



SLOVENSKI STANDARD

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Pretočni plinski grelniki vode za pripravo tople sanitarne vode

Gas-fired instantaneous water heaters for the production of domestic hot water

Gasbeheizte Durchlauf-Wasserheizer für den sanitären Gebrauch

Appareils de production instantanée d'eau chaude pour usages sanitaires utilisant les combustibles gazeux

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Gas-fired instantaneous water heaters for the production of domestic hot water

Appareils de production instantanée d'eau chaude
pour usages sanitaires utilisant les combustibles
gazeux

Gasbeheizte Durchlauf-Wasserheizer für den sanitären
Gebrauch

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 48.

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COMITÉ EUROPÉEN DE NORMALISATION
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European Foreword

This document (prEN 26:2020) has been prepared by Technical Committee CEN/TC 48 “Domestic gas-fired water heaters”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

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, B, C or D, which is an integral part of this document.

This document will supersede EN 26:2015.

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 Regulation(s), see informative Annex ZA, Annex ZB or Annex ZC, which are integral parts of this document.

prEN 13203-2:2019 provides a means of conforming to the Commission Delegated Regulation (EU) No 812/2013 of 18 February 2013 supplementing Directive 2010/30/UE of the European Parliament and of the Council with regard to energy labelling of water heaters, hot water storage tanks and packages of water heaters and solar service, except on Sound power level (L_{WA}) covered by the present standard, see Clause 11.

prEN 13203-2:2019 provides a means of conforming to the Commission Regulation (EU) No 814/2013 of 2 August 2013 supplementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco design requirements for water heaters and hot water storage tanks, except on nitrogen oxides emissions (NO_x) covered by the present standard, see Clause 10.

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1 Scope

This document defines the specifications and test methods and also the classification, marking and energy labelling of gas-fired instantaneous water heaters for sanitary uses, hereafter called “water heaters”.

This document applies to water heaters:

- of types A, B and C;

NOTE For more information on the configuration of the types of appliances, see FprEN 1749:2019.

- using one or more combustible gases corresponding to the three gas families and at the pressures stated in accordance to EN 437;
- of nominal heat input not exceeding 70 kW based on the net calorific value (NCV);
- with an ignition burner or with direct ignition of the main burner.

In this document, the heat inputs are expressed in relation to the net calorific value (H_i).

This document does not contain all the requirements necessary for:

- boiling water appliances;
- appliances intended to be connected to a mechanical means of evacuating the combustion products;
- appliances which fulfil a dual role of space heating and heating water for sanitary use.

This document only covers water heaters where the fan, if any, is an integral part of the appliance.

This document is not intended to cover appliances designed and constructed to burn gas containing toxic components.

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 88-1:2011,¹ *Pressure regulators and associated safety devices for gas appliances — Part 1: Pressure regulators for inlet pressures up to and including 50 kPa*

EN 125+A1:2016, *Flame supervision devices for gas burning appliances — Thermoelectric flame supervision devices*

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

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

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

EN 437+A1:2009, *Test gases, test pressures, appliance categories*

¹ Impacted by EN 88 1:2011+A1:2016.

EN 513:2000, *Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors — Determination of the resistance to artificial weathering*

EN 549:1995, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 573-1:2005, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 1: Numerical designation system*

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

EN 1443:2003, *Chimneys — General requirements*

prEN 1749:2019, *European scheme for the classification of gas appliances according to the method of evacuation of the combustion products (types)*

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

EN 1856-2:2009, *Chimneys — Requirements for metal chimneys — Part 2: Metal flue liners and connecting flue pipes*

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

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

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 13203-1:2015, *Gas-fired domestic appliances producing hot water — Appliances not exceeding 70 kW heat input and 300 l water storage capacity — Part 1: Assessment of performance of hot water deliveries*

prEN 13203-2:2019, *Gas-fired domestic appliances producing hot water — Part 2: Assessment of the energy consumption*

EN 13216-1:2005, *Chimneys — Test methods for system chimneys — Part 1: General test methods*

EN 13501-1+A1:2013, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13611, 20017+A2:2011, *Safety and control devices for gas burners and gas burning appliances — General requirements*

EN 14241-1:2013, *Chimneys — Elastomeric seals and elastomeric sealants — Material requirements and test methods — Part 1: Seals in flue liners*

EN 14459:2015, *Control functions in electronic systems for gas burners and gas burning appliances — Methods for classification and assessment*

EN 14471:2013,² *Chimneys — System chimneys with plastic flue liners — Requirements and test methods*

² Impacted by EN 14471:2013+A1:2015

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EN 15036-1:2006, *Heating boilers — Test regulations for airborne noise emissions from heat generators — Part 1: Airborne noise emissions from heat generators*

EN 60335-1:2012, *Safety of household and similar electrical appliances — General requirements (IEC 60335-1:2010, modified)*

EN 60335-2-102:2016, *Electrical equipment of non-electric appliances for household and similar purposes — Safety requirements Check title (IEC 60335-2-102)*

EN 60529+A2:2014, *Degrees of protection provided by enclosures (IP code) (IEC 60529)*

EN 60730-2-9:2013, *Automatic electrical controls for household and similar use — Part 2: Particular requirements for heat sensing controls (IEC 60730-2-9)*

