

STN	Vykurovacie kotly na plynné palivá Časť 2-1: Osobitná norma určená pre spotrebiče zhotovenia C a zhotovenia B2, B3 a B5 s menovitým tepelným príkonom najviac 1 000 kW	STN EN 15502-2-1+A1 07 0253
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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

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

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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

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

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

This European Standard was approved by CEN on 24 July 2022 and includes Amendment approved by CEN on 11 October 2023. This European Standard was corrected and reissued by the CEN-CENELEC Management Centre on 24 January 2024.

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 15502-2-1:2022+A1:2023 (E)

Contents	Page
European foreword.....	6
Introduction	8
1 Scope.....	9
2 Normative references.....	10
3 Terms, definitions and symbols.....	12
3.1 Terms and definitions	12
3.2 Symbols.....	13
4 Classification.....	13
5 Construction.....	13
5.1 General.....	13
5.2 Conversion to different gases	13
5.3 Materials.....	13
5.4 Method of construction.....	13
5.4.1 Design.....	13
5.4.2 Checking the state of operation	13
5.4.3 Use and servicing	13
5.4.4 Connections to the gas and water pipes.....	13
5.4.5 Soundness.....	13
5.4.6 Supply of combustion air and evacuation of the combustion products	13
5.4.7 Dampers	14
5.4.8 Air proving.....	14
5.4.9 Gas/air ratio controls	14
5.4.10 Fan.....	15
5.4.11 Drainage	15
5.4.12 Operational safety in the event of failure of the auxiliary energy.....	15
5.4.13 Special provision for low temperature boilers and condensing boilers.....	15
5.5 Burners	15
5.6 Pressure test points.....	15
5.7 Requirements for the application of control and safety devices	15
5.8 Additional requirements for modular boilers.....	15
5.8.101 Additional requirements for non-return valves in type C ₍₁₀₎ boilers and C ₍₁₁₎ boiler modules	15
6 Electrical safety.....	15
7 Controls.....	15
8 Operational requirements.....	15
8.1 General.....	15
8.1.1 Characteristics of the reference and limit gases.....	16
8.1.2 General test conditions	16
8.2 Soundness	19
8.2.1 Soundness of the gas circuit	19

8.2.2	Soundness of the combustion circuit.....	19
8.2.3	Soundness of the water circuit	23
8.2.4	Soundness of the domestic water circuit	23
8.3	Hydraulic resistance.....	23
8.4	Heat inputs and heat outputs	23
8.4.101	Additional operational requirements for type C ₍₁₀₎ and C ₍₁₁₎ boiler modules.....	24
8.5	Limiting temperatures.....	24
8.5.1	General	24
8.5.2	Limiting temperatures of the adjusting, control and safety devices.....	24
8.5.3	Limiting temperatures of the side walls, the front and the top	25
8.5.4	Limiting temperature of the test panels and the floor	25
8.5.101	External temperature of the ducts where the ducts are in contact with and or passing through a wall	25
8.6	Ignition, cross lighting, flame stability	25
8.6.1	General	25
8.6.2	Limit conditions	25
8.6.3	Special flue conditions	26
8.6.4	Reduction of the gas rate of the ignition burner	28
8.6.101	Resistance to draught for type B boilers.....	29
8.7	Reduction of the gas pressure.....	29
8.8	Defective closure of the gas valve immediately upstream of the main burner.....	29
8.9	Pre-purge.....	29
8.9.101	General	29
8.9.102	Tests and test conditions for pre-purging.....	31
8.9.103	Requirements for verification of the protected nature of a combustion chamber 31	
8.9.104	Test conditions for verification of the protected nature of a combustion chamber	31
8.9.105	Requirements for verification of normal ignition in a combustible air/gas mixture for type C boilers incorporating a fan	31
8.9.106	Test conditions for verification of normal ignition in a combustible air/gas mixture for type C boilers incorporating a fan	32
8.10	Functioning of a permanent ignition burner when the fan stops during the standby time.....	32
8.11	Adjustment, control and safety devices.....	32
8.11.1	General	32
8.11.2	Boilers intended to be installed in a partially protected place.....	32
8.11.3	Combination boilers	32
8.11.4	Control devices	32
8.11.5	Ignition devices	32
8.11.6	Flame supervision device	32
8.11.7	Gas pressure regulator	33
8.11.8	Thermostats and water temperature limiting devices.....	33
8.11.101	Air proving.....	33
8.12	Carbon monoxide	36
8.12.1	General	36
8.12.2	Limit conditions	36
8.12.3	Special conditions.....	37
8.12.4	Sooting.....	40
8.12.5	Supplementary test for low temperature boilers and condensing boilers	40
8.13	NO _x	40
8.14	Special provisions for boilers intended to be installed in a partially protected place	40

