GAASKÜTTEGA VEEKUUMUTUSSEADMED KODUMAJAPIDAMISES. OSA 3: PÄIKESETOEGA GAASKÜTTEGA SEADMETE ENERGIATARBIMISE HINDAMINE

Gas-fired domestic appliances producing hot water - Part 3: Assessment of energy consumption of solar supported gas-fired appliances

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13203-3:2022 sisaldab Euroopa standardi EN 13203-3:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 13203-3:2022 consists of the English text of the European standard EN 13203-3:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 10.08.2022.	Date of Availability of the European standard is 10.08.2022.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English Version

Gas-fired domestic appliances producing hot water - Part 3: Assessment of energy consumption of solar supported gas-fired appliances

Appareils domestiques produisant de l'eau chaude sanitaire utilisant les combustibles gazeux - Partie 3 : Évaluation de la consommation énergétique des appareils utilisant les combustibles gazeux couplés à un capteur solaire

Gasgeräte für die häusliche Warmwasserbereitung - Teil 3: Bewertung des Energieverbrauchs solargestützter Gasgeräte

This European Standard was approved by CEN on 13 June 2022.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 13203-3:2022) 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.

This document supersedes EN 13203-3:2010.

The main technical changes compared to EN 13203-3:2010 are directly aligned with evolutions of EN 13203-2, and are the following:

— improvement of editorial errors;

— incorporation of ECOTESTS results.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association.

NOTE The present document does not meet the requirement in Regulation n° 814/2013, Annex III measurement, point 4 - Conditions for testing solar water heaters which states: “The solar collector, solar hot water storage tank, pump in the collector loop (if applicable) and heat generator shall be tested separately...”. The basis of the present document is that the parts are tested simultaneously, under one set of ambient conditions. The same applies to Regulation n° 812/2013, Annex VII, point 4.

The safety operation of the boiler is not covered by this document. Safety is proved by means of the essential safety requirements of the Gas Appliances Regulation n°426/2016/UE. This way be achieved by compliance with the appropriate existing harmonized standards.

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.

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 by the following;

— EN 13203-2:2022, (clause number) is not applicable.

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 solar supported gas-fired appliances producing domestic hot water. It applies to a system marketed as single unit or a fully specified system that:

— has a gas heat input not exceeding 70 kW;

— has a hot water storage tank capacity not exceeding 500 l;

— is equipped with at least one solar collector;

— is, with regard to the solar hydraulic circuit, considered as a forced circulation system (definition according to EN ISO 9488:1999).

The appliances covered by this document are described in Annex E (normative).

This document does not apply to thermo-siphon or integral collector storage tank systems according to definitions given by EN ISO 9488:1999.

NOTE In principle, the energy consumption of thermo-siphon solar preheat systems and integral collector storage tank preheat systems can also be assessed based on this document. One appropriate procedure for that purpose is to calculate the temperature level of the domestic hot water withdrawn from the thermal solar system for the reference conditions specified in this standard by using the numerical system model and the thermal solar system performance parameters according to ISO 9459-5. Based on the temperature level of the hot water withdrawn from the store the energy consumption of the gas appliance is determined. This determination can either be done by means of calculations or by performing a test according to EN 13203-2:2022 and using instead of the cold water inlet temperature the hot water temperature withdrawn from the store.

This document is not intended to assess the performance:

— of the solar collector(s), which should comply with EN 12975-1:2006+A1:2010 and EN 12975-2:2006;

— of thermal solar systems and components, which should comply with EN 12976-1:2021 and EN 12976-2:2019.

EN 13203-1:2015 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 presenting the information to the user.

The present document sets out a method for assessing the energy performance of a solar supported appliance. It specifies a few daily tapping cycles for each domestic hot water use, kitchen, shower, bath and a combination of these, together with corresponding test procedures including information about the available solar radiation. It enables the energy performances of different gas-fired appliances to be compared and matched to the needs of the user.

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.

Shall be according to EN 13203-2:2022, Clause 2, with the following additions:

EN 12975-1:2006+A1:2010, *Thermal solar systems and components — Solar collectors — Part 1: General requirements*

EN 12975-2:2006, *Thermal solar systems and components — Solar collectors — Part 2: Test methods*

EN 12976-1:2021, *Thermal solar systems and components — Factory made systems — Part 1: General requirements*

EN 12976-2:2019, *Thermal solar systems and components — Factory made systems — Part 2: Test methods*

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

For the purposes of this document, the terms and definitions given in EN 13203-2:2022, Clause 3 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
aperture area of solar collector
maximum projected area through which solar radiation enters the collector

Note 1 to entry: See definition and explanation according to EN ISO 9488:1999.

3.2
controls
all hydraulic, thermal and electronic components necessary for the operation of the system

3.3
solar collector field
either one or a combination of more than one solar collector

3.4
solar collector simulator
device delivering the thermal power to the system (store) instead of a real solar collector based on the solar collector efficiency parameters according to EN 12975-2:2006

Note 1 to entry: The solar collector simulator is described in Annex D (informative).

3.5
solar collector simulator circuit
circuit containing the piping, the pump, the controls, the heat-exchanger and the collector solar simulator

3.6
solar cycle
day of a year representative for middle European climate conditions

Note 1 to entry: The total daily radiation of that day is 3,0 kWh/m^2 and the mean value of the outdoor ambient temperature is 6,7 °C.