EN ISO 178+A1:2013, *Plastics — Determination of flexural properties (ISO 178)*

EN ISO 179-1:2010, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test (ISO 179-1)*

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)*

EN ISO 527-1:2012, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1)*

EN ISO 527-2:2012, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2)*

EN ISO 1183 (all parts), *Plastics — Methods for determining the density of non-cellular plastics (ISO 1183)*

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

EN ISO 9969:2016, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969)*

ISO 37:2012, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 188:2011, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 262:1998, *ISO general purpose metric screw threads — Selected sizes for screws, bolts and nuts*

ISO 301:2006, *Zinc alloy ingots intended for castings*

ISO 815-1:2014, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 1: At ambient or elevated temperatures*

ISO 1817:2015, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 2781:2008, *Rubber, vulcanized or thermoplastic — Determination of density*

ISO 6914:2013, *Rubber, vulcanized or thermoplastic — Determination of ageing characteristics by measurement of stress relaxation in tension*

ISO 7005 (all parts), *Pipe flanges*

ISO 7619-1:2010, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness – Part 1: Durometer method (Shore hardness)*

IEC 60417:2006, *Graphic symbols for use on equipment*

3 Terms and definitions

For the purpose 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

instantaneous water heater

appliance where the heating of water is directly dependent on the draw off

3.1.1

instantaneous water heater with fixed output

appliance where the burner operates at a fixed heat input

3.1.2

instantaneous water heater with adjustable output

appliance where the heat input can only be reduced by operation of the manual gas rate control incorporated in the appliance

3.1.3

instantaneous water heater with automatic output variation (AVO)

appliance where the gas rate varies automatically so as to keep the hot water temperature within a predetermined range when the water delivery rate varies

3.1.3.1

thermostatic appliance

appliance with automatic output variation where the gas rate is varied by a thermostatic device controlling the water temperature, the set point of this device being adjustable or non-adjustable

3.1.3.2

proportioning appliance

appliance with automatic output variation where the gas rate is varied proportionally to the water rate, the factor of proportionality may be adjustable

3.1.4

condensing instantaneous water heater

appliance in which under normal operating conditions and for normal inlet water temperatures the water vapour of the combustion products is partially condensed in order to use the latent heat of this water vapour to produce hot water

3.1.5

range of automatic output variation

range of useful outputs of an appliance with automatic output variation inside which the subordination of the gas rate to the water rate maintains the hot water temperature within a predetermined range when the water rate varies

prEN 26:2020 (E)**3.1.6****condensate**

liquid formed from the combustion products during the condensation process

3.2**characteristics of the gas and electricity supplies****3.2.1****reference condition**

these correspond to 15 °C, 1 013, 25 mbar, unless otherwise specified

[SOURCE: EN 437:2003+A1:2009, 3.9]

3.2.2**test gas**

gases intended for the verification of the operational characteristics of gas appliances. They consist of reference gases and limit gases

[SOURCE: EN 437:2003+A1:2009, 3.2]

3.2.2.1**reference gas**

test gases with which appliances operate under nominal conditions when they are supplied at the corresponding normal pressure

[SOURCE: EN 437:2003+A1:2009, 3.3] (standards.iteh.ai)

3.2.2.2**limit gas**

test gases representative of the extreme variations in the characteristics of the gases for which appliances have been designed

[SOURCE: EN 437:2003+A1:2009, 3.4]

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3.2.3

calorific value

quantity of heat produced by the complete combustion, at a constant pressure equal to 1 013,25 mbar, of a unit volume or mass of gas, the constituents of the combustible mixture being taken at reference conditions and the products of combustion being brought back to the same conditions

A distinction is made between:

- the gross calorific value H_s : the water produced by combustion is assumed to be condensed;
- the net calorific value H_i : the water produced by combustion is assumed to be in the vapour state

Note 1 to entry: The calorific value is expressed:

- either in megajoules per cubic metre (MJ/m³) of dry gas under the reference conditions;
- or in megajoules per kilogram (MJ/kg) of dry gas.

[SOURCE: EN 437:2003+A1:2009, 3.11]

3.2.4

relative density (d)

ratio of the masses of equal volumes of dry gas and dry air under the same conditions of temperature and pressure: 15 °C or 0 °C and 1 013,25 mbar

[SOURCE: EN 437:2003+A1:2009, 3.10]

3.2.5

Wobbe number (gross Wobbe index W_g ; net Wobbe index W_i)

ratio of the calorific value of a gas per unit volume and the square root of its relative density under the same reference conditions. The Wobbe index is said to be gross or net according to whether the calorific value used is the gross or net calorific value

Note 1 to entry: The Wobbe indices are expressed:

- either in megajoules per cubic metre (MJ/m³) of dry gas under the reference conditions
- or in megajoules per kilogram (MJ/kg) of dry gas.

[SOURCE: EN 437:2003+A1:2009, 3.12]

3.2.6

gas pressure (p)

all the pressures are static pressures of the moving gas, relative to the atmospheric pressure, measured at right angles to the direction of flow of the gas

3.2.6.1

test pressure

gas pressures used to verify the operational characteristics of gas appliances. They consist of normal and limit pressures

[SOURCE: EN 437:2003+A1:2009, 3.5]