

Specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances - Part 1: General requirements and test methods

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50379-1:2004 sisaldab Euroopa standardi EN 50379-1:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 16.11.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50379-1:2004 consists of the English text of the European standard EN 50379-1:2004.</p> <p>This document is endorsed on 16.11.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This European Standard covers apparatus for measuring gas concentrations and other combustion parameters, as used in the installation and maintenance of heating appliances. Such apparatus may be used for testing the performance of appliances for different types of fuels, either by the installer, maintenance engineer or inspector. The apparatus may consist of different functional modules, which may be tested separately for complying with this standard and will be combined in different ways according to the different applications. The apparatus shall comply with requirements as specified in EN 50379-2 and/or EN 50379-3. This European Standard specifies general requirements for the construction, testing and performance of portable spot reading apparatus designed to give an assessment of specific combustion flue gas parameters, such as concentration of gaseous compounds, temperature and/or pressure, to check the combustion performance of heating appliances for domestic residential and commercial applications, using</p>	<p>Scope: This European Standard covers apparatus for measuring gas concentrations and other combustion parameters, as used in the installation and maintenance of heating appliances. Such apparatus may be used for testing the performance of appliances for different types of fuels, either by the installer, maintenance engineer or inspector. The apparatus may consist of different functional modules, which may be tested separately for complying with this standard and will be combined in different ways according to the different applications. The apparatus shall comply with requirements as specified in EN 50379-2 and/or EN 50379-3. This European Standard specifies general requirements for the construction, testing and performance of portable spot reading apparatus designed to give an assessment of specific combustion flue gas parameters, such as concentration of gaseous compounds, temperature and/or pressure, to check the combustion performance of heating appliances for domestic residential and commercial applications, using</p>
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ICS 29.020

Võtmesõnad:

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

EUROPEAN STANDARD

EN 50379-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2004

ICS 13.040.40; 91.140.10

English version

**Specification for portable electrical apparatus designed to measure
combustion flue gas parameters of heating appliances
Part 1: General requirements and test methods**

Spécification pour les appareils
électriques portatifs conçus pour mesurer
les paramètres des gaz de combustion
dans les conduits d'évacuation
des appareils de chauffage
Partie 1: Prescriptions générales
et méthodes d'essai

Anforderungen an tragbare elektrische
Geräte zur Messung
von Verbrennungsparametern
von Heizungsanlagen
Teil 1: Allgemeine Anforderungen
und Prüfverfahren

This European Standard was approved by CENELEC on 2004-03-01. CENELEC 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 Central Secretariat or to any CENELEC member.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 216, Gas detectors.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50379-1 on 2004-03-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2005-03-01
 - latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2007-03-01
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Contents

	Page
Introduction	6
1 Scope	7
2 Normative references	7
3 Definitions	8
4 General requirements	9
4.1 General	9
4.2 Construction	10
4.2.1 General	10
4.2.2 Sampling system	10
4.2.3 Adjustments	10
4.2.4 Power supply	10
4.2.5 Display	11
4.2.6 Measuring range and resolution	11
4.2.7 Indication range	11
4.2.8 Accuracy of the apparatus	11
4.2.9 Detection limit	11
4.2.10 Efficiency	11
4.2.11 Printer or data storage	12
4.3 Labelling and instructions	12
4.3.1 Labelling	12
4.3.2 Instructions	13
5 Test methods	13
5.1 General requirements for tests	13
5.1.1 Samples and sequence of tests	14
5.1.2 Preparation of samples	14
5.1.3 Test facility	14
5.2 Normal conditions for tests	14
5.2.1 General	14
5.2.2 Cylinder test gases	14
5.2.3 Measurements on heating appliances	16
5.2.4 Power supply	16
5.2.5 Temperature	17
5.2.6 Humidity	17
5.2.7 Pressure	17
5.2.8 Exchangeable parts	17
5.3 Mechanical tests	17
5.3.1 Degree of protection	17
5.3.2 Impact strength	17
5.3.3 Vibration	17
5.3.4 Drop	18
5.3.5 Flow indicator (if fitted)	18
5.3.6 Dust filter and water trap	18
5.4 Electrical and software tests	18
5.4.1 EMC	18
5.4.2 Supply voltage variations (not applicable to battery powered apparatus)	18

