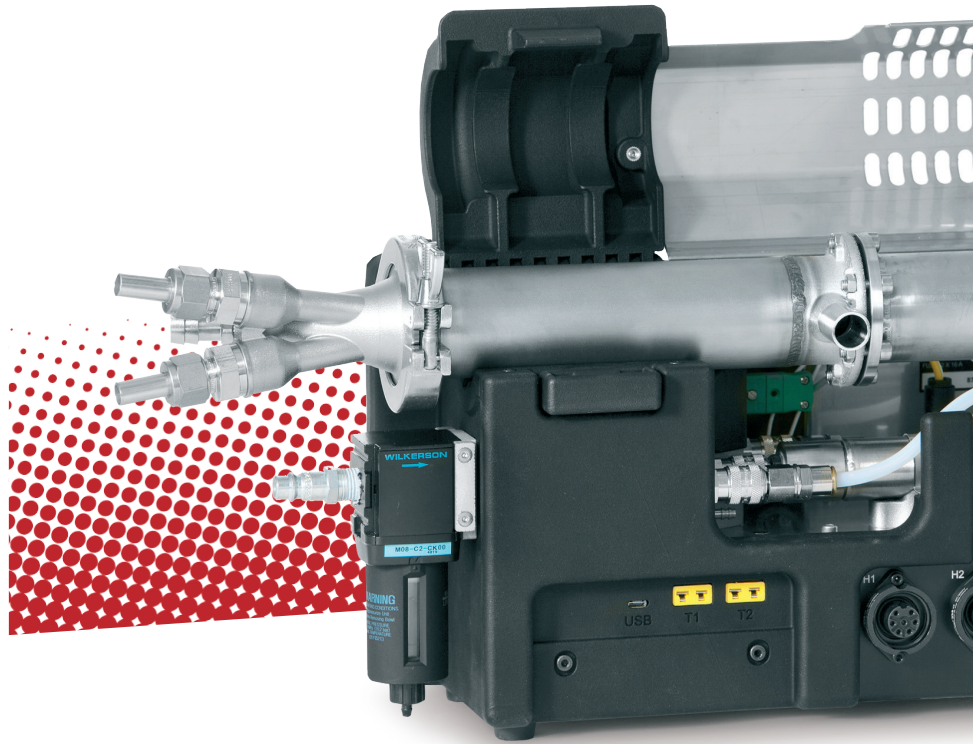
Certified VPR for emission measurements

Adjustable dilution temperature, sampling from up to 600 °C

Adjustable dilution factor with automatic compensation

for sample inlet pressure fluctuations

Dekati® eDiluter™ Pro



Description

The Dekati® eDiluter™ Pro is a portable dilution system that allows easy sample conditioning for a wide range of particle measurement applications. Its compact structure includes a two-stage dilution system with an adjustable dilution factor ranging from 1:25 to 1:225. Diluted sample can also be extracted directly after the first dilution stage increasing the total dilution factor range from 1:5 to 1:225.

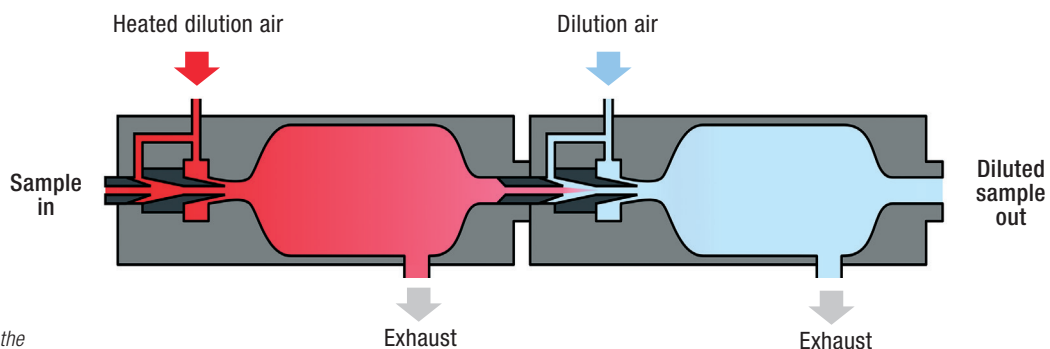
The Dekati® eDiluter™ Pro is especially suitable for high temperature aerosol measurements with adjustable first dilution stage temperature and two additional temperature controllers for external heaters such as heated sampling lines and heated probes, also available from Dekati Ltd.

