

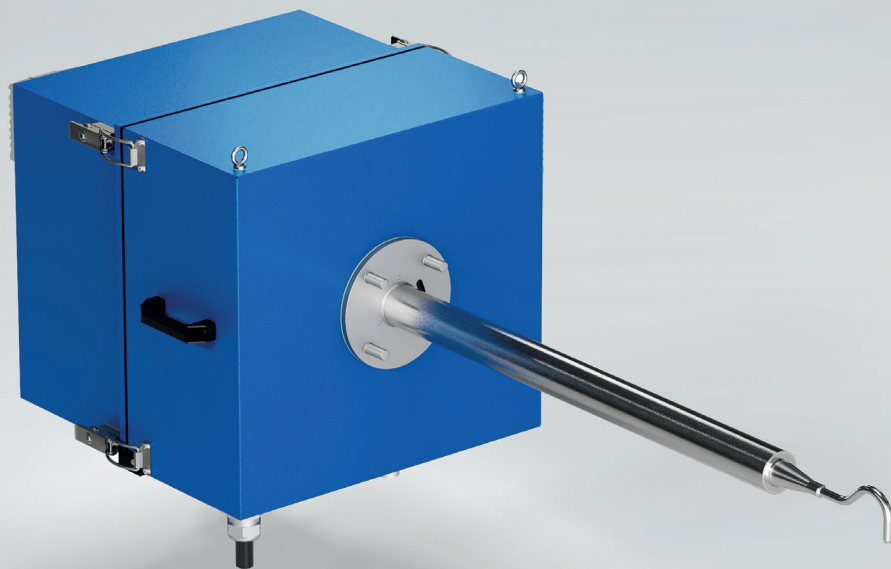
DURAG D-R 909 **Extractive wet stack particulate monitor**

Certified and approved PM CEMS providing very high quality monitoring of very low to medium particulate concentrations in wet flue gas flows.

- QAL1 certified in accordance with EN 15267 and EN 14181 (TÜV & MCERTs)
- Compliant with US EPA 40 CFR 60 PS 11
- cETLus according to UL 61010-1 (UL-listed)
- Automatic control functions, high availability and low service and operating costs



Digital version



ONE COMPANY | comprehensive solutions

- **Local support, global reach:** benefit from local commissioning and services through our extensive network of partners and corporate organizations, ensuring prompt assistance and expertise wherever you are. There's no need to send the device back to factory.
- **One company, comprehensive solutions:** DURAG GROUP offers a comprehensive solution for your plant, from combustion optimization and safety to the environmental compliance and atmospheric impact.

FEATURES AND BENEFITS

- **Suitable for regulatory emission monitoring**

The D-R 909 meets international standards and certifications (such as EN 15267 / QAL1, US EPA), making it fully approved for use as legally compliant emission monitoring system. It ensures accurate and traceable measurements, as required for environmental reporting and regulatory compliance.

- **Reliable measurement of small dust concentrations**

Certified for the range 0-7.5 mg/cm³, the lowest achievable on the market, the D-R 909 provides precise and stable readings even at very low particulate concentrations. This makes it ideal for modern high-efficiency plants with advanced filtration systems or low emission levels.

- **Simple and flexible installation**

The compact, probe-mounted design allows for quick and easy installation on various types of stacks and ducts. Its modular concept and adaptable mounting options ensure smooth integration for new and existing monitoring setups.

- **Designed for harsh installations and climate conditions**

The D-R 909 is approved for an exceptionally wide ambient temperature range of -40°C to +60°C, ensuring reliable operation in cold outdoor stacks, exposed platforms and warm industrial environments. This capability exceeds the -20°C to +50°C envelope of typical wet-stack particulate CEMS, offering greater flexibility for global deployment.

- **Lower-temperature heated sampling**

The D-R 909 uses a heated sampling probe (up to 160°C) to evaporate water droplets directly in the probe, eliminating the need for high-temperature oven systems and heated sampling lines used by other wet-stack monitors. This delivers reliable droplet removal with less energy, simpler installation, and reduced component stress.

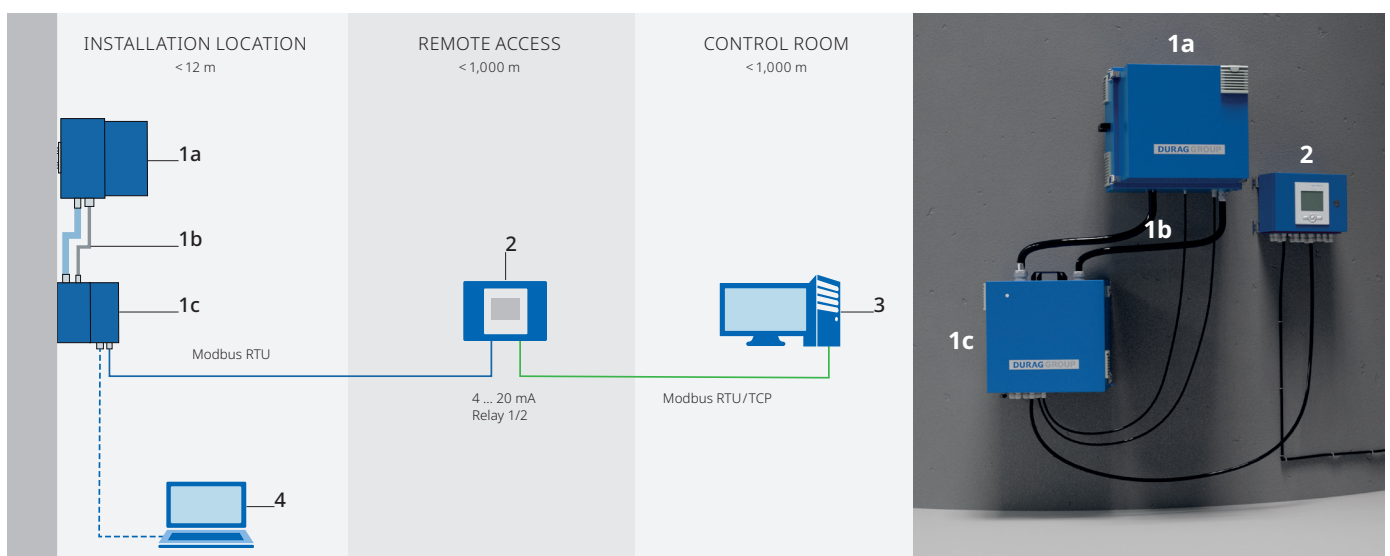
- **Reduced service and operating costs**

The optical system features an automatic self-check and purge-air cleaning, minimizing maintenance needs and ensuring long-term reliability. With no moving parts and robust construction, the D-R 909 offers excellent cost efficiency over its service life. No need to wait for vaporizing oven to cool down for cleaning and maintenance.

- **Proven performance under real-world power-plant conditions**

Certification suitability was demonstrated in a 12-month field test at a power plant, substantially longer than the 3-month field test used for other equipments on the market. This provides a 6 months maintenance interval significantly longer than other suppliers to provide strong real-world evidence of long-term stability, measurement reliability and resistance to challenging wet-gas conditions.

EXAMPLES OF SYSTEM CONFIGURATIONS* | STANDARD + OPTIONAL WITH REMOTE ACCESS



Dust measuring system

- | | | | |
|----|----------------|---|---|
| 1a | Measuring unit | 2 | Operating unit |
| 1b | Cable set | 3 | Emission evaluation system |
| 1c | Supply unit | 4 | PC with Windows operating system and software |

* Maximum permitted cable lengths; distance between measuring unit and supply unit limited by cable set

