SLOVENSKI STANDARD
oSIST prEN 15502-2-2:2022

01-december-2022

Plinski kotli za centralno ogrevanje - 2-2. del: Poseben standard za tip kotlov B1

Gas-fired central heating boilers - Part 2-2: Specific standard for type B1 appliances

Heizkessel für gasförmige Brennstoffe - Teil 2-2: Heizkessel der Bauart B1

Chaudières de chauffage central utilisant les combustibles gazeux - Partie 2-2: Norme spécifique pour les appareils de type B1

Ta slovenski standard je istoveten z: **prEN 15502-2-2**

ICS:

91.140.10	Sistemi centralnega ogrevanja	Central heating systems
97.100.20	Plinski grelniki	Gas heaters

oSIST prEN 15502-2-2:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 15502-2-2

December 2022

ICS 27.060.30; 91.140.10

Will supersede EN 15502-2-2:2014

English Version

Gas-fired central heating boilers - Part 2-2: Specific standard for type B1 appliances

Chaudières de chauffage central utilisant les combustibles gazeux - Partie 2-2: Norme spécifique pour les appareils de type B1

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This draft European Standard is submitted to CEN members for enquiry. 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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

European foreword

This document (prEN 15502-2-2:2022) has been prepared by Technical Committee CEN/TC 109 “Central heating boilers using gaseous fuels”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15502-2-2:2014.

The main technical changes compared to EN 15502-2-2:2014 are the following:

I) Resulting from the revision of EN 15502-1 into EN 15502-1:2021:

a) technical changes related to eco-design and energy labelling for appliances ≤ 400 kW:

1) deletion of the requirements that can be found in the legislation itself;

2) modification of the Annexes ZC and ZD;

b) new or generally reworded requirements:

1) separation between requirements and test methods in to different clauses;

2) moving additional common parts from EN 15502-2-1:2012+A1:2016 and/or EN 15502-2-2:2014 to EN 15502-1:2021 (for example all definitions used in the parts 2 are moved to part 1; Therefore most of the definitions in this part are now by reference to part 1);

3) Definitions added for Instructions for installation, Instructions for use and servicing, and Technical documentation and consequently applied throughout the document;

4) Improved wording of definitions related to the air supply and combustion products circuit;

5) Improved the references of the annexes Z. The annex Z referring to the GAD has been removed and an annex Z referring to the GAR has been inserted;

6) Only "instructions for installation" and "instructions for use and servicing" are defined.

Therefore, these are the only instructions to be used in this standard;

7) improved definitions 'ducts / circuits';

8) definition weighted value of the NOx concentration added. With regard to Ecodesign, it is clarified that the emissions declared are the emissions when using the references gases;

c) limitation of the scope compared to the standards superseded by the EN 15502 series (that were cited in the OJEU under the GAD):

1) Types B14 and B4 appliances, as covered in EN 297:1994 [1] are not covered by this standard as there seems to be a limited market for these appliances due to the introduction of the Ecodesign Directive that only has an exemption for B11 appliances;

NOTE B14 and B4 are non-condensing appliances.

2) this document does not cover all the requirements for appliances designed and constructed to burn gas containing toxic components. In the past it was always considered that the gases were not toxic, however this was never clearly indicated in the scope. In fact this is not a change of scope, but a clarification of the scope;

3) this document is not intended to cover appliances intended for connection to gas grids where the quality of the distributed gas is likely to vary to a large extent over the lifetime of the appliance (see Annex AB). In the past no big variation in gas quality occurred. Due to the EASEE-gas CBP wide variations of gas quality are considered. As these were never covered in this standard, the scope is modified to make clear that these variations are not covered. In fact this is not a change of scope, but a clarification of the scope;

4) this document does not cover all the requirements for appliances above 1 000 kW. In fact this is not a change of scope, but a clarification of the scope;

5) this document does not cover all the requirements for appliances having a supplementary heater. In fact this is not a change of scope, but a clarification of the scope as these appliances were never included in the past, however due to the Ecodesign Regulation it has become necessary to mention this more explicitly;