The dilution factor, dilution temperature and external heaters are all controlled with the front panel user interface where different dilution parameters can also be monitored during the measurement. The diluted sample output flow from the system is more than 50 lpm and it can be used as a dilution and conditioning system for all commercially available particle measurement instruments since the diluted sample is in stable ambient temperature and pressure.

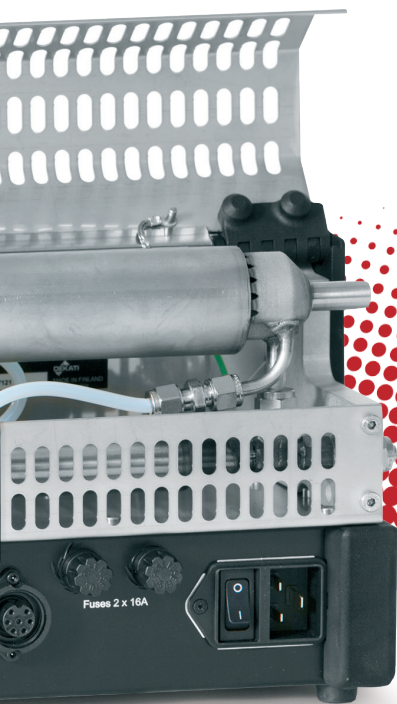
Operating principle

The operating principle of the Dekati® eDiluter™ Pro is based on two-stage dilution. The first stage is usually heated while the second dilution stage operates at room temperature where the aerosol sample is also cooled in a controlled manner. Both dilution stages consist of an ejector diluter with additional sheath air flow. The use of a large ejector nozzle and sheath air minimizes particle losses within the system and therefore reduces the need for cleaning the diluters.

The dilution factor in the eDiluter™ Pro is adjusted by changing the pressure of the dilution air. The system additionally includes an innovative method for compensating the effects of sample (inlet) pressure fluctuations on the dilution factor. Built-in sensors constantly monitor the dilution parameters including the inlet pressure, and the pressure of the dilution air is continuously and automatically adjusted to maintain constant dilution factor under all conditions. All these features guarantee repeatable and reliable measurement results even in variable sample conditions.



Operating principle of the Dekati® eDiluter™ Pro.



Dekati® eDiluter™ Pro



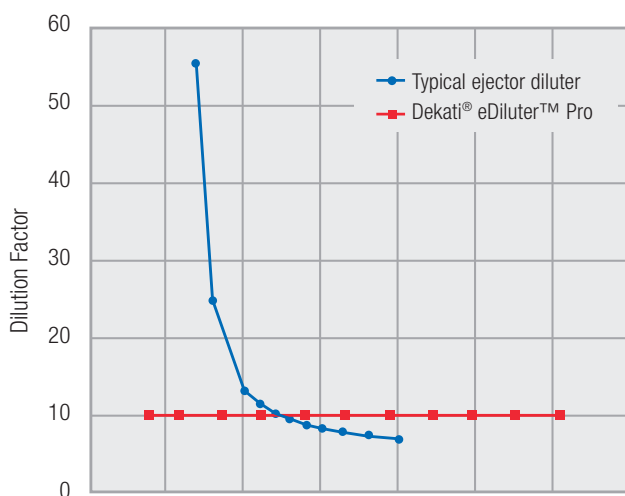
Measurement applications

The Dekati® eDiluter™ Pro is a flexible dilution system and with different accessories it can be used to dilute aerosol sample from practically any source. Typical applications for the Dekati® eDiluter™ Pro include:

- Stationary source emission measurements
- On and Off-road vehicle exhaust measurements
- Engine emission measurements of EURO 6 vehicles
- Brake and tyre wear emission measurements
- Blow-by gas emission measurements
- Aircraft turbine emission measurements (SAE AIR 6241)
- Ship emission measurements

