

| | | |
|------------|--|--|
| STN | Bezpečnostné a ovládacie zariadenia pre horáky a spotrebiče na plynne alebo kvapalné palivá. Snímacie prístroje spalín. | STN EN 16340 06 1822 |
|------------|--|--|

Safety and control devices for burners and appliances burning gaseous or liquid fuels - Combustion product sensing devices

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 11/14

Obsahuje: EN 16340:2014

119832

Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, odbor SÚTN, 2014
Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy
rozmnžovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 16340

June 2014

ICS 27.060.20

English Version

**Safety and control devices for burners and appliances burning
gaseous or liquid fuels - Combustion product sensing devices**

Dispositifs de commande et de sécurité pour brûleurs et
appareils utilisant des combustibles gazeux ou liquides -
Dispositifs de détection des produits de combustion

Sicherheits- und Regeleinrichtungen für Brenner und
Brennstoffgeräte für gasförmige oder flüssige Brennstoffe -
Abgasfühler

This European Standard was approved by CEN on 14 May 2014.

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.

CEN members are the national standards bodies of 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

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

Contents

Page

| | |
|---|----|
| Foreword..... | 5 |
| 1 Scope | 6 |
| 2 Normative references | 6 |
| 3 Terms and definitions | 6 |
| 4 Classification..... | 9 |
| 4.1 Classes of control..... | 9 |
| 4.2 Groups of control..... | 9 |
| 4.3 Classes of control functions | 9 |
| 5 Units of measurement and test conditions | 10 |
| 5.1 Dimensions..... | 10 |
| 5.2 Pressures..... | 10 |
| 5.3 Bending moments and torques..... | 10 |
| 5.4 Test conditions and measurement tolerances | 10 |
| 6 Construction requirements..... | 10 |
| 6.1 General..... | 10 |
| 6.2 Mechanical parts of the control..... | 10 |
| 6.3 Materials | 11 |
| 6.4 Gas connections | 14 |
| 6.5 Electronic parts of the control..... | 15 |
| 6.6 Protection against internal faults for the purpose of functional safety | 16 |
| 7 Performance | 18 |
| 7.1 General..... | 18 |
| 7.2 Leak-tightness..... | 19 |
| 7.3 Test for leak-tightness | 19 |
| 7.4 Torsion and bending | 22 |
| 7.5 Torsion and bending tests | 22 |
| 7.6 Rated flow rate | 22 |
| 7.7 Test for rated flow rate | 22 |
| 7.8 Durability | 22 |
| 7.9 Performance tests for electronic controls | 23 |
| 7.10 Long-term performance for electronic controls | 23 |
| 7.101 Operation of the CPSD | 24 |
| 7.102 Endurance | 35 |
| 8 EMC/Electrical requirements | 36 |

| | | |
|------|--|----|
| 8.1 | Protection against environmental influences..... | 36 |
| 8.2 | Supply voltage variations below 85 % of rated voltage | 36 |
| 8.3 | Short-term voltage interruptions and decreases | 36 |
| 8.4 | Supply frequency variations | 36 |
| 8.5 | Surge immunity test | 36 |
| 8.6 | Electrical fast transient/burst | 37 |
| 8.7 | Immunity to conducted disturbances | 37 |
| 8.8 | Immunity to radiated fields | 37 |
| 8.9 | Electrostatic discharge immunity test | 37 |
| 8.10 | Power frequency magnetic field immunity test..... | 37 |
| 8.11 | Electrical requirements..... | 37 |
| 9 | Marking, installation and operating instructions | 37 |
| 9.1 | Marking..... | 37 |
| 9.2 | Installation and operating instructions | 37 |
| 9.3 | Warning notice..... | 38 |
| | Annex A (informative) Gas connections in common use in the various countries..... | 39 |
| | Annex B (informative) Leak-tightness test — volumetric method | 40 |
| | Annex C (informative) Leak-tightness test — pressure loss method | 41 |
| | Annex D (normative) Conversion of pressure loss into leakage rate | 42 |
| | Annex E (normative) Electrical/electronic component fault modes | 43 |
| | Annex F (normative) Additional requirements for safety accessories and pressure accessories as defined in EU Directive 97/23/EC | 44 |
| | Annex G (normative) Materials for pressurized parts | 45 |
| | Annex H (informative) Additional materials for pressurized parts..... | 46 |
| | Annex I (normative) Requirements for controls used in DC supplied gas burners and gas burning appliances..... | 47 |
| | Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2009/142/EC relating to appliances burning gaseous fuels..... | 48 |
| | Bibliography..... | 50 |

