



SLOVENSKI STANDARD
SIST EN 13203-7:2022

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**Plinske gospodinjske naprave za pripravo tople sanitarne vode - 7. del:
Ocenjevanje rabe energije kombiniranih naprav s prigradenimi napravami za
vračanje toplote iz dimnih plinov**

Gas-fired domestic appliances producing hot water - Part 7: Assessment of energy consumption of combination boilers equipped with a passive flue heat recovery device

Gasgeräte für die häusliche Warmwasserbereitung - Teil 7: Bewertung des Energieverbrauchs von Kombigeräten, ausgerüstet mit einer passiven Vorrichtung zur Wärmerückgewinnung im Abgasschacht

Appareils domestiques produisant de l'eau chaude sanitaire utilisant les combustibles gazeux - Partie 7 : Évaluation de la consommation énergétique d'une chaudière à deux services équipée d'un dispositif passif de récupération de la chaleur dans les produits de combustion

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Gas-fired domestic appliances producing hot water - Part 7: Assessment of energy consumption of combination boilers equipped with a passive flue heat recovery device

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

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EN 13203-7:2022 (E)**European foreword**

This document (EN 13203-7:2022) has been prepared by Technical Committee CEN/TC 109 “Central heating boilers using gaseous fuels”, the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by February 2023, and conflicting national standards shall be withdrawn at the latest by February 2023.

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.

The main purpose of this revision is to provide a means of conforming to requirements of Commission Delegated Regulation (EC) n°813/2013, (EC) n° 811/2013, (EC) n° 812/2013 and (EC) n° 814/2013.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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.

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Introduction

This document refers to clauses of EN 13203-2:2022 or adapts clauses by stating in the corresponding clause, on the principle:

- shall be according to EN 13203-2:2022, (clause number) with the following modification;
- shall be according to EN 13203-2:2022, (clause number) with the following addition;
- EN 13203-2:2022, (clause number) is replaced with the following;
- EN 13203-2:2022, (clause number) is not applicable.

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EN 13203-7:2022 (E)

1 Scope

This document is applicable to gas-fired appliances producing domestic hot water. It applies to condensing combination boilers with passive flue heat recovery device (PFHRD) that have:

- a heat input not exceeding 400 kW;
- a hot water storage tank capacity (if any) not exceeding 2 000 l;
- a declared load profile between M to 4XL.

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.

For this document, some tests and calculation results of EN 13203-2:2022 are used to calculate the energy consumptions.

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 13203-1:2015, *Gas fired domestic appliances producing hot water — Part 1: Assessment of performance of hot water deliveries*

EN 13203-2:2022, *Gas-fired domestic appliances producing hot water — Part 2: Assessment of energy consumption*

3 Terms and definitions

<https://standards.itih.ai/catalog/standards/sist/75c9744c-35bb-40f7-87ca-8d5c79ff9151/sist-EN-13203-7-2022>
 For the purposes of this document, the terms and definitions given in EN 13203-2:2022, Clause 3, with and the following additions apply:

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

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

3.1

direct PFHRD contribution

energy recovered from the flue gases during domestic hot water production and used to preheat the cold domestic water

3.2

indirect PFHRD contribution

energy recovered from the flue gases during central heating production, then stored and used to preheat the cold domestic water

3.3

nominal average heat inputs (Q_a)

arithmetic mean of the adjustable maximum and minimum nominal heat input (kW) as declared by the technical documentation for range rating appliances

3.4**Passive Flue Heat Recovery Device (PFHRD)**

device integrated in the appliance or supplied with the appliance to transmit recovered heat to cold domestic hot water

3.5**thermal bridge**

transfer of recovered heat to the PFHRD when the boiler is running in central heating mode by anything else than heat from the flue gasses

4 General test conditions**4.1 Reference condition**

Shall be according to EN 13203-2:2022, 4.1.

4.2 Measurement uncertainties**4.2.1 General**

Shall be according to EN 13203-2:2022, 4.2.1.

4.2.2 Steady-state conditions

Shall be according to EN 13203-2:2022, 4.2.2.

4.3 Test conditions**4.3.1 General**

Shall be according to EN 13203-2:2022, 4.3.1, with the following modification:

The following sentence is not applicable:

“For combination gas boiler, the tests shall be carried out only in summer mode as defined in 3.3, and the appliance shall be set in summer mode.”.

The following sentence is modified as follows:

“The load profile used for the measurement shall be the one declared in the technical instruction of the appliance”.

4.3.2 Test room

Shall be according to EN 13203-2:2022, 4.3.2.

