

SLOVENSKI STANDARD oSIST prEN 1502-2-2:2012

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Plinski kotli za centralno gretje - 2-2. del: Posebne zahteve za tip kotlov B1 z imensko močjo do vključno 70 kW

Gas-fired central heating boilers - Part 2-2: Specific standard for type B1 appliances of a nominal heat input not exceeding 70 kW

Heizkessel für gasförmige Brennstoffe - Teil 2-2: Heizkessel der Bauart B1 mit einer Nennwärmebelastung nicht größer als 70 kW

Chaudières de chauffage central utilisant les combustibles gazeux - Partie 2-2: Norme spécifique pour les appareils de type B1 dont le débit calorifique nominal est inférieur ou égal à 70 kW

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Gas-fired central heating boilers - Part 2-2: Specific standard for type B1 appliances of a nominal heat input not exceeding 70 kW

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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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prEN 15502-2-2:2012 (E)

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Foreword

This document (prEN 15502-2-2:2012) 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 297:1994, EN 625:1995, EN 677:1998.

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 Directive(s).

For relationship with EU Directive(s), see informative Annex ZA and ZB, which is an integral part of this document.

It 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.

The EN 15502 series of standards is composed of the following parts:

- a) EN 15502-1, Gas-fired heating boilers Part 1: General requirements and tests;
- b) EN 15502-2-1, 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
- c) prEN 15502-2-2, Gas-fired central heating boilers Part 2-2: Specific standard for type B1 appliances of a nominal heat input not exceeding 70 kW (the present document).

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A Gas-fired heating boiler is an appliance using gas as fuel designed to heat water with the purpose of providing heat to a building (or portion of a building) from one point to multiple rooms using heat emitters such as radiators and convectors to transmit the heat from the water to the room. The boiler may also be used to provide domestic hot water via an instantaneous heat exchanger or an indirect hot water storage tank.

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 may include in one design more than one function. It may include for example:

- a) a sanitary hot water function;
- b) a function to dispose the combustion products to the outside of the building.

The boiler design may 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 installation instructions.

Boilers may be designed to be connected to specific parts of a building. Especially connection to a chimney may be relevant.

This European standard was established to deal with aspects related to:

a) safety;

- b) rational use of energy;
- c) fitness for purpose.

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

Relation between this standard and EN 15502-1:

This European Standard is to be used in conjunction with EN 15502-1:2012 and follows the numbering structure of EN 15502-1:2012.

This European standard refers to clauses of EN 15502-1:2012 or adapts clauses by stating in the corresponding clause:

- Shall be according to EN 15502-1:2012, (clause number) with the following modification
- Shall be according to EN 15502-1:2012, (clause number) with the following addition
- EN 15502-1:2012, (clause number) is replaced by the following
- EN 15502-1:2012, (clause number) is not applicable

This European Standard adds clauses or sub-clauses to the structure of EN 15502-1:2012 which are particular to this standard. It should be noted that these clauses and subclauses are not indicated as an addition. Clauses, sub-clauses and annexes which are additional to those in EN 15502-1:2012 are numbered starting from 101, respectively are designated as Annex AA, BB, CC etc

Annex BB lists for which types existing standards are replaced by this standard in combination with EN 15502-1.

After the DOW (3 years after publication of both EN 15502-1 and EN 15502-2-2 in the OJEU) the standards specified in Annex BB for the types covered in EN 15502-2-2 are withdrawn.

1 Scope

This European Standard specifies, the requirements and test methods concerning, in particular the construction, safety, fitness for purpose, and rational use of energy, as well as 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, it must be read as the boiler including its connecting ducts, ducts and terminals, if any.

This European Standard covers gas-fired central heating boilers type B11, B11BS, B12, B12BS, B13, B13BS according to the classification in CEN/TR 1749:2009:

- 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;
- 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;

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- e) Which can give rise to condensation under certain circumstances;
- f) which are declared in the installation 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"
- g) which are intended to be installed either indoors or in a partially protected place;
- h) which are either not intended to produce hot water, or are intended to produce hot water either by the instantaneous or storage principle, the whole being marketed 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 no modular boilers.

This European Standard is to be used in conjunction with the General Requirements Standard EN 15502-1.

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).

This standard 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 shall be assessed.

An example of an assessment methodology, based upon risk assessment and which covers the essential requirements of the Gas Appliance Directive, is given in Clause 11.2 mode

This standard does not cover all the requirements for:

- a) 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 DD of EN 15502-2-1).
- b) appliances using flue dampers

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c) sappliances of the types B14, B21, B31, B41, B42, B43, B44 and B51, e5c-bfab-0a9eac1c8150/sist-en-15502-2-2-2014

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 437:2003+A1:2009, Test gases — Test pressures — Appliance categories

CEN/TR 1749:2009, European scheme for the classification of gas appliances according to the method of evacuation of the combustion products (types)

EN 14459:2007, Control functions in electronic systems for gas burners and gas burning appliances – Methods for classification and assessment

EN 15502-1:2012, Gas-fired heating boilers - Part 1: General requirements and tests

EN 60730-2-9:2008, Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15502-1:2012, EN 437:2003+A1:2009 and the following apply. They are numbered in accordance with the specific groups they belong to.

3.1.3.101 Draught diverter

a device, placed in the combustion products circuit of a boiler, that is intended to maintain the quality of combustion within certain limits and to keep the combustion stable under certain conditions of updraught and downdraught

3.1.4.101

Combustion products discharge safety device

a device that at least causes safety shutdown of the main burner when there is an unacceptable spillage of combustion products at the draught diverter

3.2 Symbols

Shall be according to EN 15502-1:2012, 3.2.