Figures

| | |
|--|----|
| Figure 1 — CPSD coupled with combustion control system..... | 6 |
| Figure 2 — Clarification of definitions for CPSD..... | 7 |
| Figure 4 — Leak-tightness provided by the housing and mounting..... | 19 |
| Figure 5 — Test equipment for influence of leakage on measurement value..... | 20 |
| Figure 6 — Response times | 27 |
| Figure 7 — Alternative test equipment for response time | 28 |
| Figure 8 — Recovery time R90..... | 31 |

Tables

| | |
|---|-----------|
| Table 1 — Measurement uncertainties | 9 |
| Table 2 – material specification..... | 13 |
| Table 3 — Saturation vapour pressure..... | 32 |
| Table 4 — Interfering components and their concentration | 33 |
| Table ZA.1 — Correspondence between this European Standard and Directive (Directive 2009/142/EC relating to appliances burning gaseous fuels)..... | 47 |

Foreword

This document (EN 16340:2014) has been prepared by Technical Committee CEN/TC 58 “Safety and control devices for burners and appliances burning gaseous or liquid fuels”, the secretariat of which is held by BSI.

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 December 2014, and conflicting national standards shall be withdrawn at the latest by December 2014.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2009/142/EC.

For relationship with EU Directive 2009/142/EC, see informative Annex ZA, which is an integral part of this document.

This document is intended to be used in conjunction with EN 13611:2007+A2:2011. This document refers to clauses of EN 13611:2007+A2:2011 or adapts clauses by stating “with the following modification”, “with the following addition”, “is replaced by the following” or “is not applicable” in the corresponding clause. This European Standard adds clauses or subclauses to the structure of EN 13611:2007+A2:2011 which are particular to this standard. These clauses and subclauses are not indicated as an addition. i.e. subclauses or annexes which are additional to those in EN 13611:2007+A2:2011 are numbered starting from 101 or are designated as Annex AA, BB, CC etc. When referring to EN 13611:2007+A2:2011 the word “control” is understood as “combustion product sensing device”.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the safety, construction and performance requirements for combustion product sensing devices intended to be used in combustion control systems, hereinafter referred to as CPSD.

This European Standard applies to sensing devices for the measurement of combustion products from burners and appliances for domestic, commercial and industrial use burning:

- gaseous fuels according to EN 437; or
- liquid fuels having a viscosity at the burner inlet of 1,6 mm²/s (cSt) up to 6 mm²/s (cSt) at 20 °C, higher boiling petroleum based first raffinates (viscosity greater than 6 mm²/s), that require preheating for proper atomisation.

This European Standard applies to all types of stationary sensing devices measuring flue gas components O₂, CO, CO₂, H₂, C_xH_y, NO_x, SO₂ or for a combination of them (multiple gasses).

This European Standard applies also to sensing devices for extractive systems.

This European Standard does not cover sensor requirements for combustible gas, combustible gas mixture and oil quality.

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 1856-1:2009, *Chimneys - Requirements for metal chimneys - Part 1: System chimney products*

EN 10088-1:2005, *Stainless steels - Part 1: List of stainless steels*

EN 13611:2007+A2:2011, *Safety and control devices for gas burners and gas burning appliances - General requirements*

EN 14241-1, *Chimneys - Elastomeric seals and elastomeric sealants - Material requirements and test methods - Part 1: Seals in flue liners*

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN