



SLOVENSKI STANDARD
oSIST prEN 15502-1:2019

01-november-2019

Plinski kotli za gretje - 1. del: Splošne zahteve in preskusi

Gas-fired heating boilers - Part 1: General requirements and tests

Heizkessel für gasförmige Brennstoffe - Teil 1: Allgemeine Anforderungen und Prüfungen

Chaudières de chauffage central utilisant les combustibles gazeux - Partie 1: Exigences générales et essais

Ta slovenski standard je istoveten z: prEN 15502-1

ICS:

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

oSIST prEN 15502-1:2019

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 15502-1

October 2019

ICS 27.060.30; 91.140.10

Will supersede EN 15502-1:2012+A1:2015

English Version

Gas-fired heating boilers - Part 1: General requirements and tests

Chaudières de chauffage central utilisant les
combustibles gazeux - Partie 1: Exigences générales et
essais

Heizkessel für gasförmige Brennstoffe - Teil 1:
Allgemeine Anforderungen und Prüfungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 109.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents	Page
European foreword.....	9
Introduction	11
1 Scope.....	11
2 Normative references.....	12
3 Terms, definitions and symbols.....	14
3.1 Terms and definitions.....	14
3.2 Symbols.....	33
4 Classification.....	35
4.1 Gases and categories	35
4.2 Mode of air supply and evacuation of the combustion products	35
4.3 Maximum water-side operating pressure.....	35
5 Construction	35
5.1 General	35
5.2 Conversion to different gases.....	36
5.3 Materials.....	36
5.3.1 General.....	36
5.3.2 Materials and thicknesses of walls or tubes with water side operating pressure for boilers of pressure class-3	36
5.3.3 Domestic water connections	37
5.3.4 Thermal Insulation.....	38
5.3.5 Materials in contact with water for human consumption	38
5.3.6 Durability against corrosion of metallic combustion product circuits.....	39
5.4 Method of construction	40
5.4.1 Design	40
5.4.2 Checking the state of operation.....	40
5.4.3 Use and servicing.....	41
5.4.4 Connections to the gas and water pipes.....	41
5.4.5 Soundness	42
5.4.6 Supply of combustion air and evacuation of the combustion products	43
5.4.7 Dampers.....	43
5.4.8 Air proving.....	43
5.4.9 Gas/air ratio controls	44
5.4.10 Fan	44

5.4.11 Drainage	44
5.4.12 Operational safety in the event of failure of the auxiliary energy	44
5.4.13 Special provision for Low Temperature Boilers and Condensing Boilers	45
5.5 Burners	46
5.6 Pressure test points	46
5.7 Requirements for the application of control and safety devices	47
5.7.1 General.....	47
5.7.2 Adjusters and range-rating devices	47
5.7.3 Gas circuit.....	48
5.7.4 Gas pressure regulator	49
5.7.5 Ignition devices.....	49
5.7.6 Flame supervision devices	50
5.7.7 Gas/air ratio control tubes.....	51
5.7.8 Thermostats and flow temperature limiting devices	51
5.7.9 Remote control	52
5.7.10 Expansion vessel and pressure gauge.....	53
5.7.11 Protection against frost for boilers intended to be installed in a partially protected place 53	
5.7.12 Adjusting, control and safety devices for the domestic hot water circuit.....	54
6 Electrical and electromagnetic safety.....	54
7 Controls.....	54
7.1 General.....	54
7.2 Detailed specifications.....	54
7.3 Thermostats and flow temperature limiting devices	56
7.3.1 General.....	56
7.3.2 Construction requirements.....	56
7.3.3 Performance	57
8 Operational requirements	59
8.1 General.....	59
8.1.1 Characteristics of the reference and limit gases	59
8.1.2 General test conditions.....	60
8.2 Soundness.....	64
8.2.1 Soundness of the gas circuit.....	64
8.2.2 Soundness of the combustion circuit.....	65
8.2.3 Soundness of the water circuit.....	65

8.2.4	Soundness of the domestic water circuit.....	66
8.3	Hydraulic resistance.....	66
8.3.1	Requirements	66
8.3.2	Test conditions	66
8.4	Heat inputs and heat output.....	67
8.4.1	Determination of the nominal heat input or the maximum and minimum heat input.....	67
8.4.2	Adjustment of the heat input by the downstream gas pressure	69
8.4.3	Ignition rate.....	69
8.4.4	Nominal output	69
8.4.5	Verification of the nominal condensing output.....	69
8.4.6	Nominal domestic hot water heat input.....	70
8.4.7	Water pressure to obtain the nominal heat input for instantaneous combination boilers.....	70
8.4.8	Obtaining the domestic hot water temperature for instantaneous combination boilers..	70
8.4.9	Heating-up time of the domestic hot water	70
8.5	Limiting temperatures.....	71
8.5.1	General.....	71
8.5.2	Limiting temperatures of the adjusting, control and safety devices	71
8.5.3	Limiting temperatures of the side walls, the front and the top	72
8.5.4	Limiting temperature of the test panels and the floor.....	72
8.6	Ignition, cross lighting, flame stability	73
8.6.1	General.....	73
8.6.2	Limit conditions	73
8.6.3	Special flue conditions.....	74
8.6.4	Reduction of the gas rate of the ignition burner.....	74
8.7	Reduction of the gas pressure.....	75
8.7.1	Requirements	75
8.7.2	Test conditions.....	75
8.8	Defective closure of the gas valve immediately upstream of the main burner.....	75
8.8.1	Requirements	75
8.8.2	Test conditions	75
8.9	Pre-purge.....	76
8.10	Functioning of a permanent ignition burner when the fan stops during the standby time	76
8.10.1	Requirements	76
8.10.2	Test conditions.....	76

8.11 Adjustment, control and safety devices	76
8.11.1 Requirement.....	76
8.11.2 Test method for determining the operating temperature range.....	76
8.11.3 Combination Boilers.....	77
8.11.4 Control devices.....	79
8.11.5 Ignition devices.....	80
8.11.6 Flame supervision device.....	81
8.11.7 Gas pressure regulator.....	84
8.11.8 Thermostats and flow temperature limiting devices.....	85
8.12 Carbon monoxide	88
8.12.1 General.....	88
8.12.2 Limit conditions.....	89
8.12.3 Special conditions.....	90
8.12.4 Sooting.....	91
8.12.5 Condensate discharge blockage test.....	91
8.13 NO_x	92
8.13.1 Requirement.....	92
8.13.2 Test methods.....	92
8.13.3 Calculation of emissions of NO _x in mg/kWh based on GCV.....	95
8.14 Special provisions for boilers intended to be installed in a partially protected place	95
8.14.1 Frost protection system for boilers intended to be installed in a partially protected place.....	95
8.14.2 Protection against the ingress of rain.....	96
8.15 Formation of condensate	96
8.15.1 Requirements.....	96
8.15.2 Test conditions.....	96
8.16 Temperature of combustion products	96
8.16.1 Requirements.....	96
8.16.2 Test conditions.....	96
8.17 Sound power level LWA	97
9 Useful efficiencies	97
9.1 General.....	97
9.1.1 Use of correction formulae.....	97
9.1.2 Use of the general test conditions.....	97
9.1.3 Declaration of the efficiency type of the boiler.....	97

