SLOVENSKI STANDARD
SIST EN 15502-2-1:2022+A1:2024

01-december-2024

Nadomešča:
SIST EN 15502-2-1:2022

Plinski kotli za centralno ogrevanje - 2-1. del: Poseben standard za tip kotlov C in tipe kotlov B2, B3 in B5 z nazivno močjo do vključno 1000 kW

Gas-fired central heating boilers - 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

Heizkessel für gasförmige Brennstoffe - Teil 2-1: Heizkessel der Bauart C und Heizkessel der Bauarten B2, B3 und B5 mit einer Nennwärmebelastung nicht größer als 1 000 kW

Chaudières de chauffage central utilisant les combustibles gazeux - Partie 2-1 : Norme spécifique pour les appareils de type C et les appareils de types B2, B3 et B5 dont le débit calorifique nominal est inférieur ou égal à 1 000 kW

Ta slovenski standard je istoveten z: **EN 15502-2-1:2022+A1:2023**

ICS:

27.060.30	Grelniki vode in prenosniki toplote	Boilers and heat exchangers
91.140.10	Sistemi centralnega ogrevanja	Central heating systems
97.100.20	Plinski grelniki	Gas heaters

SIST EN 15502-2-1:2022+A1:2024 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15502-2-1:2022+A1

December 2023

ICS 27.060.30; 91.140.10

Supersedes EN 15502-2-1:2022

English Version

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This European Standard was approved by CEN on 24 July 2022 and includes Amendment approved by CEN on 11 October 2023.

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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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Ref. No. EN 15502-2-1:2022+A1:2023 E

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European foreword

This document (EN 15502-2-1:2022+A1:2023) 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of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

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 ▌A1⟩ EN 15502-2-1:2022 ⟨A1▌.

This document includes Amendment 1, approved by CEN on 2023-10-11.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▌

▌A1⟩ *deleted paragraphs* ⟨A1▌

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 (this document);*

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

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 European Standard 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 document 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 mandates M/534 and 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) / Regulation(s), see informative Annexes ZB, ZC, ZD and ZE which are integral parts of this document.

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, Türkiye and the United Kingdom.

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 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, as well as the classification and marking of gas-fired central heating boilers that are fitted with atmospheric burners, fan assisted atmospheric burners or fully premixed burners, and are hereafter referred to as “boilers”.

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

This document covers gas-fired central heating boilers from the types C_1 up to $C_{(11)}$ and the types B_2, B_3 and B_5:

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 1 000 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 can give rise to condensation under certain circumstances;

f) which are declared in the instructions for installation to be either a “condensing” boiler or a “low temperature boiler” or a “standard boiler”; if no declaration is given the boiler is to be considered a “standard boiler”;

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

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

i) which are designed for either sealed water systems or for open water systems;

j) which are either modular boilers, or non-modular boilers.

k) which are from the types $C_{(10)}$ that are equipped with a gas-air ratio control and that have a $\mathbf{\Delta p_{max, saf(min)}}$ of 25 Pa, and $C_{(11)}$ that have condensing boiler modules that are equipped with a gas-air ratio control and that have a $\mathbf{\Delta p_{max, saf(min)}}$ of 25 Pa.

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 document does not cover all the requirements for:

aa) appliances above 1 000 kW;

ab) 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 of EN 15502-1:2021);

ac) appliances using flue dampers;

ad) appliances of the types B_{21}, B_{31}, B_{51}, C_{21}, C_{41}, C_{51}, C_{61}, C_{71}, C_{81}, $C_{(12)}$ and $C_{(13)}$;

ae) C_7 appliances that have a nominal heat input (on the basis of net calorific value) exceeding 70 kW;

af) appliances incorporating flexible plastic flue liners;

ag) $C_{(10)}$ boilers:

1) without a gas-air ratio control, or

2) which are non-condensing appliances, or

3) which have a maximum safety pressure difference at minimum heat input not equal to 25 Pa ($\Delta p_{max, saf(min)}$);

ah) $C_{(11)}$ boilers that have boiler modules:

1) without a gas-air ratio control, or

2) which are non-condensing appliances, or

3) which have a maximum safety pressure difference at minimum heat input not equal to 25 Pa ($\Delta p_{max, saf(min)}$);

ai) appliances intended to be connected to a flue having mechanical extraction;

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) appliances equipped with an adaptive combustion control function (ACCF);

am) boilers intended to be installed in areas accessible to elderly people and children.

