

Kõrgele paigaldatavad ühe põletiga, soojust kiirgava toruga gaasküttega soojussüsteemid. Osa 1: Ohutus

Single burner gas-fired overhead radiant tube heaters for non-domestic use - Part 1: Safety

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 416-1:2009 sisaldab Euroopa standardi EN 416-1:2009 ingliskeelset teksti.

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English Version

Single burner gas-fired overhead radiant tube heaters for non-domestic use - Part 1: Safety

Tubes radiants suspendus à monob brûleur à usage non-domestique utilisant les combustibles gazeux - Partie 1: Sécurité

Gasgeräte-Heizstrahler - Dunkelstrahler mit einem Brenner mit Gebläse für gewerbliche und industrielle Anwendung - Teil 1: Sicherheit

This European Standard was approved by CEN on 10 January 2009.

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Foreword

This document (EN 416-1:2009) has been prepared by Technical Committee CEN/TC 180 “Domestic and non-domestic gas fired air heaters and non-domestic gas fired overhead radiant heaters”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

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 supersedes EN 416-1:1999.

This revision modifies EN 416-1:1999. It has been prepared to incorporate requirements for combustion products evacuation ducts, POCEDs, supplied as an integral part of the appliance to support EU Directive 89/106/EEC on construction products under Mandate M/105. To this end, it extends the scope of the standard to cover Type B₄ and B₅ appliances.

Furthermore, the opportunity presented by this amendment has been taken to update the standard in respect to EN 437:2003.

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 EC Directive(s).

For relationship with EC Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the requirements and test methods for the construction, safety, classification and marking of non-domestic gas fired overhead radiant tube heaters incorporating a single burner system under the control of an automatic burner control system, referred to in the body of the text as 'appliances'.

This standard is applicable to Type A₂, A₃, B₁₂, B₁₃, B₂₂, B₂₃, B₄₂, B₄₃, B₅₂, B₅₃, C₁₂, C₁₃, C₃₂ and C₃₃ appliances intended for use in other than domestic dwellings, in which the supply of combustion air and/or the evacuation of the products of combustion is achieved by mechanical means located upstream of the draught diverter, if provided.

This standard is not applicable to:

- a) appliances designed for use in domestic dwelling;
- b) outdoor appliances;
- c) appliances of heat input in excess of 120 kW (based on the net calorific value of the appropriate reference test gas);
- d) appliances having fully pre-mixed gas and air burners in which:
 - 1) either the gas and all the combustion air are brought together just before the level of the combustion zone; or
 - 2) the pre-mixing of the gas and all combustion air is carried out in a part of the burner upstream of the combustion zone;
- e) appliances that are designed for continuous condensation within the flue system under normal operating conditions;
- f) appliances having combustion products evacuation ducts that are non-metallic.

This standard is applicable to appliances which are intended to be type tested. It also includes requirements concerning the evaluation of conformity, including factory production control, but these requirements only apply to POCEs and their associated terminals.

NOTE Requirements for appliances which are not intended to be type tested would need to be subject to further consideration.

Requirements concerning the rational use of energy have not been included in this European Standard.

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 88-1:2007, *Pressure regulators and associated safety devices for gas appliances - Part 1: Pressure regulators for inlet pressures up to and including 500 mbar*

EN 126:2004, *Multifunctional controls for gas burning appliances*

EN 161:2007, *Automatic shut-off valves for gas burners and gas appliances*

EN 257:1992, *Mechanical thermostats for gas-burning appliances*

EN 298:2003, *Automatic gas burner control systems gas burners and gas burning appliances with or without fans*

EN 437:2003, *Test gases - Test pressures - Appliance categories*

EN 10226-1:2004, *Pipe threads where pressure-tight joints are made on the threads – Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation*

EN 10226-2:2005, *Pipe threads where pressure tight joints are made on the threads – Part 2: Taper external threads and taper internal threads - Dimensions, tolerances and designation*

EN 13410, *Gas-fired overhead radiant heaters - Ventilation requirements for non-domestic premises*

EN 60335-1:2002, *Household and similar electrical appliances - Safety - Part 1: General requirements*

EN 60335-2-102:2006, *Household and similar electrical appliances - Safety - Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections*

EN 60529:1992, *Degrees of protection provided by enclosures (IP Code)*

EN 60584-1:1995, *Thermocouples — Part 1: Reference tables*

EN 60584-2:1993, *Thermocouples — Part 2: Tolerances*

EN ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

EN ISO 3166-1:2006, *Codes for the representation of names of countries and their subdivisions – Part 1: Country codes (ISO 3166-1:2006)*

EN ISO 6976:2005, *Natural gas - Calculation of calorific values, density, relative density and Wobbe index from composition (ISO 6976:1995 including Corrigendum 1:1997, Corrigendum 2:1997 and Corrigendum 3:1999)*

ISO 274:1975, *Copper tubes of circular section — Dimensions*

ISO 7005-1:1992, *Metallic flanges - Part 1: Steel flanges*

ISO 7005-2:1988, *Metallic flanges - Part 2: Cast iron flanges*

ISO 7005-3:1988, *Metallic flanges - Part 3: Copper alloy and composite flanges*

CR 1404:1994, *Determination of emissions from appliances burning gaseous fuels during type-testing*

3 Definitions

For the purposes of this standard the following definitions apply:

3.1 Appliance and its constituent parts

3.1.1

overhead radiant tube heater

gas fired appliance intended for installation above head level which is designed to heat the space beneath by radiation by means of a tube or tubes, heated by the internal passage of combustion products

3.1.2

single burner systems

those radiant tube heaters which employ a single combustion system incorporating independent flame monitoring and combustion air fan

3.1.3

inlet connection

the part of the appliance intended to be connected to the gas supply

3.1.4

mechanical joint

means of ensuring the soundness of an assembly of several parts (e.g. metal to metal joints, conical joints, toroidal sealing rings ('O' rings), flat joints without the use of liquids (e.g. pastes and tapes)

3.1.5

gas circuit

part of the appliance that conveys or contains the gas between the appliance gas inlet connection and the burner(s)

3.1.6

restrictor

device with an orifice, which is placed in the gas circuit so as to create a pressure drop and thus reduce the gas pressure at the burner to a predetermined value for a given supply pressure and rate

3.1.7

gas rate adjuster

component allowing an authorised person to set the gas rate of the burner to a predetermined value according to the supply conditions

NOTE 1 Adjustment can be progressive (screw adjuster) or in discrete steps (by changing restrictors).

NOTE 2 The adjusting screw of an adjustable regulator is regarded as a gas rate adjuster.

NOTE 3 The action of adjusting this device is called 'adjusting the gas rate'.

NOTE 4 A factory sealed gas rate adjuster is considered to be non-existent.

3.1.8

setting an adjuster

immobilizing a gas rate adjuster by such means as e.g. a screw, after the gas rate has been adjusted by the manufacturer or installer