II) Additional changes, not resulting from the revision of EN 15502-1 into EN 15502-1:2021

a) technical changes related to eco-design and energy labelling for appliances ≤ 400 kW:

1) no changes;

b) new or generally reworded requirements:

1) separation between requirements and test methods in to different clauses;

2) changes resulting from moving additional common parts from EN 15502-2-1:2012+A1:2016 and/or EN 15502-2-2:2014 to EN 15502-1:2021 (for example all definitions used in the parts 2 are moved to part 1; Therefore, most of the definitions in this part are now by reference to part 1);

3) the definitions for Instructions for installation, Instructions for use and servicing, and Technical documentation are now consequently applied throughout the document;

4) an annex Z referring to the GAR has been inserted;

5) only "instructions for installation" and "instructions for use and servicing" are defined. Therefore, these are the only instructions to be used in this standard;

c) corrected mistakes:

[1] As impacted by EN 297:1994/A2:1996, EN 297:1994/A2:1996/AC:2006, EN 297:1994/A3:1996, EN 297:1994/A4:2004, EN 297:1994/A5:1998 and EN 297:1994/A6:2003.

9.2, 9.3 and the relevant subclauses of prEN 15502-2-2:2022 correct two errors present in the EN 15502-2-2:2014 where:

9.2.1 Requirements specifies: *Shall be according to EN 15502-1:2012, 9.2.1* but these efficiency requirements are not applicable to boiler < 400 kW.

9.3 Useful efficiency at part load specifies: *EN 15502-1:2012, 9.3 is not applicable* but in clause 9.3 there are the following subclauses:

- *9.3.1 Requirements* that are not applicable to boilers < 400 kW

- *9.3.2 Tests* that are applicable to boilers having any heat input value

d) limitation of the scope compared to the standards superseded by the EN 15502 series (that were cited in the OJEU under the GAD):

This revision only covers the update from the EN 15502-1 and an addition of an annex Z referring to the GAR. This revision aimed not to introduce any new technical content. As some specific requirements are not covered in the EN 15502-2-2:2014 the scope has been modified to clarify this, stating that this standard does not include:

1) specific requirements on surface temperatures of external parts particular to children and elderly people where relevant to ensure that this;

2) specific requirements on appliances that are intended to burn natural gases of the second family where hydrogen is added to the natural gas;

3) specific requirements for appliances equipped with an adaptive combustion control function.

In fact these changes are not a change of scope, but a clarification of the scope;

EN 15502 consists of the following parts under the general title “Gas-fired heating boilers":

— Part 1: General requirements and tests;

— Part 2-1: Specific standard for type C appliances and type B2, B3 and B5 appliances of a nominal heat input not exceeding 1 000 kW;

— Part 2-2: Specific standard for type B1 appliances.

This document (Part 2-2) is to be used in conjunction with Part 1.

Relationship between this document and EN 15502-1, Gas-fired heating boilers — Part 1: General requirements and tests:

This document is to be used in conjunction with EN 15502-1:2021 and follows the numbering structure of EN 15502-1:2021.

Where this document states:

— shall be according to EN 15502-1:2021 (clause number) with the following modification;

— shall be according to EN 15502-1:2021 (clause number) with the following addition;

— EN 15502-1:2021 (clause number) is replaced by the following;

— EN 15502-1:2021 (clause number) is not applicable;

— the relevant text of EN 15502-1:2021 is to be adapted accordingly.

This European Standard adds clauses or subclauses to the structure of EN 15502-1:2021 which are particular to this part 2 standard. It should be noted that these clauses and subclauses are not indicated as an addition. Clauses, subclauses and annexes which are additional to those in EN 15502-1:2021 are numbered starting from 101, or designated as Annex XA, XB, XC, etc.

This document has been prepared under mandates M89/6 and M066, given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements as meant in article 3 of EU Directive 2009/142/EC, relating to appliances burning gaseous fuels and the verification methods valid for production and measurements, as meant in article 5.2 of EU Directive 92/42/EEC, relating to the efficiency requirements for new hot water boilers fired with liquid or gaseous fuels, with an output of 4 – 400 kW.