5.4.3	Battery fault condition (applicable only to battery powered apparatus)	18
5.4.4	Battery reversal (applicable only to battery powered apparatus)	18
5.4.5	Software and digital techniques	18
5.5	Tests with test gases	19
5.5.1	General	19
5.5.2	Unpowered storage	19
5.5.3	Initial performance	19
5.5.4	Response time	19
5.5.5	Cold start	19
5.5.6	Zero reading	19
5.6	Tests with real flue gases	20
5.6.1	General	20
5.6.2	Measurement uncertainty	20
5.6.3	Low temperature (applicable only to apparatus designed for outdoor use)	20
5.6.4	Stability under practical conditions	21
5.6.5	Test of filter capacity	21
5.6.6	Final test with cylinder gases	21
5.6.7	Sensor replacement (where applicable)	21
5.7	Calculated values	21
5.7.1	General	21
5.7.2	Calculation of CO ₂ gas volume ratio from O ₂ measurement	21
5.7.3	CO/CO ₂ ratio	21
5.8	Temperature	22
5.8.1	Temperature measurement (flue gas)	22
5.8.2	Flue gas temperature response time	22
5.8.3	Temperature measurement (inlet air)	22
5.8.4	Inlet air temperature response time	22
5.8.5	Cold start	22
5.8.6	Thermocouple compensation	22
5.8.7	High temperature	22
5.9	Pressure	23
5.9.1	Pressure measurement (draught)	23
5.9.2	Pressure measurement (differential)	23
Annex A (informative) Standard combustion analysis procedures		24
A.1	Combustion analysis in Germany	24
A.2	Combustion analysis in the United Kingdom	25
A.3	Combustion analysis in Italy	26
A.4	Combustion analysis in Sweden	27
Annex B (normative) Real flue gas measurements - Methodology and test methods		30
Annex C (normative) Standard methods for determining measuring uncertainty		33
C.1	Determination of the analytic function	33
C.2	Determination of reproducibility	33

Figure B.1 – CO, NO and SO₂ variation with air ratio 30

Table 1 – Requirements for accuracy 11

Table 2 – Test gas mixtures for O₂ and/or CO₂ sensors 14

Table 3 – Test gas mixtures for low range CO sensors 14

Table 4 – Test gas mixtures for medium range²CO sensors 14

Table 5 – Test gas mixture for high range CO sensors 14

Table 6 – Test gas mixtures for NO sensors 15

Table 7 – Test gas mixtures for SO₂ sensors 15

Table A.1 – Legal requirements for maximum waste gas loss 22

Table A.2 – Parameters for calculation in Germany 23

Table A.3 – Current standards for combustion efficiencies of domestic gas appliances
in the United Kingdom, based on dry air-free measurements 23

Table A.4 – Legal requirements for combustion efficiency η in Italy 24

Table A.5 – Parameters for heat loss calculation in Italy (reference UNI 10389) 25

Table B.1 – Minimum numbers of measurements 28

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Introduction

This European Standard covers apparatus for measuring gas concentrations and other combustion parameters, as used in the installation and maintenance of heating appliances. It forms a specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances, and includes the following parts:

Part 1: General requirements and test methods;

Part 2: Performance requirements for apparatus used in statutory inspections and assessments;

Part 3: Performance requirements for apparatus used in non-statutory servicing of gas fired heating appliances.

EN 50379-1 specifies general requirements for the construction, testing and performance of portable spot reading apparatus designed to give an assessment of specific combustion flue gas parameters, such as concentrations of gaseous compounds, temperature and/or pressure, to check the combustion performance of heating appliances for domestic residential and commercial applications, using commercially available fuels.

EN 50379-2 is for apparatus intended to be used for statutory measurement. In several European countries, legal requirements exist for the performance of heating appliances (see Annex A). Authorised inspectors use these apparatus to measure the flue gas parameters, in order to test compliance with national regulations. Due to the legal consequences resulting from the measurement, there are strict requirements regarding the measuring uncertainty of these apparatus, and EN 50379-2 therefore includes maximum values for measuring uncertainty. Tests with real flue gases form a key part of the verification of the performance of the apparatus for statutory measurement. Measuring uncertainty has to be justified by internationally accepted methods over the whole measuring range. The determination of measuring uncertainty is described in Annex C.

EN 50379-3 is for apparatus intended to be used for non-statutory applications. There are reduced performance requirements, because the apparatus are designed to decide whether maintenance for a gas fired appliance is required, and for adjusting the appliance during maintenance. There will be no determination of the measuring uncertainty for the apparatus.

1 Scope

This European Standard covers apparatus for measuring gas concentrations and other combustion parameters, as used in the installation and maintenance of heating appliances. Such apparatus may be used for testing the performance of appliances for different types of fuels, either by the installer, maintenance engineer or inspector.

The apparatus may consist of different functional modules, which may be tested separately for complying with this standard and will be combined in different ways according to the different applications. The apparatus shall comply with requirements as specified in EN 50379-2 and/or EN 50379-3.

This European Standard specifies general requirements for the construction, testing and performance of portable spot reading apparatus designed to give an assessment of specific combustion flue gas parameters, such as concentration of gaseous compounds, temperature and/or pressure, to check the combustion performance of heating appliances for domestic residential and commercial applications, using commercially available fuels.

This standard excludes apparatus for

- continuous emission, safety monitoring and control, and
- use in vessels with an international load line.

NOTE 1 When this apparatus is used in industrial premises national regulations may apply.

NOTE 2 Apparatus may contain functional modules which are not covered by this standard e.g. measurement of smoke spot number (see Annex A of EN 267).

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.

EN 267	Atomising oil burners of monobloc type - Testing
EN 297	Gas-fired central heating boilers - Type B11 and B11BS boilers fitted with atmospheric burners of nominal heat input not exceeding 70 kW
EN 676	Forced draught burners for gaseous fuels
EN 50270	Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen
EN 50271	Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen - Requirements and tests for apparatus using software and/or digital technologies
EN 50379-2	Specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances - Part 2: Performance requirements for apparatus used in statutory inspections and assessment
EN 50379-3	Specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances - Part 3: Performance requirements for apparatus used in non-statutory servicing of gas fired

EN 60068-2-6		Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)
EN 60335-1	1994	Safety of household and similar electrical appliances - Part 1: General requirements
EN 60359		Electrical and electronic measurement equipment - Expression of performance
EN 60529	1991	Degrees of protection provided by enclosures (IP Code)
CR 1404	1994	Determination of emissions from appliances burning gaseous fuels during type testing
ISO Guide GUM		Guide to the expression of uncertainty in measurement

3 Definitions

For the purposes of this European Standard, basic definitions for statistical analyses are in line with those given in Subclause 2.1 of EN 60359. In addition, the following definitions apply.

3.1

domestic residential and commercial premises

any place of residence of a household, family or person (whether temporary or permanent) and commercial premises whether residential or not and including recreational boats, caravans and mobile homes

3.2

ambient air

normal atmosphere surrounding the apparatus

3.3

clean air

ambient air which is essentially free of flue gas and of interfering or contaminating substances

3.4

sensor

assembly in which the sensing element is housed and which may contain associated circuit components

3.5

sensing element

device, the output of which will change with variation of the parameter of interest

3.6

spot reading

apparatus intended to be used for short periods of time in the range of minutes, as required

3.7

volume ratio (V/V)

ratio of the volume of a component to the volume of the gas mixture under specified conditions of temperature, pressure and relative humidity

3.8

mains powered apparatus

apparatus designed to be powered by the domestic mains electrical supply with or without an additional power source