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**Specifikacije za prenosne električne naprave za merjenje parametrov  
vnetljivosti izpušnega plina grelnih naprav - 2. del: Zahtevane lastnosti za  
naprave, ki se uporabljajo pri zakonsko predpisanem pregledovanju in  
ocenjevanju**

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

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**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**

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 2: Prescriptions des  
caractéristiques des appareils utilisés  
au cours des inspections et évaluations  
réglementaires

Anforderungen an tragbare elektrische  
Geräte zur Messung  
von Verbrennungsparametern  
von Heizungsanlagen  
Teil 2: Anforderungen an  
das Betriebsverhalten von Geräten  
für den Einsatz bei gesetzlich geregelten  
Messungen und Beurteilungen

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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 50379-2 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  
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  - latest date by which the national standards conflicting  
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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 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 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 if 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 to measure flue gas parameters of heating appliances for domestic residential and commercial applications using commercially available fuels in compliance with metrological specification.

The apparatus may consist of different functional modules that 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 50379-2.

This European Standard specifies the performance requirements of portable spot reading apparatus designed to give a measurement of specific combustion flue gas parameters such as concentration of gaseous compounds, temperature and/or pressure to be used for testing the compliance with national regulations for the above mentioned appliances.

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 shall be observed.

NOTE 2 Apparatus may contain functional modules that 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)

## 3 Definitions

For the purposes of this European Standard, the definitions of EN 50379-1 apply.



## 4 General requirements

Unless otherwise stated, the general requirements of EN 50379-1 are applicable and shall be checked by visual inspection.

## 5 Test methods and performance requirements

### 5.1 General requirements for tests

The requirements specified in Subclause 5.1 of EN 50379-1 are applicable.

#### 5.1.1 Samples and sequence of tests

For the purposes of type testing, one sample of the apparatus shall be subjected to the relevant tests given in 5.3 and 5.4, but a further sample may be used for the test in 5.3.4. A further sample, or the same if desired, may be used for the tests in 5.5, 5.7 and 5.8. Two samples shall be used for the tests in 5.6, of which one may be the sample used for the earlier tests.

NOTE At least two specimens are required for 5.6, to determine the standard deviation in performance between samples, in order to specify the measurement uncertainty and the reproducibility of the apparatus compared to reference analytical equipment, in accordance with international standards for mathematical procedures (ISO Guide GUM and EN 60359).

The tests in 5.3 to 5.5 may be performed in any sequence, but 5.6 to 5.8 shall be performed in the sequence listed in this standard, where relevant. For calculating the uncertainty in measurement during type testing, it may be necessary to obtain readings of measured values at a higher resolution than that displayed by the apparatus. If necessary, the manufacturer shall provide the means of obtaining such signals by modification of the apparatus used for type testing.

#### 5.1.2 Preparation of samples

The requirements specified in Subclause 5.1.2 of EN 50379-1 are applicable.

#### 5.1.3 Test facility

The requirements specified in Subclause 5.1.3 of EN 50379-1 are applicable.

### 5.2 Normal conditions for tests

The requirements specified in Subclause 5.2 of EN 50379-1 are applicable.

### 5.3 Mechanical tests

#### 5.3.1 Degree of protection

The enclosure of the apparatus shall provide at least an IP40 degree of protection when all probes etc. are connected, in accordance with Clauses 12 and 14 of EN 60529. If an apparatus is designed for outdoor use it shall provide at least an IP42 degree of protection when connected similarly.

#### 5.3.2 Impact strength

The apparatus shall meet the requirements specified in Clause 21 of EN 60335-1, as modified by Subclause 5.3.2 of EN 50379-1. The function of the apparatus shall not be affected after the test. Visible damage to parts of the housing are acceptable, providing the functionality remains unimpaired.

#### 5.3.3 Vibration

The apparatus shall meet the requirements for accuracy listed in Table 1 of EN 50379-1.