

<b>STN</b>	<b>Spotřebiče na přípravu teplej úžitkovej vody pre domácnosť spaľujúce plynné palivo Časť 5: Posudzovanie spotreby energie spotřebičov spaľujúcich plynné palivo v kombinácii s elektrickým tepelným čerpadlom</b>	<b>STN EN 13203-5</b>  06 1012
------------	---	--

Gas-fired domestic appliances producing hot water - Part 5: Assessment of energy consumption of gas-fired appliances combined with electrical heat pump

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/22

Obsahuje: EN 13203-5:2022

Oznámením tejto normy sa ruší  
STN EN 13203-5 (06 1012) z júna 2019

**135761**



EUROPEAN STANDARD

EN 13203-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2022

ICS 91.140.65

Supersedes EN 13203-5:2018

English Version

## Gas-fired domestic appliances producing hot water - Part 5: Assessment of energy consumption of gas-fired appliances combined with electrical heat pump

Appareils domestiques produisant de l'eau chaude sanitaire utilisant les combustibles gazeux - Partie 5 : Évaluation de la consommation énergétique des appareils utilisant les combustibles gazeux combinés à une pompe à chaleur électrique

Gasbefeuerte Geräte zur Warmwasserbereitung für den Hausgebrauch - Teil 5: Bewertung des Energieverbrauchs von gasbefeuerten Geräten in Kombination mit elektrischer Wärmepumpe

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

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, 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 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

**EN 13203-5:2022 (E)**

<b>Contents</b>	<b>Page</b>
<b>European foreword</b> .....	<b>4</b>
<b>Introduction</b> .....	<b>5</b>
<b>1 Scope</b> .....	<b>6</b>
<b>2 Normative references</b> .....	<b>6</b>
<b>3 Terms and definitions</b> .....	<b>6</b>
<b>4 General test conditions</b> .....	<b>7</b>
<b>4.1 Reference conditions</b> .....	<b>7</b>
<b>4.2 Measurement uncertainties</b> .....	<b>9</b>
<b>4.2.1 General</b> .....	<b>9</b>
<b>4.2.2 Steady-state conditions</b> .....	<b>9</b>
<b>4.3 Test conditions</b> .....	<b>9</b>
<b>4.3.1 General</b> .....	<b>9</b>
<b>4.3.2 Test room</b> .....	<b>10</b>
<b>4.3.3 Water supply</b> .....	<b>10</b>
<b>4.3.4 Initial adjustment of the appliance</b> .....	<b>10</b>
<b>4.3.5 Conditions for the determination of the maximum load profile</b> .....	<b>10</b>
<b>4.3.6 Electrical supply</b> .....	<b>11</b>
<b>5 Determination of the energy consumption of the appliance</b> .....	<b>11</b>
<b>5.1 General</b> .....	<b>11</b>
<b>5.1.1 Filling of the storage</b> .....	<b>12</b>
<b>5.1.2 Stabilization at cold</b> .....	<b>13</b>
<b>5.1.3 Heating up time [M1]</b> .....	<b>13</b>
<b>5.1.4 Standby gas and electrical power input [M2]</b> .....	<b>14</b>
<b>5.1.5 Standby power input in primary energy</b> .....	<b>16</b>
<b>5.2 Load profiles (M3)</b> .....	<b>16</b>
<b>5.3 Determination of the energy recovered by the useful water</b> .....	<b>16</b>
<b>5.4 Calculation of gas energy</b> .....	<b>16</b>
<b>5.5 Calculation of daily electrical energy consumption</b> .....	<b>17</b>
<b>5.6 Measurement of energy consumption in standby mode</b> .....	<b>20</b>
<b>5.7 Determination of daily auxiliary electrical energy consumption in off mode</b> .....	<b>20</b>
<b>6 Determination of the ratio of wasted water to total water</b> .....	<b>20</b>
<b>7 Eco design Related Products Data</b> .....	<b>20</b>
<b>7.1 Water heating energy efficiency</b> .....	<b>20</b>
<b>7.2 Smart control factor (SCF) and smart</b> .....	<b>21</b>
<b>7.3 Annual fuel consumption (AFC)</b> .....	<b>21</b>
<b>7.4 Annual electricity consumption (AEC)</b> .....	<b>21</b>
<b>Annex A (informative) Test conditions</b> .....	<b>23</b>
<b>Annex B (informative) Examples of test rig and measurement devices</b> .....	<b>24</b>
<b>Annex C (informative) Declaration of the Maximum Load Profile</b> .....	<b>25</b>
<b>Annex D (informative) Packages covered by the present European standard</b> .....	<b>26</b>
<b>Annex E (informative) Additional performance data</b> .....	<b>30</b>

<b>E.1</b>	<b>Coefficient of primary energy performance or primary energy yield (PER)</b> .....	<b>30</b>
<b>E.2</b>	<b>Total consumption of primary energy</b> .....	<b>30</b>
<b>Annex ZA</b> (informative)	<b>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</b> .....	<b>31</b>
<b>Annex ZB</b> (informative)	<b>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</b> .....	<b>32</b>
<b>Annex ZC</b> (informative)	<b>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</b> .....	<b>34</b>
<b>Annex ZD</b> (informative)	<b>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</b> .....	<b>35</b>
<b>Bibliography</b>	.....	<b>37</b>

## EN 13203-5:2022 (E)

### European foreword

This document (EN 13203-5:2022) 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 13203-5:2018.

The main technical changes compared to EN 13203-5:2018 are the following:

- 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;
- 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, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, ZB, ZC or ZD, which is an integral part of this document.

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.

## EN 13203-5:2022 (E)

### 1 Scope

This document is applicable to gas-fired appliances producing domestic hot water. It applies to both instantaneous and storage gas-fired combined with electric heat pump.

It applies to a package marketed as single unit or fully specified by the manufacturer that have:

- a heat input not exceeding 400 kW;
- a hot water storage tank capacity (if any) not exceeding 2 000 l.

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 system for presenting the information to the user. The present document sets out a method for assessing the energy performance of gas fired appliances combined with heat pump with electrically driven compressor according to EN 16147. It specifies 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.

The present document does not apply for gas boilers with recovery systems using combustion products as heat source for the electrical heat pump.

When the electrical heat pump does not work for domestic hot water production in the summer period, the present standard is not applicable for energy performances assessing, instead EN 13203-2:2022 is applicable.

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

EN 14511-3:2018, *Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electrically driven compressors — Part 3: Test methods*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**