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.

In this standard the normative references of Part 1 are valid. Furthermore, the following normative references are valid:

EN 513:2018, *Plastics — Poly(vinyl chloride) (PVC) based profiles — Determination of the resistance to artificial weathering*

EN 1856-2:2009, *Chimneys — Requirements for metal chimneys — Part 2: Metal flue liners and connecting flue pipes*

EN 1749:2020, *Classification of gas appliances according to the method of supplying combustion air and of evacuation of the combustion products (types)*

EN 13216-1:2019, *Chimneys — Test methods for system chimneys — Part 1: General test methods*

EN 13501-1:2018, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 14241-1:2013, *Chimneys — Elastomeric seals and elastomeric sealants — Material requirements and test methods — Part 1: Seals in flue liners*

EN 14471:2013+A1:2015, *Chimneys — System chimneys with plastic flue liners — Requirements and test methods*

EN 14989-1:2007, *Chimneys — Requirements and test methods for metal chimneys and material independent air supply ducts for roomsealed heating applications — Part 1: Vertical air/flue terminals for C6-type appliances*

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

CEN/TS 16134:2011, *Chimney terminals — General requirements and material independent test methods*

EN ISO 178:2019, *Plastics — Determination of flexural properties (ISO 178:2019)*

EN ISO 179-1:2010, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test (ISO 179-1:2010)*

EN ISO 527-1:2019, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1:2019)*

EN ISO 527-2:2012, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2:2012)*

EN ISO 1183-1:2019, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1:2019, Corrected version 2019-05)*

EN ISO 1183-2:2019, *Plastics — Methods for determining the density of non-cellular plastics — Part 2: Density gradient column method (ISO 1183-2:2019)*

EN ISO 1183-3:1999, *Plastics — Methods for determining the density of non-cellular plastics — Part 3: Gas pyknometer method (ISO 1183-3:1999)*

EN ISO 9969:2016, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969:2016)*

ISO 37:2017, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 188:2011, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 815-1:2019, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 1: At ambient or elevated temperatures*

ISO 815-2:2019, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 2: At low temperatures*

ISO 1817:2015, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 2781:2018, *Rubber, vulcanized or thermoplastic — Determination of density*

ISO 6914:2014, *Rubber, vulcanized or thermoplastic — Determination of ageing characteristics by measurement of stress relaxation in tension*

ISO 48-4:2018, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 4: Indentation hardness by durometer method (Shore hardness)*

ISO 48-5:2018, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 5: Indentation hardness by IRHD pocket meter method*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15502-1:2021 and the following apply. They are numbered in accordance with the specific groups they belong to.

EN 15502-1:2021, 3.1.3.11 is replaced by the following:

3.1.3.11
fitting piece
device that is part of the gas appliance, which allows connection of the appliance to ducts that are not part of the appliance

Note 1 to entry: Some examples of connections are:

a) the air supply and combustion products evacuation ducts to a single common duct for type C_2 boilers;

b) the air supply and combustion products evacuation ducts to two ducts of a common duct system for type C_4 and $C_{(10)}$ boilers";

c) type C_6 boilers to a system for air supply and combustion products evacuation that is approved and marketed independently from the boiler;

d) the combustion products evacuation duct to a chimney that is part of the building for type C_8 boilers;

e) the air supply duct to a chimney that is part of the building for type C_9 boilers;

f) type B_2 boilers to a system for combustion products evacuation that is approved and marketed independently from the boiler;

g) the combustion products evacuation duct to a shared duct system for type B_3 boilers

EN 15502-1:2021, 3.1.3.21 is replaced by the following**:**

3.1.3.21
common duct
duct to which multiple boilers or boiler modules are connected

Note 1 to entry: A common duct to connect boiler modules of a modular boiler (3.1.10.10) is part of the modular boiler. A common duct to connect multiple boilers is not part of the boilers but part of the building.

Add the following definitions at the end of EN 15502-1:2021, 3.1.14:

3.1.14.101
declared maximum pressure differences
maximum values of the pressure differences between the combustion products outlet and air inlet at the end of the fitting pieces where these are connected to the common duct system

3.1.14.102
declared minimum pressure differences
minimum values of the pressure differences between the combustion products outlet and air inlet at the end of the fitting pieces where these are connected to the common duct system