

GAASKÜTTEGA KÜTTEKATLAD. OSA 1: ÜLDNÕUDED JA KATSED

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 15502-1:2012+A1:2015 sisaldab Euroopa standardi EN 15502-1:2012+A1:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 15502-1:2012+A1:2015 consists of the English text of the European standard EN 15502-1:2012+A1:2015.
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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 European Standard was approved by CEN on 25 May 2012 and includes Amendment 1 approved by CEN on 24 April 2015.

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Contents	Page
Foreword	12
Introduction	14
1 Scope	15
2 Normative references	15
3 Terms, definitions and symbols	17
3.1 Terms and definitions	17
3.1.1 Gas supply	17
3.1.2 Burners	18
3.1.3 Air supply and combustion products circuit	19
3.1.4 Adjusting, control and safety devices	19
3.1.5 Operation of the boiler	23
3.1.6 Outputs	23
3.1.7 Combustion	24
3.1.8 Times	24
3.1.9 Auxiliary energy	25
3.1.10 Design types of boilers	25
3.1.11 Installation	26
3.1.12 Operation of the boiler	26
3.1.13 Relevant eco-design and labelling regulations terms	26
3.2 Symbols	28
4 Classification	29
4.1 Gases and categories	29
4.2 Mode of air supply and evacuation of the combustion products	29
4.3 Maximum water-side operating pressure	29
5 Construction	30
5.1 General	30
5.2 Conversion to different gases	30

5.3	Materials	30
5.3.1	General.....	30
5.3.2	Materials and thicknesses of walls or tubes with water side operating pressure for boilers of pressure class-3	31
5.3.3	Domestic water connections	32
5.3.4	Thermal Insulation	32
5.4	Method of construction.....	32
5.4.1	Design	32
5.4.2	Checking the state of operation	33
5.4.3	Use and servicing	33
5.4.4	Connections to the gas and water pipes.....	34
5.4.5	Soundness	34
5.4.6	Supply of combustion air and evacuation of the combustion products	35
5.4.7	Dampers	35
5.4.8	Air proving.....	35
5.4.9	Gas/air ratio controls.....	36
5.4.10	Fan.....	36
5.4.11	Drainage	36
5.4.12	Operational safety in the event of failure of the auxiliary energy	36
5.4.13	Special provision for Low Temperature Boilers and Condensing Boilers	36
5.5	Burners	37
5.6	Pressure test points	38
5.7	Requirements for the application of control and safety devices	38
5.7.1	General.....	38
5.7.2	Adjusters and range-rating devices	38
5.7.3	Gas circuit	39
5.7.4	Gas pressure regulator	40
5.7.5	Ignition devices.....	40
5.7.6	Flame supervision devices	41

5.7.7	Gas/air ratio control tubes	42
5.7.8	Thermostats and water temperature limiting devices.....	42
5.7.9	Remote control.....	43
5.7.10	Expansion vessel and pressure gauge.....	44
5.7.11	Protection against frost for boilers intended to be installed in a partially protected place	44
5.7.12	Adjusting, control and safety devices for the domestic hot water circuit.....	44
6	Electrical safety.....	45
7	Controls.....	45
7.1	General.....	45
7.2	Detailed specifications	45
7.3	Thermostats and water temperature limiting devices	46
7.3.1	General.....	46
7.3.2	Construction requirements.....	47
7.3.3	Performance	48
8	Operational requirements	50
8.1	General.....	50
8.1.1	Characteristics of the reference and limit gases.....	50
8.1.2	General test conditions	51
8.2	Soundness.....	55
8.2.1	Soundness of the gas circuit.....	55
8.2.2	Soundness of the combustion circuit.....	55
8.2.3	Soundness of the water circuit.....	55
8.2.4	Soundness of the domestic water circuit.....	57
8.3	Hydraulic resistance	57
8.4	Heat inputs and heat output	57
8.4.1	Determination of the nominal heat input or the maximum and minimum heat input	57
8.4.2	Adjustment of the heat input by the downstream gas pressure.....	59
8.4.3	Ignition rate.....	59

8.4.4	Nominal output	59
8.4.5	Verification of the nominal condensing output.....	60
8.4.6	Nominal domestic hot water heat input	60
8.4.7	Water pressure to obtain the nominal heat input for instantaneous combination boilers	60
8.4.8	Obtaining the domestic hot water temperature for instantaneous combination boilers	60
8.4.9	Heating-up time of the domestic hot water.....	61
8.5	Limiting temperatures	61
8.5.1	General.....	61
8.5.2	Limiting temperatures of the adjusting, control and safety devices	62
8.5.3	Limiting temperatures of the side walls, the front and the top.....	62
8.5.4	Limiting temperature of the test panels and the floor	62
8.6	Ignition, cross lighting, flame stability	63
8.6.1	General.....	63
8.6.2	Limit conditions	63
8.6.3	Special flue conditions.....	65
8.6.4	Reduction of the gas rate of the ignition burner	65
8.7	Reduction of the gas pressure.....	66
8.8	Defective closure of the gas valve immediately upstream of the main burner.....	66
8.9	Pre-purge.....	66
8.10	Functioning of a permanent ignition burner when the fan stops during the standby time	66
8.11	Adjustment, control and safety devices	67
8.11.1	General.....	67
8.11.2	Boilers intended to be installed in a partially protected place	67
8.11.3	Combination Boilers.....	67
8.11.4	Control devices	70
8.11.5	Ignition devices.....	70
8.11.6	Flame supervision device	72

8.11.7 Gas pressure regulator	75
8.11.8 Thermostats and water temperature limiting devices.....	76
8.12 Carbon monoxide.....	78
8.12.1 General.....	78
8.12.2 Limit conditions	80
8.12.3 Special conditions	80
8.12.4 Sooting.....	81
8.12.5 Supplementary test for low temperature boilers and condensing boilers	82
8.13 NO _x	82
8.13.1 Requirement	82
8.13.2 Test methods.....	83
8.13.3 NO _x requirement for Eco-design regulation.....	85
8.14 Special provisions for boilers intended to be installed in a partially protected place	86
8.14.1 Frost protection system for boilers intended to be installed in a partially protected place	86
8.14.2 Protection against the ingress of rain	86
8.15 Formation of condensate	86
8.16 Temperature of combustion products	87
8.17 Sound power level	87
9 Useful efficiencies.....	88
9.1 General.....	88
9.1.1 Use of correction formulae	88
9.1.2 Use of the general test conditions	88
9.2 Useful efficiency at the nominal heat input.....	88
9.2.1 Requirements	88
9.2.2 Tests.....	89
9.3 Useful efficiency at part load	90
9.3.1 Requirements	90
9.3.2 Tests.....	90

9.4	Losses of combination boilers.....	96
9.4.1	Requirements for losses of combination boilers.....	96
9.4.2	Test of losses of combination boilers.....	96
9.5	Compliance with the eco-design regulation for efficiency.....	98
9.5.1	Requirements for seasonal space heating energy efficiency.....	98
9.5.2	Calculations for seasonal space heating energy efficiency.....	99
9.5.3	Useful efficiency for nominal heat output > 70kW and ≤ 400kW.....	100
9.5.4	Water heating energy efficiency for combined heaters.....	101
9.6	Compliance with the Labelling delegated regulation for efficiency.....	101
9.6.1	Seasonal space heating energy efficiency classes.....	101
9.6.2	Annual energy consumption of space heating.....	102
9.6.3	Water heating energy efficiency classes.....	102
9.6.4	Annual Fuel consumption of water heating.....	103
9.6.5	Annual electricity consumption.....	103
10	Electric auxiliary energy.....	103
10.1	General.....	103
10.2	System boundaries.....	103
10.3	Auxiliary energy at nominal heat input.....	104
10.4	Auxiliary energy at part load.....	105
10.5	Auxiliary energy at stand-by.....	105
10.6	Auxiliary electricity consumption measurements required for eco-design and labelling regulations.....	105
10.6.1	General.....	105
10.6.2	System boundaries.....	105
10.6.3	Auxiliary electricity consumption [kW] at nominal heat input.....	106
10.6.4	Auxiliary electricity consumption at part load [kW].....	106
10.6.5	Auxiliary electricity consumption at stand by [kW].....	106
11	Risk assessment.....	106
12	Marking and instructions.....	107

12.1 Boiler marking	107
12.1.1 Data plate	107
12.1.2 Supplementary markings	108
12.1.3 Packaging	108
12.1.4 Warnings on the boiler and the packaging	108
12.1.5 Other information	108
12.2 Instructions	108
12.2.1 Technical instructions	108
12.2.2 User's instructions	111
12.2.3 Conversion instructions	111
12.3 Presentation	112
12.4 Supplementary marking and instructions in the case of boilers to be installed in partially protected places	112
12.4.1 General information	112
12.4.2 Warning on the boilers and the packaging	112
12.4.3 Technical instructions	112
13 Requirements for Eco-design Regulation (No 813/2013) and Energy Labelling Regulation (No 811/2013)	119
13.1 Requirements for product information for the Eco-design Regulation (Annex II, Regulation No 813/2013)	119
13.2 Energy label for Energy Labelling Regulation No 811/2013 Energy Label	119
13.2.1 Boiler energy label	119
13.2.2 Additional energy label for boilers intended to be used in a package	119
13.2.3 Energy label for a package of space heater and temperature control and/or solar device	119
13.3 Product fiche for Energy Labelling Regulation 811/2013	119
13.3.1 General	119
13.3.2 Boilers	120
13.3.3 Combination boilers	120
13.3.4 Packages of space heater and temperature control and/or solar device	121
13.3.5 Packages of combination heater and temperature control and/or solar device	121