This document has been prepared under the mandate M/535, given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to:

— requirements of Commission Regulation (EC) No 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters;

— requirements of Commission Delegated Regulation (EC) No 811/2013 of 18 February 2013 supplementing Directive 2010/30/EC of the European Parliament and of the Council with regard to energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar device.

For relationship with EU Directive(s) and Commission Regulations, see informative Annexes ZB, ZC and ZD, ZE which are integral parts of this document.

Introduction

The basic function of gas-fired heating boiler is to generate heat by direct heat transfer in a heat exchanger, from the combustion gasses to the water.

The boiler can include in one design more than one function. It can include for example:

— a sanitary hot water function;

— a function to supply the combustion air from the outside/open air;

— a function to dispose the combustion products to the outside/open air.

The boiler design can be supplied to the market in more than one part. If the boiler is supplied to the market in multiple parts, the boiler is the assembly of various parts according to the instructions for installation.

Boilers can be designed to be connected to specific parts of a building. Connection to a chimney and the means of combustion air supply is particularly relevant.

Matters related to quality assurance systems, tests during production, and certificates of conformity of auxiliary devices are not dealt with in this series of European standards.

1 Scope

This document specifies, the requirements and test methods concerning the classification and marking of gas-fired central heating boilers that are fitted with atmospheric burners, fan assisted atmospheric burners and are hereafter referred to as “boilers”.

Where the word boiler is used, this is to be read as the boiler including its connecting ducts, ducts and terminals, if any.

This document is to be used in conjunction with EN 15502-1:2021.

This European Standard covers gas-fired central heating boilers type B_{11}, B_{11BS}, B_{12}, B_{12BS}, B_{13}, B_{13BS}:

NOTE 1 For further background information on appliance types see EN 1749:2020.

a) that have a nominal heat input (on the basis of net calorific value) not exceeding 70 kW;

b) that use one or more combustible gases of the three gas families at the pressures stated in EN 437:2021;

c) where the temperature of the heat transfer fluid does not exceed 105 °C during normal operation;

d) where the maximum operating pressure in the water circuit does not exceed 6 bar;

e) which are declared in the technical instructions to be either a “low temperature boiler” or a “standard boiler”. If no declaration is given the boiler is to be considered a “standard boiler”;

f) which are intended to be installed inside a building or in a partially protected place;

g) which are intended to produce also hot water either by the instantaneous or storage principle, as a single unit;

h) which are designed for either sealed water systems or for open water systems.

For applications within the scope of the PED further requirements may be necessary (e.g. situations where the maximum allowable temperature exceeds 110 °C, or where volume times maximum allowable pressure is over 50 bar x litres).

NOTE 2 This document provides requirements for boilers with known constructions. For boilers with any alternative constructions, which might not fully be covered by this standard, the risk associated with this alternative construction needs to be assessed.

An example of an assessment methodology, based upon risk assessment, is given in Clause 11.

This standard does not cover all the requirements for:

aa) appliances that are intended to be connected to gas grids where the quality of the distributed gas is likely to vary to a large extent over the lifetime of the appliance (see Annex AB);

ab) appliances using flue dampers;

ac) appliances that have a nominal heat input (on the basis of net calorific value) exceeding 70 kW;

ad) appliances of the types A, B_{14}, B_2, B_3, B_4, B_5 and C;

ae) appliances intended to be connected to a (common) flue having mechanical extraction;

af) appliances with gas/air ratio control;

ag) modular boilers;

ah) boilers which can give rise to condensation under certain circumstances;

ai) boilers intended to be installed in a room with a foreseeable negative pressure relative to the pressure in the flue system;

aj) surface temperatures of external parts particular to children and elderly people;

ak) appliances that are intended to burn natural gases of the second family where hydrogen is added to the natural gas;

al) boilers intended to be installed in areas accessible to elderly people and children;

am) boilers equipped with an adaptive combustion control function (ACCF).

NOTE Negative pressure relative to the pressure in the flue system can for example be caused by mechanical or thermal ventilation in airtight buildings.

