

GAASKÜTTEGA VEEKUUMUTUSSEADMED
KODUMAJAPIDAMISES. OSA 2: ENERGIATARBIMISE
HINDAMINE

Gas-fired domestic appliances producing hot water -
Part 2: Assessment of energy consumption

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13203-2:2018 sisaldab Euroopa standardi EN 13203-2:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 13203-2:2018 consists of the English text of the European standard EN 13203-2:2018.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 05.12.2018.	Date of Availability of the European standard is 05.12.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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

ICS 91.140.65

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Gas-fired domestic appliances producing hot water - Part 2: Assessment of energy consumption

Appareils domestiques produisant de l'eau chaude
sanitaire utilisant les combustibles gazeux - Partie 2 :
Évaluation de la consommation énergétique

Gasbeheizte Geräte für die sanitäre
Warmwasserbereitung für den Hausgebrauch - Teil 2:
Bewertung des Energieverbrauchs

This European Standard was approved by CEN on 26 October 2018.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

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

Contents	Page
European foreword.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	6
4 General test conditions	8
4.1 Reference conditions	8
4.2 Measurement uncertainties	8
4.2.1 General.....	8
4.2.2 Steady state conditions	9
4.3 Test conditions.....	9
4.3.1 General.....	9
4.3.2 Test room	9
4.3.3 Water supply.....	9
4.3.4 Initial adjustment of the appliance.....	10
4.3.5 Conditions for the determination of the maximum load profile.....	10
4.3.6 Electrical supply	10
5 Determination of the energy consumption of the appliance.....	11
5.1 General.....	11
5.2 Load profiles	11
5.3 Determination of the energy recovered by the useful water	18
5.4 Calculation of gas energy.....	19
5.4.1 Calculation of daily gas energy consumption in summer mode.....	19
5.4.2 Calculation of daily gas energy consumption in winter mode.....	19
5.4.3 Daily gas energy consumption seasonally weighted.....	20
5.5 Calculation of daily electrical energy consumption	20
5.6 Measurement of energy consumption in standby mode.....	21
5.6.1 General.....	21
5.6.2 Calculation of daily gas energy consumption in standby mode	21
5.6.3 Calculation of daily auxiliary electrical energy consumption in standby mode	22
5.7 Determination of daily auxiliary electrical energy consumption in off mode.....	22
6 Determination of the ratio of wasted water to total water.....	22
7 Eco design Related Products Data.....	23
7.1 Water heating energy efficiency	23
7.2 Annual fuel consumption (AFC).....	24
7.3 Annual electricity consumption (AEC)	25
7.4 Mixed water at 40°C (V40) for storage water heaters	25
Annex A (informative) Test conditions	28
Annex B (informative) Test rig and measurement devices	31
B.1 General.....	31
B.2 Pressure measurement.....	32
B.3 Temperature measurement.....	32

Annex C (informative) Declaration of the Maximum Load Profile.....	36
Annex ZA (informative) Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) n° 814/2013 [OJEU L239 of 6 September 2013] aimed to be covered	37
Annex ZB (informative) Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 812/2013 [OJEU L239 of 6 September 2013] aimed to be covered	38
Annex ZC (informative) Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) n° 813/2013 [OJEU L239 of 6 September 2013] aimed to be covered	39
Annex ZD (informative) Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 811/2013 [OJEU L239 of 6 September 2013] aimed to be covered	40
Bibliography	41

European foreword

This document (EN 13203-2:2018) 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 June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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 13203-2:2015.

The main technical changes compared to EN 13203-2:2015 are the following:

- improvement of the test conditions (e.g. water supply, initial adjustment of the appliance);
- addition of further load profile XS for small appliances;
- addition of new clause dealing with mixed water at 40°C (V40) for storage water heaters and corresponding complement to Annex ZA (informative);
- addition of new Annex C (informative) dealing with the declaration of the maximum load profile.

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.

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 Regulation(s).

For relationship with EU Directive(s), see informative Annex ZA, ZB, ZC or ZD, which are 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The safety operation of the boiler or water heater is not covered by this standard. Safety should be proved by means of the essential safety requirements of the Gas Appliances Regulation 2016/426/UE. This may be achieved by compliance with the appropriate existing harmonized standards.

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 tank appliances; waters-heaters and combination boilers that have:

- a heat input not exceeding 400 kW; and
- a hot water storage tank capacity (if any) not exceeding 2000 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.

EN 13203-1 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. The present document sets out a method for assessing the energy performance of the appliances. It defines a number of daily load profiles for each domestic hot water use, kitchen, shower, bath and a combination of these, together with corresponding test procedures, enabling the energy performances of different gas-fired appliances to be compared and matched to the needs of the user. Where other technologies are combined with a gas-fired boiler or a water heater to produce domestic hot water, specific parts of EN 13203 apply.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

storage tank

reservoir for domestic hot water

3.2

nominal domestic hot water heat input (Q_{nw})

value of the heat input for the production of domestic hot water stated in the instructions

- Symbol: Q_{nw}
- Unit: kilowatt (kW)

3.3

summer mode

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

3.4

winter mode

conditions during which the combination boiler supplies energy for the production of domestic hot water and space heating