

SVENSK STANDARD

SS-EN 13284-1:2017

Fastställt/Approved: 2017-11-20
Publicerad/Published: 2017-11-21
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 13.040.40

Utsläpp och utomhusluft – Bestämning av låga masskoncentrationer av stoft – Del 1: Manuell gravimetrisk metod

Stationary source emissions – Determination of low range mass concentration of dust – Part 1: Manual gravimetric method

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Denna standard ersätter SS-EN 13284-1, utgåva 1.

The European Standard EN 13284-1:2017 has the status of a Swedish Standard. This document contains the official version of EN 13284-1:2017.

This standard supersedes the Swedish Standard SS-EN 13284-1, edition 1.

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EUROPEAN STANDARD

EN 13284-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2017

ICS 13.040.40

Supersedes EN 13284-1:2001

English Version

Stationary source emissions - Determination of low range mass concentration of dust - Part 1: Manual gravimetric method

Émissions de sources fixes - Détermination de faibles concentrations en masse de poussières - Partie 1 :
Méthode gravimétrique manuelle

Emissionen aus stationären Quellen - Ermittlung der Staubmassenkonzentration bei geringen Staubkonzentrationen - Teil 1: Manuelles gravimetrisches Verfahren

This European Standard was approved by CEN on 11 September 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

SS-EN 13284-1:2017 (E)

Contents	Page
European foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Symbols and abbreviations	9
4.1 Symbols.....	9
4.2 Abbreviations	10
5 Principle	10
6 Measurement planning and sampling strategy	11
6.1 Measurement planning.....	11
6.2 Sampling strategy.....	12
6.2.1 General.....	12
6.2.2 Measurement section and measurement plane.....	12
6.2.3 Minimum number and location of measurement points.....	12
6.2.4 Measurement ports and working platform	12
7 Equipment and materials	12
7.1 Gas velocity, temperature, pressure and composition measurement devices.....	12
7.2 Sampling equipment.....	12
7.2.1 Sampling system.....	12
7.2.2 Filtration device.....	13
7.2.3 Entry nozzle.....	17
7.2.4 Suction tube for out-stack filtration devices.....	18
7.2.5 Suction unit	18
7.2.6 Gas metering devices	18
7.3 Dust deposit recovery accessories.....	20
7.4 Equipment for conditioning and weighing	20
8 Weighing procedure	20
8.1 General.....	20
8.2 Pre-sampling conditioning	20
8.3 Weighing.....	21
8.4 Post-sampling treatment of weighed parts	21
8.5 Post-sampling treatment of the rinsing solutions.....	22
8.6 Improvement of the weighing procedure	22
9 Sampling procedure	22
9.1 Preparation	22
9.2 Filter handling.....	23
9.3 Pre-measurements	23
9.4 Leak test.....	24
9.5 Sampling.....	24
9.6 Recovery of deposits upstream of the filter	26
9.6.1 General.....	26
9.6.2 Rinsing procedure	26
9.7 Field blank	26
10 Calculation	27
10.1 Sampling volumetric flow rate.....	27

10.2	Dust concentration	27
11	Measurement report	28
Annex A	(informative) Performance characteristics of the method obtained in the method validation	30
A.1	General	30
A.2	Experimental data	31
A.3	Comments	31
Annex B	(informative) Influence of the isokinetic rate on the representativeness of the collected particles	33
Annex C	(informative) Proven design of the entry nozzles	37
Annex D	(informative) Summary of the requirements	40
Annex E	(normative) Sampling volume, flow rate and duration	42
E.1	General	42
E.2	Weighing uncertainties	42
E.3	Sampling volume	42
E.4	Sampling flow rate and duration	42
Annex F	(informative) Examples of weighing bias	43
F.1	General	43
F.2	Effect of insufficient temperature equilibrium	43
F.3	Effect of temperature variations	43
F.4	Effect of barometric pressure variations	43
F.5	Conclusions	44
Annex G	(informative) Determination of the measurement uncertainty	45
G.1	General	45
G.2	Principle of the determination of the uncertainty contributions of measurands	45
G.2.1	General	45
G.2.2	Uncertainty contribution of calibration	45
G.2.3	Uncertainty contribution of the drift	46
G.2.4	Uncertainty contribution of the display resolution	46
G.3	Combination of the uncertainty contributions of the individual measurands	47
G.3.1	Procedure	47
G.3.2	Specification of the method model equation	48
G.3.3	Stepwise calculation of the individual uncertainty contributions	49
G.4	Effective number of the degrees of freedom	58
Annex H	(informative) Thermal behaviour of dusts	60
Annex I	(informative) Significant technical changes	61
	Bibliography	63

SS-EN 13284-1:2017 (E)

European foreword

This document (EN 13284-1:2017) has been prepared by Technical Committee CEN/TC 264 “Air quality”, the secretariat of which is held by DIN.

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 May 2018, and conflicting national standards shall be withdrawn at the latest by May 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13284-1:2001.

This document is Part 1 of the EN 13284 series:

- EN 13284-1, *Stationary source emissions — Determination of low range mass concentration of dust — Part 1: Manual gravimetric method*;
- EN 13284-2, *Stationary source emissions — Determination of low range mass concentration of dust — Part 2: Quality assurance of automated measuring systems*.

