SLOVENSKI STANDARD
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Plinske gospodinjske kurilne naprave za pripravo tople sanitarne vode - 1. del: Ocenjevanje zmogljivosti priprave tople vode

Gas fired domestic appliances producing hot water - Part 1: Assessment of performance of hot water deliveries

Appareils domestiques produisant de l'eau chaude sanitaire utilisant les combustibles gazeux - Partie 1: Evaluation de la performance en puisage d'eau chaude

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Gas fired domestic appliances producing hot water - Part 1: Assessment of performance of hot water deliveries

Appareils domestiques produisant de l'eau chaude sanitaire utilisant les combustibles gazeux - Partie 1: Evaluation de la performance en puisage d'eau chaude

This draft European Standard is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 109.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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Foreword

This document (FprEN 13203-1:2015) has been prepared by Technical Committee CEN/TC 109 “Central heating boilers using gaseous fuels”, the secretariat of which is held by NEN.

This document is currently submitted to the Unique Acceptance Procedure.

This document will supersede EN 13203-1:2006.

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.

The main changes in this revision are the following:

— The title of this standard has been changed to: "Gas fired domestic appliances producing hot water — Part 1: Assessment of performance of hot water deliveries";

— "heat input not exceeding 70 kW" was removed from the title but remains unchanged in the scope;

— "300 litres water storage" has been removed from the title and the scope is changed as following: hot water storage capacity (if any) not exceeding 500 l;

— A new Clause 7 is added: "7 Eco design Related Products Data";

— An informative Annex ZA is added for the relationship between this European Standard and the requirements of Commission Regulation (EC) n° 814/2013.

NOTE Useful standards are EN 26, EN 89, EN 15502-1, EN 15502-2-1 and EN 15502-2-2.

1 Scope

This document is applicable to gas-fired appliances producing domestic hot water. It applies to both instantaneous and storage appliances; water-heaters and combination boilers that have:

— heat input not exceeding 70 kW; and

— hot water storage capacity (if any) not exceeding 500 l.

In the case of combination boilers, with or without storage tank, domestic hot water production is integrated or coupled, the whole being marketed as a single unit.

The present document sets out in qualitative and quantitative terms the performance in delivery of domestic hot water for a selected variety of uses. It also gives a system for presenting the information to the user.

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.

Not applicable.

3 Terms and definitions

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

3.1
control cycle
time cycle for keeping components and/or the hot storage water tank (if any) of the domestic hot water circuit at predetermined temperature level, consists of an «ON» duration time during which the heating of the domestic hot water (by gas energy and auxiliary energy) is operating, and an «OFF» duration time during which no heating occurs

3.2
domestic water mean temperature
average temperature of the water delivered during the time Δt

$$T_m = \frac{1}{\Delta t}\int T \cdot dt$$

Note 1 to entry: SYMBOL = T_m

3.3
domestic water test temperature
temperature of the delivered water at which the tests are conducted

3.4
storage tank
reservoir for domestic hot water

3.5
kitchen specific rate
domestic hot water rate corresponding to a mean temperature rise of 45 K that the appliance can supply

Note 1 to entry: SYMBOL = D_C

Note 2 to entry: D_c is expressed in litre per minute (l/min)

3.6
minimum declared water rate
lowest water rate stated by the manufacturer maintaining a stable temperature

Note 1 to entry: SYMBOL = D_m

Note 2 to entry: D_m is expressed in litre per minute (l/min)

3.7
nominal domestic hot water heat input
value of the heat input stated by the manufacturer for the production of domestic hot water

Note 1 to entry: SYMBOL = Q_{nw}

Note 2 to entry: Q_{nw} is expressed in kilowatt (kW)

3.8
overall performance factor
numerical value used to quantify the overall performance associated with domestic hot water use, corresponding to the sum of the products of the particular performance factors multiplied by the weighting coefficients

Note 1 to entry: SYMBOL = F

$$F=\sum_{i=1}^{n} a_i . f_i$$

3.9
particular performance factor
numerical value which quantifies each of the performance criteria listed in Table 1

Note 1 to entry: SYMBOL = f_i

3.10
specific rate
domestic hot water rate declared by the manufacturer corresponding to a mean temperature rise of 30 K that the appliance can supply in two successive delivery periods

Note 1 to entry: SYMBOL = D

Note 2 to entry: D is expressed in litre per minute (l/min)

3.11
summer mode
conditions during which the appliance supplies energy only for the production of domestic hot water

3.12
tapping capability
hot water delivery rate, declared by the manufacturer, at which water can be drawn off for a specified time or times (5 ; 10 ; 20 min or continuous) with a predetermined temperature rise

Note 1 to entry: SYMBOL = R

Note 2 to entry: R is expressed in litre per minute (l/min)

3.13
temperature fluctuation at a constant water rate
difference between the minimum and maximum water temperatures that can occur during delivery at a constant water rate with a constant inlet temperature

Note 1 to entry: SYMBOL = ΔT_2

Note 2 to entry: ΔT_2 is expressed in Kelvin (K)

3.14
temperature fluctuation between successive deliveries
maximum domestic hot water temperature difference between successive deliveries

Note 1 to entry: SYMBOL = ΔT_3

Note 2 to entry: ΔT_3 is expressed in Kelvin (K)

3.15
temperature stabilization time following a variation of the water flow rate
time taken to obtain a predetermined fluctuation, following a rapid variation of the water flow rate

Note 1 to entry: SYMBOL = t_s

Note 2 to entry: t_s is expressed in second (s)

3.16
temperature variation according to water rate
variation of the mean hot water temperature consequent upon variations of the water flow rate

Note 1 to entry: SYMBOL = ΔT_1

Note 2 to entry: ΔT_1 is expressed in Kelvin (K)

3.17
waiting time
time taken to reach, at appliance outlet**,** 90 % of the domestic hot water temperature rise of 45 K without subsequently falling below 34 K

Note 1 to entry: SYMBOL = t_m

Note 2 to entry: t_m is expressed in second (s)

3.18
weighting coefficient
numerical coefficient used to quantify the importance given to each particular performance factor in connection with the use of domestic hot water

Note 1 to entry: SYMBOL = a_i

3.19
rapid response thermometer
measuring instrument with a response time such that 90 % of the final temperature rise, from 15 °C to 100 °C, is obtained within about 1 s, when the sensor is plunged into still water