9.2	Useful efficiency at the nominal heat input.....	97
9.2.1	Requirements	97
9.2.2	Tests	98
9.3	Useful efficiency at part load	99
9.3.1	Requirements	99
9.3.2	Tests	100
9.4	Losses of combination boilers	106
9.4.1	Requirements for losses of combination boilers	106
9.4.2	Test of losses of combination boilers	106
9.5	Compliance with the eco-design regulation for efficiency	108
9.5.1	Calculations for seasonal space heating energy efficiency on gross calorific value (GCV) 108	
9.5.2	Calculation of the seasonal space heating energy efficiency	110
9.5.3	Calculation of the water heating energy efficiency (η_{WH}) for combined heaters	111
9.6	Compliance with the Labelling delegated regulation for efficiency	111
9.6.1	Calculation of the reference annual energy consumption of space heating	111
9.6.2	Calculation of the water heating energy efficiency (η_{WH}) for combined heaters	111
9.6.3	Annual Fuel consumption of water heating (<i>AFC</i>)	111
9.6.4	Annual electricity consumption (<i>AEC</i>)	111
9.6.5	Daily fuel consumption (Q_{fuel})	111
9.6.6	Daily electricity consumption (Q_{elec})	111
10	Electric auxiliary energy	112
10.1	Auxiliary energy consumption	112
10.1.1	General	112
10.1.2	System boundaries	112
10.1.3	Auxiliary energy at nominal heat input	112
10.1.4	Auxiliary energy at part load	113
10.1.5	Auxiliary energy at stand-by	113
10.2	Auxiliary electricity consumption measurements required for eco-design and labelling regulations	113
10.2.1	General	113
10.2.2	System boundaries	113
10.2.3	Auxiliary electricity consumption [kW] at nominal heat input	114
10.2.4	Auxiliary electricity consumption at part load [kW]	114
10.2.5	Auxiliary electricity consumption at stand by [kW]	114
11	Risk assessment	114

12 Marking and instructions	115
12.1 Boiler marking.....	115
12.1.1 Data plate.....	115
12.1.2 Markings related to the state of adjustment.....	116
12.1.3 Packaging.....	116
12.1.4 Warnings notices on the boiler and the packaging	117
12.1.5 Other information.....	118
12.2 Instructions.....	118
12.2.1 Instructions for installation.....	118
12.2.2 Instructions for use and servicing	123
12.2.3 Conversion instructions	124
12.3 Presentation	124
Annex A (normative) Properties of carbon and stainless steels	131
Annex B (normative) Minimum requirements for cast iron	132
Annex C (normative) Parts in aluminium and aluminium alloys.....	133
Annex D (normative) Parts in copper or copper alloys	134
Annex E (normative) Minimum thicknesses for rolled parts	135
Annex F (normative) Nominal minimum thicknesses of boiler sections of cast materials under water pressure.....	136
Annex G (normative) Parameters for welded joints and welding processes.....	137
Annex H (informative) Examples of the composition of the gas circuit according to 5.7.3.2.....	142
Annex I (informative) Compilation of the test conditions for the various gas families	150
Annex J (informative) Calculation of conversions of NO_x	152
Annex K (informative) Example of calculation of the weighting factors NO_x.....	154
Annex L (informative) Practical method of calibrating the test rig to enable the heat loss D_p to be determined.....	156
Annex M (informative) Means of determining the ignition time at full rate.....	157
Annex N (informative) Determination of the heat losses from the test rig of the indirect method and the contributions of the circulating pump of the test rig.....	158
Annex O (informative) Example of a risk assessment method.....	159
Annex P (informative) Examples of risk assessment with a method described in Annex O	162
Annex Q (informative) Realisation of a protective measure.....	167
Annex R (informative) Overall classification of a basic risk	169
Annex S (informative) Not exhaustive list of classification examples.....	172
Annex T (normative) Correction for the determined efficiency in the low water temperature test of low temperature boilers (LTB) and condensing boilers (CB).....	175
Annex R (normative) Use of test gases.....	176

EN 15502-1:2012+A1:2015 (E)

Annex S (informative) Standards replaced by this standard in combination with the relevant part 2	177
Annex T (informative) Product Information related to Eco-design Regulation and Labelling Regulation	179
Annex U (empty annex) This annex is empty on purpose	183
Annex V (empty annex) This annex is empty on purpose	184
Annex W (informative) This annex is empty on purpose	185
Annex EE (informative) Variations in gas quality	186
Annex FF (normative) Lists currently used for materials in contact with drinking	191
Annex X (empty annex) This annex is empty on purpose	196
Annex Z B (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	197
Annex Z C (informative) Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 813/2013 L 239/136 aimed to be covered	198
Annex Z D (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	201
Annex Z E (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	204
Bibliography	215

