

# PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

## **E705 AMS CEMS**

Manufactured by:

### **Fer Strumenti Srl**

Via Ripamonti 58  
Seregno (Milan)  
Italy

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 3.5 dated June 2016  
EN15267-3:2007,  
& QAL 1 as defined in EN 14181: 2014**

Certification Ranges :

O<sub>2</sub>                      0 to 25 vol.-%

Project No.:                      70039897  
Certificate No:                    Sira MC160302/00  
Initial Certification:            13 July 2016  
This Certificate issued:        13 July 2016  
Renewal Date:                    12 July 2021

Emily Alexander  
Deputy Certification Manager

MCERTS is operated on behalf of the Environment Agency by

## **Sira Certification Service**

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## 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](http://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/IED Chapter III and IED Chapter IV 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 IED Chapter IV applications, and not more than 2.5X the ELV for IED Chapter III 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:

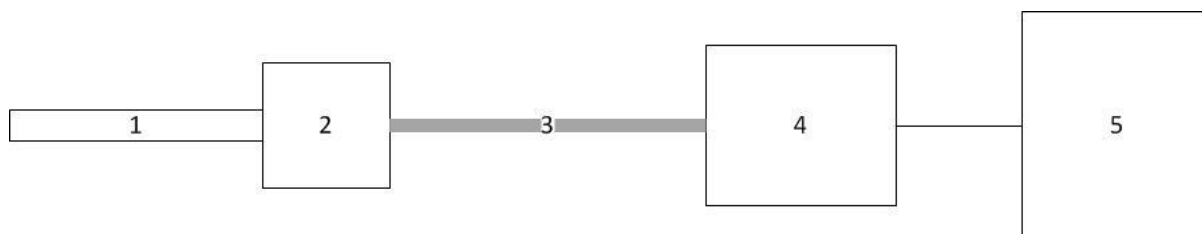
TUV SUD Report No. 2448303.1  
Test Report E 28715137  
QAL2 Report 0669A16

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**Product Certified**

The measuring system consists of the following parts:



1. Sample Probe	2. Heated Filter	3. Heated Sample Line	4. Gas Conditioning	5. Analyser
Buehler Model 222.17	Buehler Model 222.17	RACO	Buehler Model Egk 1/2	Fer Strumenti model E705

Allowable variations could include:

- A different brand or model of sampling system of the same type, provided that there is evidence the alternative system works with similar types of CEM.
- Additional manifolds and heated valves used to allow more than one analyser to share a sampling system.

Different Probes and filter are:

Fer Strumenti Model 7030 and 7040

This certificate applies to all instruments fitted with software version 2.0c (serial number T0511260 onwards).

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### Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: 5°C to +40°C  
 Instrument IP rating: IP55

Note: The requirement for the protection class of the enclosure is not fulfilled. The measuring system needs to be installed with an IP65 enclosure to meet the requirements of EN 15267-3. 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 % of certification range, unless otherwise stated.

Test	Results expressed as %vol				Other results	MCERTS Specification (%vol)
	<0.5	<1	<2	<5		
Response time O <sub>2</sub>					41s	<200s
Repeatability standard deviation at zero point O <sub>2</sub>	0.01					<0.2%
Repeatability standard deviation at reference point O <sub>2</sub>	0.03					<0.2%
Lack-of-fit O <sub>2</sub>	-0.16					<0.2%
Influence of ambient temperature zero point (5°C to +40°C) O <sub>2</sub>	-0.01					<0.50%
Influence of ambient temperature reference point (5°C to +40°C) O <sub>2</sub>	-0.09					<0.50%
Influence of sample gas flow for extractive CEMS (zero) O <sub>2</sub>	0.02					<0.2%
Influence of sample gas flow for extractive CEMS (span) O <sub>2</sub>	0.06					<0.2%

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Test	Results expressed as %vol				Other results	MCERTS Specification (%vol)
	<0.5	<1	<2	<5		
Influence of voltage variations (zero) (196V to 253V) O <sub>2</sub>	0.01					<0.2%
Influence of voltage variations (zero) (196V to 253V) O <sub>2</sub>	0.03					<0.2%
Cross-sensitivity at zero with interferents: O <sub>2</sub> , H <sub>2</sub> O, CO, CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, NO, NO <sub>2</sub> , NH <sub>3</sub> , SO <sub>2</sub> , HCl O <sub>2</sub>	0.17					<0.40%
Cross-sensitivity at reference with interferents: O <sub>2</sub> , H <sub>2</sub> O, CO, CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, NO, NO <sub>2</sub> , NH <sub>3</sub> , SO <sub>2</sub> , HCl O <sub>2</sub>	0.4					<0.40%
Measurement uncertainty O <sub>2</sub>					Guidance - at least 25% below max permissible uncertainty 2.16%	<7.5% (10%)
Calibration function (field) O <sub>2</sub>					0.99	>0.90
Response time (field) O <sub>2</sub>					96s	<200s
Lack of fit (field) O <sub>2</sub>	0.18					<0.2%
Maintenance interval					14 days	>8 days
Zero and Span drift requirement	The AMS has a means of manually checking and, as necessary re-adjusting zero and span point. The deviations are recorded and checked with a reference limit. A status signal is set if the recorded level should exceed the limit set.					Clause 6.13 & 10.13

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Test	Results expressed as %vol				Other results	MCERTS Specification (%vol)
	<0.5	<1	<2	<5		
Change in zero point over maintenance interval O <sub>2</sub>	0.11					<0.2%
Change in reference point over maintenance interval O <sub>2</sub>	0.19					<0.2%
Availability					98.83%	>95% (>98% for O <sub>2</sub> )
Reproducibility O <sub>2</sub>	0.18					<0.20%

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## Description

The system continuously measures O<sub>2</sub> in flue gas. The system sample the gas from the process and pump to the analyzer having filtered and dried it. The zirconia sensor is controlled at about 640 °C by an integrated heater. This gives a Nernstian response to the ratio of the reference and measured partial pressure of O<sub>2</sub> across the sensor. An electronic unit calculate oxygen content from the sensor output compensated with effective sensor temperature.

## 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 V00 for certificate No. Sira MC160302/00
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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