

VÄLJASPOOL KODUMAJAPIDAMIST KASUTAMISEKS  
MÕELDUD KÕRGELE PAIGALDATAVAD SOOJUST  
KIIRGAVA RIBAGA GAASKÜTTEGA KÜTTESEADMED JA  
MITME PÕLETIGA SOOJUST KIIRGAVA TORUGA  
GAASKÜTTEGA SOOJUSSÜSTEEMID. OHUTUS JA  
ENERGIATÕHUSUS

Gas-fired overhead radiant strip heaters and  
multi-burner continuous radiant tube heater systems  
for non-domestic use - Safety and energy efficiency  
(Corrected version 2019-12)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 17175:2019 sisaldab Euroopa standardi EN 17175:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 17175:2019 consists of the English text of the European standard EN 17175:2019.
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English Version

**Gas-fired overhead radiant strip heaters and multi-burner  
continuous radiant tube heater systems for non-domestic  
use - Safety and energy efficiency**

Bandes radiantes et systèmes à tubes radiants continus  
à brûleurs multiples suspendus à usage non  
domestique utilisant les combustibles gazeux - Sécurité  
et efficacité énergétique

Gasbefeuerte Strahlungsheizstreifen und  
Dunkelstrahlersysteme mit mehreren Brennern für  
gewerbliche und industrielle Anwendungen -  
Sicherheit und Energieeffizienz

This European Standard was approved by CEN on 26 August 2019.

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## European foreword

This document (EN 17175:2019) has been prepared by Technical Committee CEN/TC 180 “Decentralized gas heating”, 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of an identical text or by endorsement, at the latest by month year of DOP, and conflicting national standards shall be withdrawn at the latest by month year of DOW.

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

This document supersedes EN 416-1:2009, EN 416-2:2006 and EN 777-4:2009.

In comparison with the previous editions, the following technical modifications have been made:

- aspects of safety and energy efficiency of appliances are brought together;
- incorporation recent state of art of overhead radiant strips heaters and multi-burner continuous radiant tube heater systems;
- unique and more detailed description of method to determine radiant factor;
- incorporating terms and calculation scheme of Ecodesign Regulation (EU) No. 2015/1188;
- minimum requirements of an optional flue gas heat exchanger.

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(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



## 1 Scope

This document specifies the requirements and test methods for the construction, safety, classification, marking and efficiency of non-domestic gas-fired overhead radiant strips heaters and multi-burner continuous radiant tube heater systems (referred to in the body of the text as the “system”) with each burner unit under the control of an automatic burner control system.

For radiant strip heaters incorporating a single burner, this standard is applicable to Type B<sub>22</sub>, B<sub>23</sub>, B<sub>52</sub>, B<sub>53</sub>, C<sub>12</sub>, C<sub>13</sub>, C<sub>32</sub>, C<sub>33</sub>, C<sub>52</sub> and C<sub>53</sub> 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.

For multi-burner continuous radiant tube heater systems this standard is applicable to type B<sub>22</sub>, B<sub>52</sub>, and C<sub>52</sub> 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.

This document also includes appliances incorporating a secondary heat exchanger in the flue system.

This document is not applicable to:

- a) appliances designed for use in domestic dwelling;
- b) outdoor appliances;
- c) radiant strip heaters where the heat input is in excess of 300 kW (based on the net calorific value of the appropriate reference test gas);
- d) continuous radiant tube heater systems where the heat input of any individual burner unit is in excess of 70 kW (based on the net calorific value of the appropriate reference test gas);
- e) appliances having combustion products evacuation ducts that are non-metallic in the flue system – except ducts downstream of a possible additional condensing exhaust gas heat exchanger.

In addition, for heater systems incorporating multiple tube heaters this standard is not applicable to:

- f) appliances that are designed for continuous condensation within the flue system under normal operating conditions – except downstream a possible additional exhaust gas heat exchanger.

This document is applicable to appliances which are intended to be type tested.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 88-1:2011+A1:2016, *Pressure regulators and associated safety devices for gas appliances - Part 1: Pressure regulators for inlet pressures up to and including 50 kPa*

EN 126:2012, *Multifunctional controls for gas burning appliances*

EN 161:2011+A3:2013, *Automatic shut-off valves for gas burners and gas appliances*

EN 257:2010, *Mechanical thermostats for gas-burning appliances*

EN 298:2012, *Automatic burner control systems for burners and appliances burning gaseous or liquid fuels*

EN 437:2003+A1:2009, *Test gases - Test pressures - Appliance categories*

EN 1057:2006+A1:2010, *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1106:2010, *Manually operated taps for gas burning appliances*

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

EN 1859:2009+A1:2013, *Chimneys - Metal chimneys - Test methods*

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 12067-2:2004, *Gas/air ratio controls for gas burners and gas burning appliances - Part 2: Electronic types*

EN 13216-1:2004, *Chimneys - Test methods for system chimneys - Part 1: General test methods*

EN 13410:2001, *Gas-fired overhead radiant heaters - Ventilation requirements for non-domestic premises*

EN 14459:2015, *Safety and control devices for burners and appliances burning gaseous or liquid fuels - Control functions in electronic systems - Methods for classification and assessment*

EN 14597:2012, *Temperature control devices and temperature limiters for heat generating systems*

EN 14800:2007, *Corrugated safety metal hose assemblies for the connection of domestic appliances using gaseous fuels*

EN 60335-1:2012, *Household and similar electrical appliances - Safety - Part 1: General requirements (IEC 60335-1:2010)*

EN 60335-2-102:2016, *Household and similar electrical appliances - Safety - Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connection (IEC 60335-2-102:2004)s*

EN 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 60584-1:2013, *Thermocouples - Part 1: EMF specifications and tolerances (IEC 60584-1:2013)*

EN 60730-2-9:2010, *Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2008)*

EN 60751:2008, *Industrial platinum resistance thermometers and platinum temperature sensors (IEC 60751:2008)*

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 3166-1:2014, *Codes for the representation of names of countries and their subdivisions - Part 1: Country codes (ISO 3166-1:2013)*

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 7005-1:2011, *Pipe flanges — Part 1: Steel flanges for industrial and general service piping systems*

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

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

### 3 Terms, definitions and symbols

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1 System and its constituent parts

##### 3.1.1

##### **radiant strip**

gas fired appliance intended for installation above head level which is designed to heat the space beneath by radiation by means of a strip or large tubes with diameters from 105 – 400 mm, heated by the internal passage of recirculated combustion products, producing a max. surface temperature of the radiant strip tube of 400°C, the radiant strip tubes being thermally insulated on the top with a suitable and durable thermal isolation and thermally protected on the side

##### 3.1.2

##### **single burner heater**

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

##### 3.1.3

##### **multi-burner continuous radiant tube heater system**

any of the following:

- 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; or
- multi-burner continuous radiant tube heaters which employ two or more, in series and/or parallel connected, fully premixed gas/air burner units with each unit incorporating independent flame monitoring; or
- heaters in which individual units without fans are connected to a common duct with a fan. One or more burner units are situated in each branch tube (see Annex B)

Note 1 to entry: The units may be located in one or more sections of tubing. One or more fans may be used to assist in the evacuation of products of combustion or the supply of combustion air.

##### 3.1.4

##### **radiant strip tube**

strip or large tubes with diameters from 105 – 400 mm in which one burner unit is situated and which only contains the products of combustion generated by this burner