

# Measuring device for smoke spot number / dust concentration

**D-R 300: Extremely sensitive device for measuring smoke spot number.**

**D-R 300-40: Especially sensitive measuring device for the smallest concentration of dust, in particular in waste incineration plants.**

## Features

- In-situ measurement directly in the flue gas flow
- Automatic system tests and correction of measured values
- Self-calibration in 4-h cycle
- Optics and electronics in a hermetically sealed unit - no smoke gas can enter device
- Maintenance-friendly, thanks to optimal purge air conduction in front of the heated optical end plates
- Direct access to all parameters via the operator display
- Automatic measuring range selection in accordance with 17. BImSchV. in relation 1:3:9\*.

## Applications

- Smoke spot number measurement in furnaces designed for light fuel oil
- Fine dust measurements in processes
- Waste incineration
- Filter monitoring and emission-value measuring in waste incineration and power plants\*.

## Approvals

- Suitability-tested by the TÜV Cologne, test report 936/800002
- Suitability-tested by the TÜV Cologne, test report 936/801004\*
- Itemized in the list of suitable measuring devices for continuous emission measuring
- MCERTS.

\*D-R 300-40



**DURAG GROUP smart solutions for combustion and environment**



## Measuring principle

The D-R 300 / D-R 300-40 meters operate according to the scattered light method. The modulated light from a Halogen lamp illuminates the dust particles in the exhaust duct. The scattered light reflected from these particles is measured and assessed.

## Specifications

### D-R 300

- Measuring range: smoke spot number 0-3. Limit value II can be set as delayed disconnected contact
- Calibration: VDI 2066, page 8.

### D-R 300-40

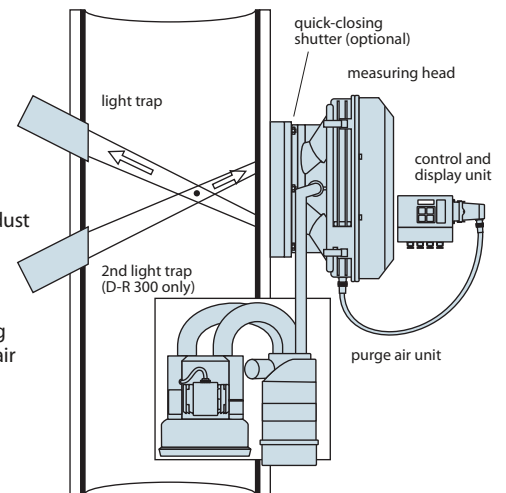
- Minimum measuring range 0-1 mg/m<sup>3</sup> dust concentration. Other measuring ranges up to 300 mg/m<sup>3</sup> can be set (optional automatic switching of measuring ranges 1:3:9)
- Calibration: VDI 2066, page 7.

## System components

- Measuring head
- Mounting flange
- Control and display unit
- light trap(s)
- Purge air unit.

## Options

- Automatic measuring range selection for dust measurement in accordance with 17. BImSchV (D-R 300-40)
- Weather protection covers
- Quick-closing shutter to protect measuring device in the event of failure of the purge air supply
- Halar coating.



measurements	smoke spot number (D-R 300) dust concentration (D-R 300-40)	detection limit	<1% measuring range
measuring ranges	D-R 300: smoke spot number 1-3 (5) D-R 300-40: dust concentration 0-1 mg/m <sup>3</sup> ... 0-30 mg/m <sup>3</sup> <sup>1)</sup> , optional 0-300 mg/m <sup>3</sup> with range switching	reference point drift	<0.2% of measuring range/month
measuring principle	back scattering	zero point drift	<0.2% of measuring range/month
flue gas temperature	above dew point up to 320°C, optional up to 600°C, depending on application	supply voltage	115 / 230 VAC, 50 / 60 Hz, 50 VA
flue gas pressure	-50 up to +20 hPa	dimensions (h x w x d)	measuring head 565 x 310 x 200 mm
duct diameter	0.3 to 4 m	weight	18 kg
ambient temperature	-20 up to +50°C	remarks	<sup>1)</sup> after gravimetric calibration
protection	IP65	purge air supply	
measuring outputs	2 x 0/4-20 mA/500 Ohm, optional measuring range switching	purge air quantity	approx. 80 m <sup>3</sup> /h
digital outputs	3 relay outputs, permissible load 250 V / 100 VA	supply voltage	115 / 230 VAC, 50 / 60 Hz, 0.37 / 0.43 kW
digital inputs	1 potential free input	dimensions (h x w x d) weight	350 x 550 x 500 mm 12 kg
accuracy	<1% of measuring range	protection	IP54