4 Classification

Shall be according to EN 15502-1:2012, Clause 4.

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5.1 General

Shall be according to EN 15502-1:2012, 5.1 with the following addition:

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

5.2 Conversion to different gases

Shall be according to EN 15502-1:2012, 5.2.

5.3 Materials

5.3.1 General

Shall be according to EN 15502-1:2012, 5.3.1 with the following addition:

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If there is a risk of condensation in the combustion products circuit it shall comprise materials which comply with the requirements of EN 15502-1:2012, 5.4.13.1. Other materials may be used when evidence is provided of their suitability for conditions in which condensation can occur (for instance for cast iron see Annex CC).

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 15502-1:2012, 5.3.2

5.3.3 Domestic water connections

Shall be according to EN 15502-1:2012, 5.3.3

5.3.4 Thermal insulation

Shall be according to EN 15502-1:2012, 5.3.4

5.4 Method of construction

5.4.1 Design

Shall be according to EN 15502-1:2012, 5.4.1.

5.4.2 Checking the state of operation Teh Standards

Shall be according to EN 15502-1:2012, 5.4.2.

5.4.3 Use and servicing

Shall be according to EN 15502-1:2012, 5.4.3.

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5.4.4/st Connections to the gas and water pipes 19710d-7e77-4e5c-bfab-0a9eac1c8150/sist-en-15502-2-2-2014

Shall be according to EN 15502-1:2012, 5.4.4.

5.4.5 Soundness

Shall be according to EN 15502-1:2012, 5.4.5.

5.4.6 Supply of combustion air and evacuation of the combustion products

Shall be according to EN 15502-1:2012, 5.4.6.

5.4.7 Dampers

EN 15502-1:2012, 5.4.7 is not applicable.

5.4.8 Air proving for type B12 and B13 boilers

EN 15502-1:2012, 5.4.8 is replaced by the following:. Boilers with fans shall be fitted with a system for air proving.

Except for boilers with gas/air ratio controls, 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.

The supply of combustion air shall be checked by one of the following methods:

- a) Gas /air ratio controls
- b) Continuous supervision of the combustion air rate or combustion products rate
- c) Start up supervision of the combustion air rate or combustion products rate provided that:
 - 1) The combustion products circuit is completely surrounded by the air supply circuit, or the leakage rate of the combustion products circuit meets the requirements of 8.2.2.102.2 and
 - 2) There is a shutdown at least every 24 hours¹⁾ and
 - 3) There is an indirect system for air proving (e.g. fan speed supervision) during operation.

5.4.9 -Gas/air ratio controls for type B12 and B13 boilers

Shall be according to EN 15502-1:2012, 5.4.9 with the following addition:

If the installation instructions state (see 12.2.1.2) that the gas/air ratio control settings are not intended to be adjustable by a gas operative during installation, appliance service or when the gas valve is replaced then the appliance shall incorporate additional provisions to discourage unauthorised interference with the gas/air ratio control settings.

The following examples are considered to be suitable additional provisions:

- a) Physical removal of the adjustment screws (or other method of rendering these inoperative);
- b) Physically preventing access to the adjustment screws (e.g. filling access holes);
- c) Addition of a suitably worded warning label affixed to the gas valve and/or in close proximity to the adjuster screws. This label shall be clearly visible to any gas operative whilst gaining access to the adjuster screws.

NOTE 1 Gas/air ratio controls typically have two adjustments ("throttle" and "offset") and the requirements of this clause apply to both.

If the appliance installation instructions indicate that the valve can be adjusted, by a suitably qualified gas operative using appropriate instruments, a provision shall be made to indicate that the valve setting has been changed.

NOTE 2 An example of a suitable provision is to use a paint spot on the adjusting device.

The appliance installations shall include instructions on how the settings shall be checked if, at the time of installation or service, there is an indication that the gas/air ratio control settings have been altered. The appliance installation instructions shall indicate the action to be taken if the settings are found to be incorrect.

If the appliance installation instructions allow the gas/air ratio controls to be adjusted then the method for adjustment must be described.

¹⁾ Some boilers will be used in a way that it is very likely they will shutdown at least once per 24 hours without having a specific function to ensure this.

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

Shall be according to EN 15502-1:2012, 5.4.10.

5.4.11 Drainage

Shall be according to EN 15502-1:2012, 5.4.11

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

Shall be according to EN 15502-1:2012, 5.4.12

5.4.13 Special provision for Low Temperature Boilers and Condensing Boilers

EN 15502-1:2012, 5.4.13 is not applicable.

5.5 Burners

Shall be according to EN 15502-1:2012, 5.5.

5.6 Pressure test points

Shall be according to EN 15502-1:2012, 5.6.

5.7 Requirements for the application of control and safety devices

Shall be according to EN 15502-1:2012, 5.7 with the following addition:

5.7.101 Combustion products discharge safety device

Boilers shall be so constructed that in abnormal draught conditions there is no release of combustion products in a dangerous quantity into the room concerned.

For type B₁₁, B₁₂ and B₁₃ boilers, this can be achieved with a combustion products discharge safety device (In this case type B₁₁, B₁₂, and B₁₃ boilers are designated respectively as type B_{11BS}, B_{12BS}, and B_{13BS} boilers).

However, type B11, B12 and B13 boilers to be installed:

- either in the open air
- or in a room separated from living rooms and provided with appropriate ventilation directly to the outside,

may not be fitted with such a device but in this case, appropriate warnings on the packaging and in the instructions shall clearly indicate the limit on the use of this type of boiler; in this case the boiler is designated as a type B_{11} , B_{12} or B_{13} boiler.

6 Electrical safety

Shall be according to EN 15502-1:2012, Clause 6.