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.

NOTE For references listed in this clause the edition indicated in this clause prevails, even if other parts of the text indicate undated or earlier editions.

In this document the normative references of EN 15502-1:2021 are valid. Furthermore, the following normative references are valid.

EN 15502-1:2021,[2] *Gas-fired heating boilers — Part 1: General requirements and tests*

3 Terms, definitions and symbols

3.1 Terms and definitions

Shall be according to EN 15502-1:2021, 3.1.

3.2 Symbols

Shall be according to EN 15502-1:2021, 3.2.

4 Classification

Shall be according to EN 15502-1:2021, Clause 4.

[2] As impacted by EN 15502-1:2021/AC:2022.

5 Construction

5.1 General

Shall be according to EN 15502-1:2021, 5.1.

5.2 Conversion to different gases

Shall be according to EN 15502-1:2021, 5.2.

5.3 Materials

5.3.1 General

Shall be according to EN 15502-1:2021, 5.3.1 with the following addition:

If there is a risk of condensation in the combustion products circuit it shall comprise materials which comply with the requirements of EN 15502-1:2021, 5.4.13.1. Other materials may be used when evidence is provided of their suitability for conditions in which condensation can occur.

5.3.2 Materials and thicknesses of walls or tubes with water side operating pressure for boilers of pressure class-3

Shall be according to EN 15502-1:2021, 5.3.2.

5.3.3 Domestic water connections

Shall be according to EN 15502-1:2021, 5.3.3.

5.3.4 Thermal insulation

Shall be according to EN 15502-1:2021, 5.3.4.

5.3.5 Materials in contact with water for human consumption

Shall be according to EN 15502-1:2021, 5.3.5.

5.3.6 Durability against corrosion of metallic combustion product circuits

Shall be according to EN 15502-1:2021, 5.3.6.

5.4 Method of construction

5.4.1 Design

Shall be according to EN 15502-1:2021, 5.4.1.

5.4.2 Checking the state of operation

Shall be according to EN 15502-1:2021, 5.4.2.

5.4.3 Use and servicing

Shall be according to EN 15502-1:2021, 5.4.3.

5.4.4 Connections to the gas and water pipes

Shall be according to EN 15502-1:2021, 5.4.4.

5.4.5 Soundness

Shall be according to EN 15502-1:2021, 5.4.5.

5.4.6 Supply of combustion air and evacuation of the combustion products

Shall be according to EN 15502-1:2021, 5.4.6.

5.4.7 Dampers

EN 15502-1:2021, 5.4.7 is not applicable.

5.4.8 Air proving for type B_{12} and B_{13} boilers

EN 15502-1:2021, 5.4.8 is replaced by the following: Boilers with fans shall be fitted with a system for air proving.

Before each fan start it shall be checked that there is no simulation of air flow in the absence of air flow.

The system for supervision of the combustion air rate or combustion products rate is activated directly by the flow of combustion air or combustion products. This is also valid for boilers with more than one fan speed in which the flows associated with each fan speed are monitored.

1) The supply of combustion air shall be checked by continuous supervision of the combustion air rate or combustion products rate.

5.4.9 Gas/air ratio controls for type B_{12} and B_{13} boilers

EN 15502-1:2021, 5.4.9 is not applicable.

5.4.10 Fan for type B_{12} and B_{13} boilers

Shall be according to EN 15502-1:2021, 5.4.10.

5.4.11 Drainage

Shall be according to EN 15502-1:2021, 5.4.11.

5.4.12 Operational safety in the event of failure of the auxiliary energy

Shall be according to EN 15502-1:2021, 5.4.12.

5.4.13 Special provision for low temperature boilers and condensing boilers

EN 15502-1:2021, 5.4.13 is not applicable.

5.5 Burners

Shall be according to EN 15502-1:2021, 5.5.

5.6 Pressure test points

Shall be according to EN 15502-1:2021, 5.6.

5.7 Requirements for the application of control and safety devices

Shall be according to EN 15502-1:2021, 5.7 with the following addition:

5.7.101 Combustion products discharge safety device