[SIST EN 15502-1:2022](https://standards.iteh.ai/catalog/standards/sist/7d7bb5d5-6813-4b60-9a60-010095d4b98a/sist-en-15502-1-2022)

<https://standards.iteh.ai/catalog/standards/sist/7d7bb5d5-6813-4b60-9a60-010095d4b98a/sist-en-15502-1-2022>

European foreword

This document (prEN 15502-1:2019) 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 supersedes EN 15502-1:2012+A1:2015.

The main technical changes compared to EN 15502-1:2012+A1:2015 are the following:

- a) Technical changes related to ecodesign 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 this standard (for example all definitions used in the parts 2 are moved to part 1);
 - 3) Definitions added for Instructions for installation, Instructions for use 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 "technical instructions" and "users instructions" 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 NO_x 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 /A4:2004 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 effect this is not a change of scope, but a clarification of the scope;

EN 15502-1:2012+A1:2015 (E)

- 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 EE). 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 the scope now makes clear that these variations are not covered. In effect 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 1000 kW. In effect this is 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 (this standard);*
- *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 is to be used in conjunction with the specific Part 2.

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) 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.

This European Standard is a first part of a series of standards that will describe the special requirements for specific boiler types. This European Standard contains the common requirements that are applicable for the majority of the specific boiler types.

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 common requirements and test methods, as well as the classification, marking and energy labelling 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 to be used in conjunction with the specific Parts 2 (Part 2-1 and following ones).

This document applies to boilers of types B and C:

NOTE For further background information on appliance types see CEN/TR 1749:2014 [1].

- a) that use one or more combustible gases of the three gas families at the pressures stated in EN 437;
- b) where the temperature of the water does not exceed 105 °C during normal operation;
- c) where the maximum operating pressure in the water circuit does not exceed 6 bar;
- d) which can give rise to condensation under certain circumstances;
- e) which are declared in the instructions for installation to be either a "condensing" boiler or a "low temperature boiler" or a "standard boiler" or an "other boiler". If no declaration is given the boiler is to be considered both a "standard boiler" and an "other boiler";

NOTE The Ecodesign Directive defines "other boilers", "low temperature boilers" and "condensing boilers". The Boiler Efficiency Directive defines "standard boilers", "low temperature boilers" and "condensing boilers". Depending on the legislation applied, a boiler can be both "a standard boiler" and an "other boiler".

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

EN 15502-1:2012+A1:2015 (E)

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

This document applies to boilers designed for sealed water systems or for open water systems.

NOTE This general standard and the specific standards (see Part 2) provide requirements for boilers with known constructions. For boilers with any alternative constructions, which might not fully be covered by this standard or a specific standard, the risk associated with this alternative construction will need to be assessed.

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

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 EE).

This document does not cover all the requirements for :

- a) appliances above 1000 kW;
- b) appliances designed and constructed to burn gas containing carbon monoxide or other toxic components.

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.

EN 88-1:2011+A1:2016, *Pressure regulators and associated safety devices for gas appliances - Part 1: Pressure regulators for inlet pressures up to and including 50 kPa*

EN 125:2010+A1:2015, *Flame supervision devices for gas burning appliances - Thermoelectric flame supervision devices*

EN 126:2012, *Multifunctional controls for gas burning appliances*

EN 161:2011+A3:2013, *Automatic shut-off valves for gas burners and gas appliances*

EN 298:2012, *Automatic burner control systems for burners and appliances burning gaseous or liquid fuels*

EN 437:2018, *Test gases - Test pressures - Appliance categories*

EN 1057:2006+A1:2010, *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1092-1:2018, *Flanges and their joints --- Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 1: Steel flanges*

EN 1092-2:1997, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 2: Cast iron flanges*

EN 1092-3:2003, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 3: Copper alloy flanges*

EN 1092-4:2002, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 4: Aluminium alloy flanges*