Features

- Two-stage dilution system for particle measurement applications
- Adjustable dilution factor and dilution temperature
- Sampling from up to 600 °C, up to 1200 °C with accessories
- Stable dilution factor even in variable sample pressure conditions
- Sophisticated dilution stage design, optimized for minimal particle losses
- Independently certified VPR (Volatile Particle Remover) according to UN/ECE-R83 (Rev.5), UN/ECE-R49 (Rev.6) 2017/1151 and 2017/1154 (RDE)
- No moving parts construction with no wear parts
- Particle penetration >90% for all particles smaller than 200 nm.
- High diluted output sample flow, up to 80 lpm
- Dilution factor not affected by the flow drawn to measurement instruments
- Minor changes in sample flow rate with different dilution factor settings
- Built-in, integrated dilution air heater for first stage dilution air
- Two additional, integrated temperature controllers for controlling temperatures of external heaters such as heated sampling lines and heated sampling probes
- Sampling from up to 10 bar with accessories
- Instrument control via integrated display user interface
- Dilution factor output via USB/RS-232
- Provided with communication protocol that enables remote control via external software*
- Complete measurement setups available for engine exhaust measurements and stationary source emission measurements
- Each unit individually calibrated and provided with a calibration certificate



Dilution factor of the Dekati® eDiluter™ Pro remains constant in variable inlet pressure conditions.

* External software not provided with the eDiluter™ Pro

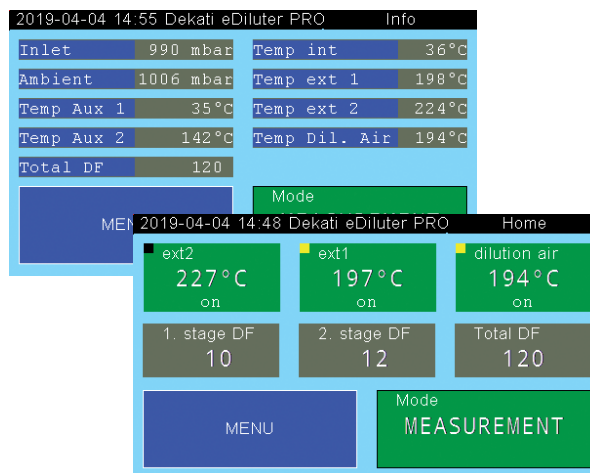
Dekati® eDiluter™ Pro

Specifications

Dilution factor	Adjustable, 1:5 - 1:225 1:25 - 1:225 after both dilution stages
Sample pressure (inlet)	900 - 2200* mbar
Sample temperature (inlet)	Max. 600 °C. Up to 1200 °C with optional Dekati® High Temperature Sampling Probe
Diluted sample temperature (outlet)	Close to ambient
Sample flow rate (inlet)	4 - 10 lpm, depending on dilution factor
Diluted sample flow (outlet)	50 - 80 lpm
Dilution temperature	Max. 400 °C
Dilution air	Clean and dry dilution air, 5-7 bar abs., max 200 lpm
Regulatory compliance	UN/ECE-R83 (Rev.5), UN/ECE-R49 (Rev.6) and SAE AIR6241 (requires additional, optional components)
Power requirements	110 - 230 V Max 600 W with heated dilution Max 2.6 kW with two external heaters @ 230 V, max 1.6 kW @ 110 V
Dimensions	H205 x W168 x D520 mm
Weight	7.3 kg
Dilution stage material	Stainless steel, AISI 316

* Active monitoring and stabilization of the dilution factor. Absolute range may vary depending on the used dilution factor and dilution air pressure.

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



eDiluter™ Pro comes with an intuitive user interface that allows easy control of the dilution system.

Accessories

- Pressurised air cleaning and drying units for dilution air
- Heated sampling lines, sampling probes and isokinetic sampling nozzles
- PM10 and PM2.5 sampling cyclones
- Dekati® High Pressure Diluter DEED-300 for sampling from up to 10 bar sample pressure
- Dekati® High Temperature Sampling Probe for sampling from up to 1200 °C



eDiluter™ Pro can be directly connected to a heated sampling line.



Dekati Ltd. is a world leader in designing and manufacturing innovative fine particle measurement solutions. We have 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.