4.3.3 Water supply

EN 13203-2:2022, 4.3.3 is replaced with the following:

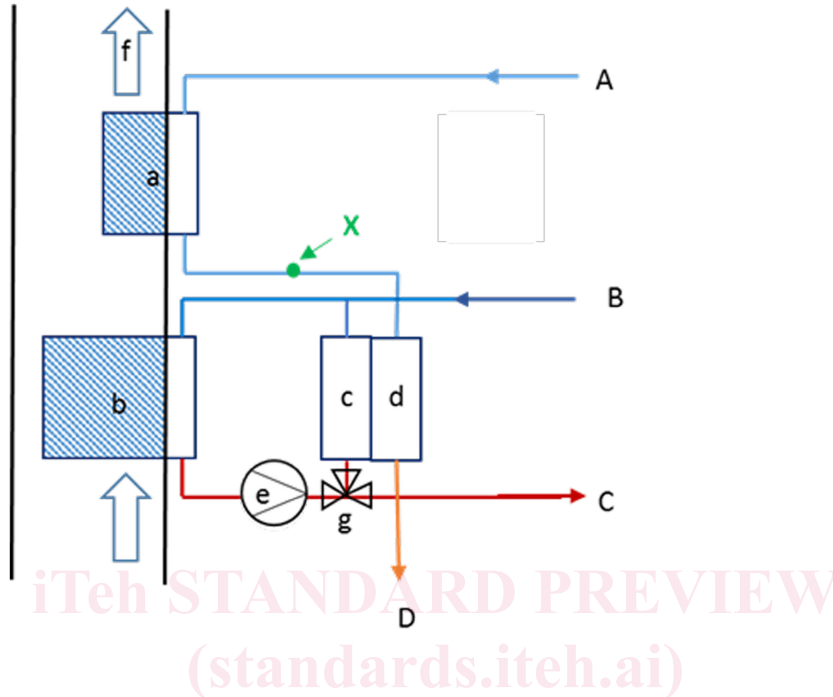
“For the tests:

- The domestic water pressure is the static water inlet pressure measured as close as possible to the product.
- The inlet temperatures are measured immediately upstream of the cold water inlet connection in the axis of the flow.
- An additional (rapid response) sensor X shall be placed immediately in the domestic water outlet of the PFHRD construction. This sensor shall be situated in the axis of the flow. If the PFHRD is an

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integrated part of the boiler, an adapter is needed to install the temperature sensor X. The technical documentation shall give a figure of this adapter. The appliance under test shall be fitted with an adapter that is supplied with the appliance accessories.

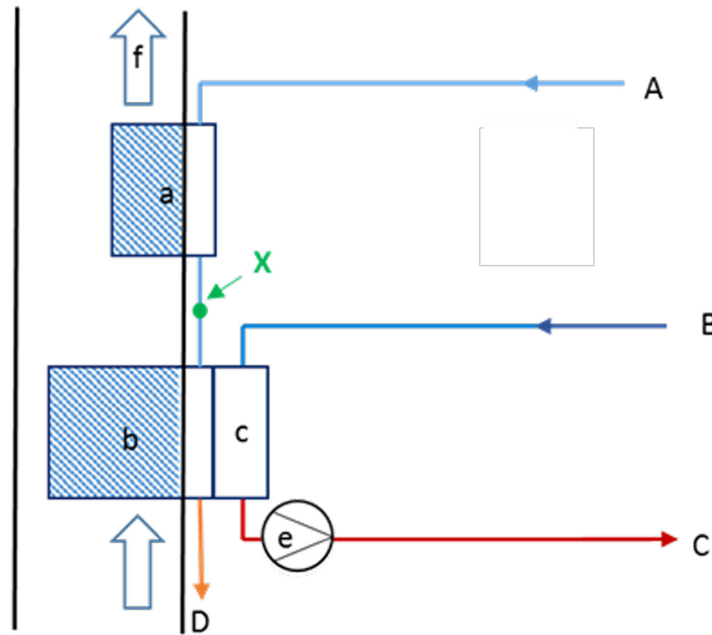
Water temperatures shall be measured with a rapid response temperature sensor.



Key

a	PFHRD	X	rapid temperature sensor
b	boiler		
c	heat exchanger (CH circuit)	B	DHW in
d	heat exchanger (DHW circuit)	C	CH in
e	CH pump	D	CH out
f	flue		
g	3 way valve		

Figure 1 — Position of the X sensor for boilers with separated secondary heat exchanger

**Key**

a	PFHRD	X	temperature measurement point
b	boiler	A	DHW in
c	heat exchanger (CH circuit)	B	CH in
e	CH pump	C	CH out
f	flue	D	DHW out

Figure 2 — Position of the X sensor for boilers with integrated secondary heat exchanger”.

4.3.4 Initial adjustment of the appliance

Shall be according to EN 13203-2:2022, 4.3.4 with the following modification:

“Load profile XS is not applicable.”.

4.3.5 Conditions for the determination of the maximum load profile

EN 13203-2:2022, 4.3.5 is not applicable.

4.3.6 Electrical supply

Shall be according to EN 13203-2:2022, 4.3.6.

The following new Clause 5 is added: “

5 Determination of applicability of the present standard

To ensure that the appliance is in the scope of this standard it shall be proved that during central heating production there is no significant heat transfer to the PFHRD construction.

This heat transfer can be caused by a so called “thermal bridge” where conduction, convection (even by self-circulation in a single tube with a net water flow of zero) and radiation during the production of central heating water can occur.