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Osa 1: Manuaalne võrdlusmeetod**

Stationary source emissions - Determination of velocity and volume flow rate in ducts - Part 1: Manual reference method (ISO 16911-1:2013)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Stationary source emissions - Manual and automatic
determination of velocity and volume flow rate in ducts - Part 1:
Manual reference method (ISO 16911-1:2013)

Émissions de sources fixes - Détermination manuelle et
automatique de la vitesse et du débit-volume d'écoulement
dans les conduits - Partie 1: Méthode de référence
manuelle (ISO 16911-1:2013)

Emissionen aus stationären Quellen - Manuelle und
automatische Bestimmung der Geschwindigkeit und des
Volumenstroms in Abgaskanälen - Teil 1: Manuelles
Referenzverfahren (ISO 16911-1:2013)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN ISO 16911-1:2013) has been prepared by Technical Committee CEN/TC 264 "Air quality", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 146 "Air quality".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2013, and conflicting national standards shall be withdrawn at the latest by September 2013.

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Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	3
4.1 Symbols.....	3
4.2 Abbreviated terms.....	7
5 Principle	7
5.1 General.....	7
5.2 Principle of flow velocity determination at a point in the duct.....	8
5.3 Principle of measurement of volume flow rate.....	8
6 Selection of monitoring approach	10
6.1 Monitoring objective.....	10
6.2 Choice of technique to determine point flow velocity.....	11
6.3 Choice of technique for volume flow rate and average flow determination.....	12
7 Measuring equipment	12
7.1 General.....	12
7.2 Measurement of duct area.....	13
8 Performance characteristics and requirements	13
9 Measurement procedure	14
9.1 Site survey before testing.....	14
9.2 Determination of sampling plane and number of measurement points.....	14
9.3 Checks before sampling.....	14
9.4 Quality control.....	16
9.5 Measurement of flow at locations within the measurement plane.....	16
9.6 Post-measurement quality control.....	17
10 Calculation of results	17
10.1 General.....	17
10.2 Measurement of velocity.....	17
10.3 Determination of the mean velocity.....	18
10.4 Correction of average velocity for wall effects.....	18
10.5 Calculation of the volume flow rate from the average velocity.....	18
10.6 Conversion of results to standard conditions.....	19
11 Establishment of the uncertainty of results	20
12 Evaluation of the method	20
Annex A (normative) Measurement of velocity using differential pressure based techniques	22
Annex B (normative) Vane anemometer	34
Annex C (normative) Tracer gas dilution method determination of volume flow rate and average velocity	40
Annex D (normative) Transit time tracer gas method determination of average velocity	46
Annex E (normative) Calculation of flue gas volume flow rate from energy consumption	53
Annex F (informative) Example of uncertainty budget established for velocity and volume flow rate measurements by Pitot tube	61
Annex G (informative) Description of validation studies	72

Annex H (informative) Differential pressure measurement	79
Annex I (informative) The use of time of flight measurement instruments based on modulated laser light	82
Annex J (informative) Relationship between this International Standard and the essential requirements of EU Directives	83
Bibliography	84

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Introduction

EN ISO 16911-1 describes a method for periodic determination of the axial velocity and volume flow rate of gas within emissions ducts and stacks and for the calibration of automated flow monitoring systems permanently installed on a stack.

EN ISO 16911-1 provides a method which uses point measurements of the flow velocity to determine the flow profile and mean and volume flow rates. It also provides for alternative methods based on tracer gas injection, which can also be used to provide routine calibration for automated flow-monitoring systems. A method based on calculation from energy consumption is also described. EN ISO 16911-1 provides guidance on when these alternative methods may be used.

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Stationary source emissions — Manual and automatic determination of velocity and volume flow rate in ducts —

Part 1: Manual reference method

1 Scope

EN ISO 16911-1 specifies a method for periodic determination of the axial velocity and volume flow rate of gas within emissions ducts and stacks. It is applicable for use in circular or rectangular ducts with measurement locations meeting the requirements of EN 15259. Minimum and maximum duct sizes are driven by practical considerations of the measurement devices described within EN ISO 16911-1.

EN ISO 16911-1 requires all flow measurements to have demonstrable metrological traceability to national or international primary standards.

To be used as a standard reference method, the user is required to demonstrate that the performance characteristics of the method are equal to or better than the performance criteria defined in EN ISO 16911-1 and that the overall uncertainty of the method, expressed with a level of confidence of 95 %, is determined and reported. The results for each method defined in EN ISO 16911-1 have different uncertainties within a range of 1 % to 10 % at flow velocities of 20 m/s.

Methods further to these can be used provided that the user can demonstrate equivalence, based on the principles of CEN/TS 14793.^[10]

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 20988, *Air quality — Guidelines for estimating measurement uncertainty*

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

EN 14789, *Stationary source emissions — Determination of volume concentration of oxygen (O₂) — Reference method — Paramagnetism*

EN 14790, *Stationary source emissions — Determination of the water vapour in ducts*

EN 15259:2007, *Air quality — Measurement of stationary source emissions — Requirements for measurement sections and sites and for the measurement objective, plan and report*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.