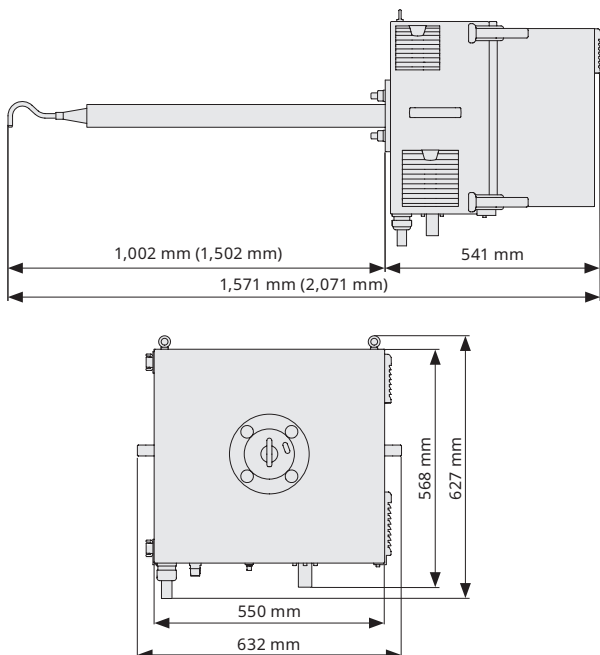
TECHNICAL SPECIFICATIONS

Measuring principle	Forward scattering, extractive, continuous, single-sided installation
Measuring parameter	Scattered light units, calibratable as dust concentration in mg/m ³
Measuring range	<ul style="list-style-type: none"> • Minimum 0 ... 5 mg/m³ • Maximum 0 ... 200 mg/m³
Certified measuring ranges	0 ... 7.5 mg/m ³ ; 0 ... 15 mg/m ³ ; 0 ... 45 mg/m ³ ; 0 ... 100 mg/m ³
Certificates	TÜV and MCERTs QAL1 certified, cETLus according to UL 61010-1 (UL-listed)
Standards	IED 2010/75/EU, EN 15267-1/-2/-3, EN 14181, US EPA 40 CFR 60 PS 11, 13/17/27/30/44th BImSchV, TA Luft
Interface*	<ul style="list-style-type: none"> • Analog input: 1x 4 ... 20 mA, maximum 250 Ω, potential-free • Analog output: 1x 4 ... 20 mA, maximum 500 Ω, potential-free • Digital output: 2x NC/NO, maximum 60 V~, 30 V~, 0.5 A • Modbus RS 485 RTU • USB
Nominal voltage	230 V~, 47 ... 63 Hz, LNPE
Power consumption	Maximum 2,300 VA
Ambient conditions	<ul style="list-style-type: none"> • Installation location: Indoor or outdoor** • Temperature: -40 ... +60 °C • Humidity: 0 ... 100% relative humidity
Operating conditions (In duct)	<ul style="list-style-type: none"> • Temperature: 0 ... 160 °C (higher temperatures on request) • Relative humidity: 0 ... 100%, maximum 70 g/m³ liquid water • Relative pressure: -50 ... +50 hPa (depending on flue gas velocity and operating mode) • Dust concentration: 0 ... 200 mg/m³

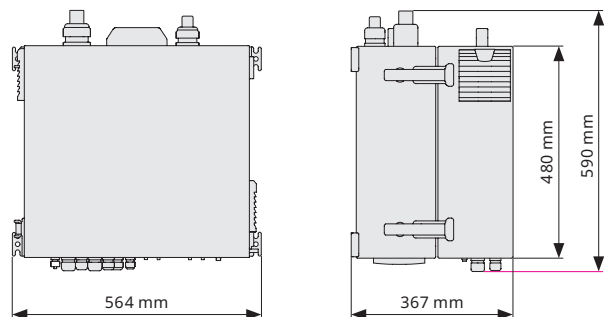
Dimensions	<ul style="list-style-type: none"> • Inner duct diameter: > 0.2 m • Wall thickness: Maximum 1.2 m
Degree of protection	IP54 in accordance with EN 60529
Light source	Laser Class 1. Warning: Laser radiation Class 3B, do not expose yourself to the beam when open.
Connections	Process: Flange, DN80 PN6
Explosion protection	N/A
Operation and display	<ul style="list-style-type: none"> • Status display: LED • D-ESI 100 software*** • Or D-ISC 100 operating unit
Material	<ul style="list-style-type: none"> • Housing: Stainless steel A2, powder-coated • Sampling probe: Stainless steel 1.4404, others available on request
System components	<ul style="list-style-type: none"> • Measuring unit • Supply unit • Sampling probe • Cable set • D-ISC 100 operating unit (optional) • D-ESI 100 software***
Variants	<ul style="list-style-type: none"> • Length of sampling probe: 1,000 mm/1,500 mm • Alignment of probe tip: Flow up/down/right/left • Cable set: 3 m/6 m/9 m
Accessories	<ul style="list-style-type: none"> • Weld-in pipe: 200 mm/500 mm/700 mm • Rack for supply unit • Adapter flange

* Additional interfaces with D-ISC 100 operating unit
 ** Weather protection required for outdoor installation. Indoor installation for cETLus version.
 *** Enables remote access via web interface, requires PC with Windows operating system

D-R 909 M | MEASURING UNIT (DIMENSIONS AND WEIGHT)



D-R 909 SU | SUPPLY UNIT (DIMENSIONS AND WEIGHT)



D-R 909		
M (1,000 mm)	M (1,500 mm)	SU
Approx. 43 kg	Approx. 45 kg	Approx. 38 kg
Weld-in pipe		
200 mm	500 mm	700 mm
5 kg	9 kg	12 kg

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