

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

D-RX 250 Measuring System

Manufactured by:

DURAG GmbH

Kallaustraße 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
EN15267-1:2009, EN15267-2:2009, EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2004**

Certification Ranges :

Dust	0 to 15 mg/m ³
Velocity	3 to 30m/s

Project No. : 70004375
Certificate No : Sira MC150258/01
Initial Certification : 16 January 2015
This Certificate issued : 09 April 2015
Renewal Date : 15 January 2020

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Deputy Certification Manager

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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*The MCERTS certificate consists of this document in its entirety.
For conditions of use, please consider all the information within.*

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Certificate Contents

Approved Site Application 2

Basis of Certification 2

Product Certified..... 2

Certified Performance 3

Description..... 6

General Notes 6

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.

The field trial was conducted on a municipal waste incinerator over 4 months.

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 number 936/21225014/A dated 07 July 2014
- CSA Group-Sira report number 70004375 dated December 2014

Product Certified

The D-RX 250 measuring system consists of the following parts:

- Sampling probe (D-RX250 S)
- Signal transmitter (S-RX250 T)
- Differential pressure transducer (ABB type S65DS AMKC3J1)
- Control and evaluation unit (D-RX 250 D)

This certificate applies to all instruments fitted with software version 2.0 (serial number 401073 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

Note: If the instrument is supplied with an enclosure, then the ambient temperature shall be monitored inside the enclosure to ensure that it stays within the above ambient temperature range.

Results are expressed as error % certification range, unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
Dust					14s	<200s
Velocity					2s	<60s
Repeatability standard deviation at zero point						
Dust	0.0					<2.0%
Velocity	0.2					<2.0%
Repeatability standard deviation at reference point						
Dust	0.1					<5.0%
Velocity		0.8				--
Lack-of-fit						
Dust		0.8				<3.0%
Velocity		0.8				<2.0%
Influence of ambient temperature zero point						
Dust				3.5		<5.0%
Velocity				2.5		<5.0%
Influence of ambient temperature reference point						
Dust				4.0		<5.0%
Velocity				2.0		<5.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of voltage variations 190 to 250V						
Dust	-0.1					<2.0%
Velocity		-0.5				<2.0%
Influence of vibration (10 to 60Hz (± 0.3 mm), 60 to 150Hz at 19.6m/s ²)					Not conducted	To be reported
Measurement uncertainty					Guidance - at least 25% below max permissible uncertainty	
Dust (For and ELV of 50 mg/m ³)					8.2%	<22.5% (30%)
Velocity (For range of 30 m/s)					4.1%	<7.5% (10%)
Calibration function (field)					Note 1	
Dust					>0.90	>0.90
Velocity					0.96	>0.90
Response time (field)					Note 2	
Dust					14s	<200s
Velocity					2s	<60s
Lack of fit (field)						
Dust			1.2			<3.0%
Maintenance interval					Note 3 2 Months	>8 days
Zero and Span drift requirement	The AMS can record zero and span drift and thus fulfils the requirements of QAL3 according to EN14181. The system is equipped with an automatic zero and span check procedure for the dust sensor. Check of the pressure sensor and linearity check with the dust sensor can only be performed manually.					Clause 6.13 & 10.13 Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Change in zero point over maintenance interval					Note 4	
Dust	-0.2					<2.0%
Velocity			-1.82			<3.0%
Change in reference point over maintenance interval						
Dust	-0.4					<3.0%
Velocity				-3.2		<4.0%
Availability					99.6%	>95%
Reproducibility						
Dust		0.9				<3.3%
Velocity			1.4			<3.3%

Note 1: The calibration function/R₂ values are between 0.75 and 0.98 due to relatively constant dust levels during the field test. The CEMS pass the EN14181 criteria, but not the requirement for EN15267-3 under these circumstances. The instrument passed the variability test.

Note 2: Response time in the field was not conducted. Response time from the laboratory testing is used in the certified performance table.

Note 3: The D-RX 250 has a maintenance interval of 2 months. The work detailed below has to be carried out at regular intervals, depending on local conditions:

- Regular visual inspection
- Check of purge air supply and contamination of optical surfaces
- Span point check through use of reference materials (adjustment block) every two weeks

Otherwise, manufacturer's instructions are to be followed.

Note 4: The result for change in zero point over maintenance interval for velocity has been taken from testing for the Durag D-FL 100.

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Description

The D-RX 250 Combined Sample Probe is used for continuous monitoring of dust concentrations in various different applications. In addition to the measurement of dust concentration, the volume flow, temperature and the absolute pressure in the flue is measured. D-RX 250 dust concentration monitor uses the triboelectric measuring principle. Due to the measurement principle, this triboelectric signal is, without any compensation calculation, dependent on the concentration of the dust in the flue gas, the gas velocity and the particle characteristics. The dust concentration is calculated from the triboelectric measuring signal and the volume flow. The D-RX 250 is able to supply a velocity compensated dust signal that can also be related to normal conditions because temperature and pressure in the duct are also measured.

The approved version of D-RX 250 consists of the sensor unit D-RX 250, an electronic connection unit and a control and evaluation unit. The sensor unit is located direct at the duct and consists of a combined probe for the measuring of dust concentration and a differential pressure transducer for the measurement of the gas velocity which is mounted close to the probe. The control and evaluation unit is usually mounted away from the stack in a more user-friendly position. The measurement of the gas velocity is performed by using the differential pressure principle. The sensor unit can also measure gas temperature and gas pressure.

The manufacturer states that the product is suitable for monitoring low to medium dust concentration i.e. power plant, steel and cement industry, asbestos and food industry.

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 MC150258/00
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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