Annex I provides details of significant technical changes between this European Standard and the previous edition.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the standard reference method (SRM) for the measurement of low dust concentration in ducted gaseous streams in the concentrations below 50 mg/m³ at standard conditions.

This European Standard is primarily developed and validated for gaseous streams emitted by waste incinerators. More generally, it can be applied to gases emitted from other stationary sources, and to higher concentrations.

If the gases contain unstable, reactive or semi-volatile substances, the measurement depends on the sampling and filter treatment conditions.

This method has been validated in field tests with special emphasis to dust concentrations around 5 mg/m³. The results of the field tests are presented in Annex A.

2 Normative references

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

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

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

3 Terms and definitions

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

3.1

dust

particles, of any shape, structure or density, dispersed in the gas phase at the sampling point conditions which may be collected by filtration under specified conditions after representative sampling of the gas to be analysed, and which remain upstream of the filter and on the filter after drying under specified conditions

3.2

filtration temperature

temperature of the sampled gas immediately downstream of the filter

3.3

in-stack filtration

filtration in the duct with the filter in its filter housing placed immediately downstream of the sampling nozzle

3.4

out-stack filtration

filtration outside of the duct with the filter in its heated filter housing placed downstream of the sampling nozzle and the suction tube

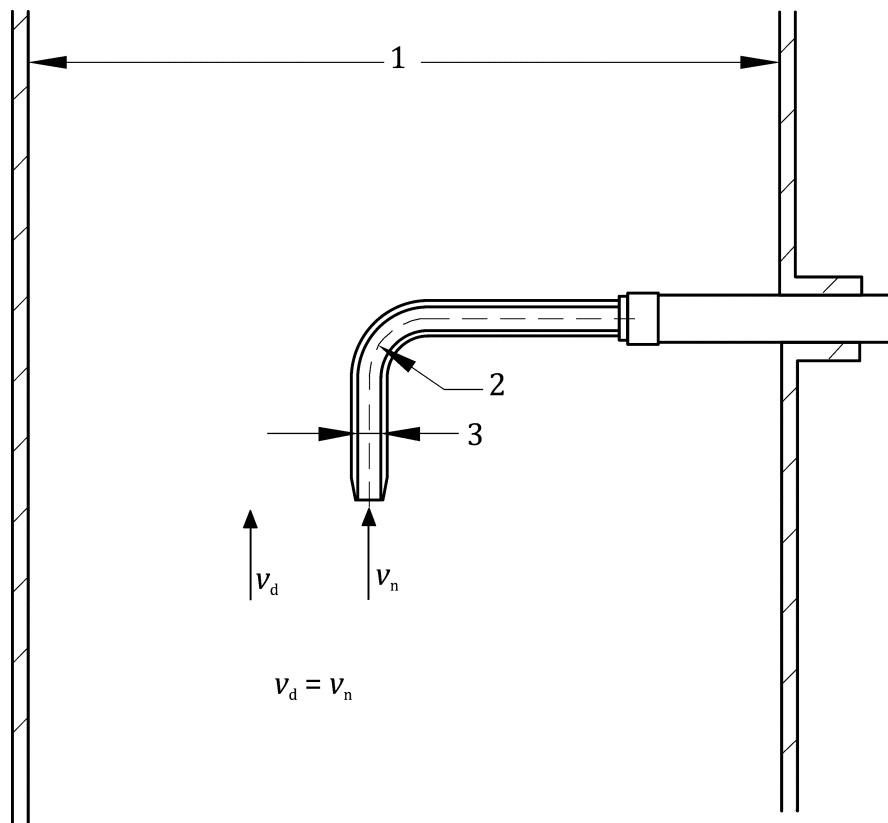
SS-EN 13284-1:2017 (E)

3.5 isokinetic sampling

sampling at a flow rate such that the velocity v_n and direction of the gas entering the sampling nozzle are the same as the velocity v_d and direction of the gas in the duct at the measurement point

Note 1 to entry: Figure 1 gives an illustration of isokinetic sampling.

Note 2 to entry: Annex B shows the influence of the isokinetic rate on the representativeness of the collected particles.



Key

- 1 duct
- 2 radius of the bend (minimum $1,5 d_p$)
- 3 internal diameter of the suction tube d_p

Figure 1 — Isokinetic sampling

3.6 isokinetic rate

velocity ratio v_n/v_d expressed in percentage as a characteristic of the deviation from isokinetic sampling

3.7
hydraulic diameter

d_h
quotient of four times the area A and the perimeter P of the measurement plane

$$d_h = \frac{4 \times A}{P} \quad (1)$$

[SOURCE: EN 15259:2007]

3.8
measurement plane

plane normal to the centreline of the duct at the sampling position

[SOURCE: EN 15259:2007]

Note 1 to entry: Measurement plane is also known as sampling plane.

3.9
measurement line

line in the sampling plane along which the sampling points are located, bounded by the inner duct wall

[SOURCE: EN 15259:2007]

Note 1 to entry: Measurement line is also known as sampling line.

Note 2 to entry: Figure 2 gives an illustration of definitions in relation to a circular duct.