PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

D-FL 200 Flow Monitor

manufactured by:

DURAG GmbH
Kollaustraße 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 2, Revision 1 (April 2003)

Certification Ranges :

Gas Velocity 0 to 16m/s to 0 to 30m/s

Note: D-FL 200-10 unit permits calculation of volumetric flow corrected to normal temperature and pressure.

Project No:	674/0067A
Certificate No:	Sira MC 060072/01
Initial Certification:	29 September 2006
This Certificate Issued	22 May 2007
Renewal Date:	28 September 2011

Technical Director

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
12 Acorn Industrial Park, Crayford Road, Crayford
Dartford, Kent, UK, DA1 4AL
Tel: 01322 520500 Fax: 01322 520501

Approved Site Application

On the basis of the assessment this instrument is considered suitable for use on applications including waste incineration and large coal-fired combustion plant applications.

Any potential user should ensure, in consultation with the manufacturer, that the emission monitoring system is suitable for the process on which it will be installed. For general guidance on stack emission monitoring techniques refer to Environment Agency Technical Guidance Note M2: Monitoring of stack emissions to air. This is available on the Agency's website at www.environment-agency.gov.uk

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 Nord Report No: 99CU019 dated 12th August 2000
Sira Report Report No: C1242 dated September 2006

TÜV reports are accepted on the basis of the Environment Agency's document 'MCERTS – Guidance on the acceptance of German type approval test reports for CEMS' Version 2 (October 2003)

Product Certified

The DFL 200 system consists of the following parts:

- Two sensor units D-FL 200-MK
- Control and evaluation unit D-FL 200-10
- Purge air unit

This certificate applies to all instruments fitted with software version 2.1 onwards (serial number 36392 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

Unless otherwise stated the evaluation was carried out on the certification range 0 to 30 m/s for the laboratory test and 0 to 16m/s for the field test.

Test	Results expressed as % of max of certification range				Other results	MCERTS* specification
	<0.5	<1	<2	<4		
Linearity	<0.1				See note 1	<±3%
Cross sensitivity					See note 2	<±4%
Detection limit			1.7			<20% of indicating range
Ambient temperature: zero shift:	0.0					<0.3%/°C
Ambient temperature: span shift:	0.0					<0.3%/°C
Response time					See note 3	<10s
Reproducibility Note 7					71	>30
Analysis function Note 7					99.6%	>95%
Integral performance Note 7			1.2			<5%
Availability Note 7					97.0 %	>95%
Vibration test					See note 4	Not specified
Sample gas pressure					See note 5	To be reported
Sample gas temperature					See note 5	To be reported
Maintenance Interval Note 7					2 month See note 6	To be reported

Note 1: The result stated is an average of the reported data.
Note 2: Test not applicable.
Note 3: The response time is adjustable between 1 and 180 seconds.
Note 4: A visual examination demonstrated that the probe is fully encapsulated and did not identify any components that are likely to be affected vibration. The electronics unit is not mounted on the stack. Hence a vibration test was not carried out.

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Note 5: Sample gas pressure and sample gas temperature has an influence to the measuring signal because the measuring result depends on the density of the measuring gas. The principle of the measurement is based on the acoustic pulse differential method. However the velocity measurement is only dependent on the difference between the down stream and upstream, so eliminates the effect of temperature and pressure.

Note 6: During the field test a 2 month maintenance interval was selected. Maintenance is normally due to changing of the air filter. The manufacturer normally suggests that a visual inspection of the stack sensors annually.

Note 7: Field test: The DFL200 was assessed on the basis of a three month field trial mounted on a waste incinerator.

Description:

The ultrasonic flowmeter D-FL 200 flow monitor works on the acoustic pulse differential method. It measures the gas velocity by measuring the difference in the propagation delay of ultrasonic signals at an angle of 30° to 60° to the flow direction.

The measuring heads with the sensors are mounted on the duct in a way that a vectorial component of the gas-flow coincides with the direction of the sound. The transducers continuously transmit and receive pulses. The gas flow effects the transit-time so that the time downstream is reduced and the time upstream is prolonged. Gas velocity is determined by mathematical evaluation of these two transit-times.

The manufacturer states that the D-FL 200 flow monitor is suitable for use in a wide range of applications such as power plants, incineration plants, cement industry, iron and steel manufacturing and other industries to monitor gas flow velocities for process control measurements and for emission monitoring purposes. The D-FL 200 can be used on wet applications (no corrosion at probe) and in low velocity application.

The measurement system is especially designed for flow monitoring below the dew point and for aggressive gases. The sensors are completely decoupled from the gas by means of purge air. The D-FL 200 flow monitor is suitable for different measuring path length between 1, 2 and 11 m.

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 MC 060072/01.

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.