EN 15502-2-1:2022+A1:2023 (E)

8.15	Formation of condensate.....	40
8.16	Temperature of combustion products	40
8.16.101	General	40
8.16.102	Designation and measurement of reference temperatures of flue systems	41
8.17	Sound power level.....	41
8.101	Mechanical resistance and stability of ducts, terminal and fitting pieces.....	41
8.101.1	General requirement.....	41
8.101.2	Compressive strength	41
8.101.3	Lateral strength.....	42
8.101.4	Flexible metallic liners	43
8.102	Requirements for plastic in the combustion product evacuation ducts, terminals and fitting pieces of boilers.....	43
8.102.1	Thermal resistance	43
8.102.2	Materials	43
8.103	Requirements for elastomeric seals and elastomeric sealants in the combustion product evacuation ducts, terminals and fitting pieces.....	49
8.103.1	Characterization.....	49
8.103.2	Long-term resistance to thermal load.....	50
8.103.3	Long-term resistance to condensate exposure	51
8.103.4	Cyclic condensate resistance test.....	52
8.103.5	Relaxation behaviour	52
8.103.6	Compression set.....	53
8.103.7	Low temperature resistance.....	53
8.103.8	Joints in elastomeric seals	53
8.104	Additional requirements for non-return valve for type C ₍₁₀₎ boilers and C ₍₁₁₎ boiler modules	53
8.104.1	General	53
8.104.2	Nominal working temperature at the position of the non-return valve.....	54
8.104.3	Leak tightness of the non-return valve	54
8.104.4	Functional durability of the non-return valve	54
8.104.5	Safety of boilers in case of a failing non-return valve.....	55
8.105	Additional requirements for the evaluation of the maximum heat input of the common duct system of type C ₍₁₁₎ boilers.....	56
8.105.1	Requirements of common duct system without wind conditions.....	56
8.105.2	Additional requirements of common duct system due to wind influence	57
9	Useful efficiencies	58
10	Electric auxiliary energy.....	58
11	Risk assessment.....	58
12	Marking and instructions.....	58
12.1	Boiler marking	58
12.2	Instructions	58
12.2.1	Instructions for installation	58
12.2.2	Instructions for use and servicing	64
12.3	Presentation.....	64
Annex A A (normative)	Test apparatus for type C ₂ boilers	78
Annex X B (normative)	Test methods to determine the effects of long-term thermal load, long-term condensate exposure, condensing/non-condensing cycling and resistance to UV radiation	79
Annex Y C (informative)	This annex is empty on purpose	80

Annex Z D (informative) Example on calculation of common duct system for type C₍₁₁₎ boilers	81
Annex ZA (informative) Left empty on purpose	83
Annex ZB (informative) Clauses of this European Standard addressing the methods for the verification of the efficiency of the EU Directive 92/42/EEC, relating to the efficiency of new hot boilers with an output of (4 – 400) kW	84
Annex ZC (informative) Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 813/2013 L 239/136 aimed to be covered	85
Annex ZD (informative) Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 811/2013 L 239/1 aimed to be covered	88
Annex ZE (informative) Relationship between this European Standard and the essential requirements of Regulation (EU) 2016/426 of the European Parliament and of the Council of 9 March 2016 on appliances burning gaseous fuels and repealing Directive 2009/142/EC aimed to be covered.....	91
Bibliography	105

EN 15502-2-1:2022+A1:2023 (E)**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 September 2025.

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.

EN 15502-2-1:2022+A1:2023 (E)**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 C₁ up to C₍₁₁₎ and the types B₂, B₃ and B₅:

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 $\Delta p_{\max, \text{saf}(\min)}$ of 25 Pa, and C₍₁₁₎ that have condensing boiler modules that are equipped with a gas-air ratio control and that have a $\Delta p_{\max, \text{saf}(\min)}$ 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 B₂₁, B₃₁, B₅₁, C₂₁, C₄₁, C₅₁, C₆₁, C₇₁, C₈₁, C₍₁₂₎ and C₍₁₃₎;

EN 15502-2-1:2022+A1:2023 (E)

- ae) C₇ 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 ($\Delta p_{\max, \text{saf}(\min)}$);
- 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 ($\Delta p_{\max, \text{saf}(\min)}$);
- 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 15502-2-1:2022+A1:2023 (E)

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 pycnometer 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*

EN 15502-2-1:2022+A1:2023 (E)

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*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN