

Svenska Elektriska Kommissionen, SEK

Fastställt	Utgåva	Sida	Ingår i
2004-11-22	1	1 (1+10)	SEK Område 31

© Copyright SEK. Reproduction in any form without permission is prohibited.

Bärbara instrument för rökgasmätning – Del 3: Prestandafordringar på instrument för icke-föreskriven emissionskontroll i samband med underhåll av gaseldad utrustning

*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 heating appliances*

Som svensk standard gäller europastandarden EN 50379-3:2004. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50379-3:2004.

Nationellt förord

Standarden skall användas tillsammans med SS-EN 50379-1.

ICS 13.040.40; 91.140.10

Denna standard är fastställd av Svenska Elektriska Kommissionen, SEK, som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: SEK, Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00. Telefax: 08 - 444 14 30
E-post: sek@sekom.se. Internet: www.sekom.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknads acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

Svenska Elektriska Kommissionen, SEK, svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK

Box 1284
164 29 Kista
Tel 08-444 14 00
www.sekom.se

EUROPEAN STANDARD

EN 50379-3

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

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 3: Prescriptions
des caractéristiques des appareils utilisés
dans le service après-vente hors champ
réglementaire des appareils de chauffage
à gaz

Anforderungen an tragbare elektrische
Geräte zur Messung
von Verbrennungsparametern
von Heizungsanlagen
Teil 3: Anforderungen an
das Betriebsverhalten von Geräten
für den Einsatz im nicht-geregelten
Bereich bei Wartungen von gasbefeueften
Heizungsanlagen

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.

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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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 50379-3 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
-

Contents

Introduction	5
1 Scope	6
2 Normative references	6
3 Definitions.....	6
4 General requirements	7
5 Test methods and performance requirements.....	7
5.1 General requirements for tests.....	7
5.1.1 Samples and sequence of tests.....	7
5.1.2 Preparation of samples	7
5.1.3 Test facility	7
5.2 Normal conditions for tests.....	7
5.3 Mechanical tests	7
5.3.1 Degree of protection	7
5.3.2 Impact strength	7
5.3.3 Vibration	7
5.3.4 Drop.....	7
5.3.5 Flow indicator (if fitted).....	7
5.3.6 Dust filter and water trap.....	8
5.4 Electrical and software tests	8
5.4.1 EMC.....	8
5.4.2 Supply voltage variations (not applicable to battery powered apparatus).....	8
5.4.3 Battery fault condition (applicable only to battery powered apparatus).....	8
5.4.4 Battery reversal (applicable only to battery powered apparatus).....	8
5.4.5 Software and digital techniques.....	8
5.5 Tests with test gases	8
5.5.1 General.....	8
5.5.2 Unpowered storage	8
5.5.3 Initial performance	8
5.5.4 Response time	8
5.5.5 Cold start	8
5.5.6 Zero reading	8
5.6 Tests with real flue gases	9
5.6.1 General.....	9
5.6.2 Measurement uncertainty	9
5.6.3 Low temperature (applicable only to apparatus designed for outdoor use).....	9
5.6.4 Stability under practical conditions	9
5.6.5 Test of filter capacity.....	9
5.6.6 Final test with cylinder gases	9
5.6.7 Sensor replacement (where applicable).....	9
5.7 Calculated values	9
5.7.1 General.....	9
5.7.2 Calculation of CO ₂ gas volume ratio from O ₂ measurement	9
5.7.3 CO/CO ₂ ratio.....	9

5.8	Temperature	9
5.8.1	Temperature measurement (flue gas).....	9
5.8.2	Flue gas temperature response time	9
5.8.3	Temperature measurement (inlet air)	10
5.8.4	Inlet air temperature response time.....	10
5.8.5	Cold start	10
5.8.6	Thermocouple compensation.....	10
5.8.7	High temperature	10
5.9	Pressure	10
5.9.1	Pressure measurement (draught)	10
5.9.2	Pressure measurement (differential)	10

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 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.

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. Authorised inspectors use these apparatus to measure the flue gas parameters, in order to test the compliance with national regulations. Due to the legal consequences resulting from the measurement there are strict requirements regarding the measuring uncertainty of these apparatus. Therefore EN 50379-2 includes maximum values for measuring uncertainty of the apparatus. Tests with real flue gases form a key part of the verification of the performance of the apparatus for statutory measurement. The measuring uncertainty has to be justified by internationally accepted methods over the whole measuring range.

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 designed for checking the performance of heating appliances by measuring flue gas parameters of gas fired heating appliances for domestic residential and commercial applications.

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 the general requirements as specified in EN 50379-1 and the performance requirements of EN 50379-3.

This European Standard specifies the performance requirements of portable spot reading apparatus designed to detect specific combustion flue gas parameters, such as concentration of gaseous compounds, temperature and/or pressure, to be used to decide if maintenance for the appliance is required and for adjusting the appliance during maintenance.

This standard excludes apparatus for

- checking appliances using fuels other than gas,
- 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 shall be observed.

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 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 50379-1		Specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances - Part 1: General requirements and test methods
EN 60335-1	1994	Safety of household and similar electrical appliances - Part 1: General requirements
EN 60359	2002	Electrical and electronic measurement equipment - Expression of performance
EN 60529	1991	Degrees of protection provided by enclosures (IP Code)