

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

D-R 800 Dust Concentration Monitor

Manufactured by:

DURAG GmbH

Kollastraße 105
22453 Hamburg
Germany

Has been assessed by Sira Certification Service
And for the conditions stated on this certificate complies with:

**MCERTS Performance Standards for Continuous Emission
Monitoring Systems, Version 3.4 dated July 2012
EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2004**

Certification Ranges :

Particulate Concentration 0 to 15 mg/m³
0 to 100% T (Ref.)

Project No. : 16A30288
Certificate No : Sira MC080123/02
Initial Certification : 25 February 2008
This Certificate issued : 15 April 2013
Renewal Date : 24 February 2018

R Cooper | Eng MInst MC
Technical Director

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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Registered Office: Rake Lane, Eccleston, Chester, UK CH4 9JN

To authenticate the validity of this certificate please visit www.siracertification.com/mcerts

Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at www.mcerts.net

On the basis of the assessment and the ranges required for compliance with EU Directives this instrument is considered suitable for use on waste incineration and large coal-fired combustion plant applications. This CEM has been proven suitable for its measuring task (parameter and composition of the flue gas) by use of the QAL 1 procedure specified in EN14181, for LCPD and WID applications for the ranges specified. The lowest certified range for each determinand shall not be more than 1.5X the daily average emission limit value (ELV) for WID applications, and not more than 2.5X the ELV for LCPD and other types of application.

Basis of Certification

This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

TÜV Rheinland Report No: 936/21205307/A dated 07/07/06
TÜV Rheinland Report No: 936/21205307/B dated 13/12/06
TÜV Rheinland Report No: 936/21205307/C dated 12/07/07
TÜV Rheinland Report No: 936/21212470/A dated 01/10/10

Product Certified

The D-R 800 measuring system consists of the following parts:

- Measuring probe with electronics and display
- Connection unit with integrated purge air supply
- Mounting flange
- Supply unit

This certificate applies to all instruments fitted with software version 1.72 (serial number 8000000 onwards).

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -20 °C to +50 °C
Instrument IP rating: IP65

Results are expressed as error % Certification range (0 to 15 mg/m³), unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time Particulates					Note 1 <40s	<200s
Repeatability standard deviation at zero point Particulates	0.0					<2.0%
Repeatability standard deviation at reference point Particulates	0.04					<2.0%
Lack-of-fit Particulates (0 to 15mg/m ³) Particulates (0 to 100% T(Ref.))				-2.0		<2.0% <2.0%
Influence of ambient temperature zero point Particulates				2.5		<5.0%
Influence of ambient temperature reference point Particulates		0.7				<5.0%
Influence of voltage variations 196 to 253V Particulates	-0.4					<2.0%
Influence of vibration (10 to 60Hz (±0.3mm), 60 to 150Hz at 2g)	0.3					To be reported
Measurement uncertainty Particulates					Guidance - at least 25% below max permissible uncertainty. 5.3%	22.5% (30%)

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Calibration function (field) Particulates					Note 2 0.694 to 0.7595	>0.90
Response time (field) Particulates					<40s	<200s
Lack of fit (field) Particulates (0 to 100% T (ref.))			1.1			<2.0%
Maintenance interval					Note 3 1 month	>8 days
Zero and Span drift requirement	Measurement system executes an automatic internal test cycle. There is no re-adjustment. However, compensation of the contamination does take place.					Clause 6.13 & 10.13 Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.
Change in zero point over maintenance interval Particulates	0.37					<3.0%
Change in reference point over maintenance interval Particulates		0.75				<3.0%
Availability					99%	>95%
Reproducibility Particulates			1.8			<3.3%

Note 1: The response time of the D-R 800 monitor is adjustable between 5 and 1800 s. The response time was set for 20s during the testing.

Note 2: The calibration function result/ R^2 are between 0.6940 and 0.7595 for both measurement principles. The CEMS pass the EN14181 criteria but not the requirement for R^2 within EN15267-3. The instruments passed the variability test.

Note 3: Field test: The D-R 800 was mounted on a waste incinerator plant for 5 months.

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Description

The D-R 800 in-situ measuring device operates according to the forward scattering principle. The concentration and modulated light of a laser diode penetrates the measuring volume. The light scattered by the dust particles is largely scattered forward, therefore the receiving lens is positioned here.

The scattered light is generated in proportion to the dust concentration present. The light is guided by an optical wavelength to the receiving diode, where it is processed to the desired end size by an electronic unit.

For the automatic function test a beam splitter with a shutter has been used inside the electronic housing in this system. It switches between the actual optical measurement and the comparison path. There are no moving parts in the corrosive exhaust gas channel and this ensures that the termination between lance and electronic housing is gas-tight.

A pollution measurement is performed every 5 minutes in order to record dust deposits on the optical boundary surfaces and the ageing of the optical elements.

General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this Certificate. The Manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of Sira Certificates'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC080123/01
2. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on this certificate.
3. The Certification Marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of Sira Certificates'.
4. This document remains the property of Sira and shall be returned when requested by the company.

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