13.3.6 Technical documentation for Energy Labelling Regulation No 811/2013.....	122
Annex A (informative) Properties of carbon and stainless steels	123
Annex B (normative) Minimum requirements for cast iron.....	124
Annex C (normative) Parts in aluminium and aluminium alloys	125
Annex D (normative) Parts in copper or copper alloys	126
Annex E (normative) Minimum thicknesses for rolled parts	127
Annex F (normative) Nominal minimum thicknesses of boiler sections of cast materials under water pressure	128
Annex G (normative) Parameters for welded joints and welding processes	129
Annex H (informative) Composition of the gas circuit	134
H.1 General.....	134
H.2 Boilers with permanent ignition burner or alternating ignition burner or leakage control device or with pre-purge.....	134
H.2.1 Heat inputs not exceeding 70 kW.....	134
H.2.2 Heat inputs exceeding 70 kW but not exceeding 150 kW	135
H.2.3 Heat inputs exceeding 150 kW but not exceeding 300 kW	136
H.2.4 Heat Inputs exceeding 300 kW but not exceeding 1 000 kW	137
H.3 Boilers without permanent ignition burner or alternating ignition burner, without leakage control device and without pre-purge.....	138
H.3.1 Heat inputs up to 70 kW	138
H.3.2 Heat inputs exceeding 70 kW but not exceeding 150 kW	139
H.3.3 Heat inputs exceeding 150 kW but not exceeding 300 kW	140
H.3.4 Heat inputs exceeding 300 kW but not exceeding 1000 kW	141
Annex I (informative) Compilation of the test conditions for the various gas families	142
Annex J (informative) Calculation of conversions of NO_x.....	144
Annex K (informative) Example of calculation of the weighting factors NO_x.....	145
Annex L (informative) Practical method of calibrating the test rig to enable the heat loss D_p to be determined	147
Annex M (informative) Means of determining the ignition time at full rate	148
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.....	149
Annex O (informative) Example of a risk assessment method	150

Annex P (informative) Examples of risk assessment with a method described in Annex O...	153
P.1 Introduction	153
P.2 Risks.....	153
P.3 Risk assessment.....	153
Annex Q (informative) Realisation of a protective measure	158
Annex R (informative) Overall classification of a basic risk	160
Annex S (informative) Not exhaustive list of classification examples	163
Annex T (normative) Correction for the determined efficiency in the low water temperature test of low temperature boilers (LTB) and condensing boilers (CB).....	165
Annex U (informative) Use of test gases.....	166
U.1 Boilers within a range	166
U.2 Guidance on the use of test gases.....	166
Annex V (informative) Standards intended to be replaced by this standard in combination with the relevant part 2.....	167
Annex W (informative) Alternative Method for the determination of the nominal heat input or the maximum and minimum heat input (according to 8.4.1) for appliances using a pneumatic gas/air ratio control system.....	169
Annex AA (normative) Product Information related to Eco-design Regulation and Labelling Regulation	170
AA.1 Product information – technical parameters required by the ErP Regulation (813/2013).....	170
AA.2 Product information – technical parameters required by the Labelling Regulation (811/2013).....	171
Annex BB (normative) Product label for boilers required by the Labelling Regulation 811/2013	172
BB.1 Boiler space heaters in seasonal space heating efficiency classes A++ to G	172
BB.2 Boiler combination space heaters in seasonal space heating efficiency classes A++ to G and in water heating energy efficiency classes A to G	172
BB.3 Boiler space heaters in seasonal space heating efficiency classes A+++ to D (from 26-9-2019)	173
BB.4 Boiler combination space heaters in seasonal space heating efficiency classes A+++ to D and in water heating energy efficiency classes A+ to F (from 26-9-2019)	173
BB.5 The design of the label for boiler space heaters.....	174
BB.6 The design of the label for combination boilers	174
BB.7 Water heating load profiles of combination heaters	175

Annex CC (normative) Product label for packages required by the Labelling Regulation 811/2013.....	176
CC.1 PACKAGES OF SPACE HEATER, TEMPERATURE CONTROL AND SOLAR DEVICE.....	176
CC.2 PACKAGES OF COMBINATION HEATER, TEMPERATURE CONTROL AND SOLAR DEVICE.....	176
CC.3 Design of the label for packages of space heater, temperature control and solar device	177
CC.4 Design of the label for packages of combination heater, temperature control and solar device.....	177
Annex DD (normative) Calculation of the seasonal space heating energy efficiency of a package of space heater, temperature control and solar	179
DD.1 Calculation of the seasonal space heating energy efficiency of a package.....	179
DD.2 Classes of the temperature controls.....	179
DD.3 Weighting of the preferential boiler or preferential combination boiler and supplementary heater	180
DD.4 Calculation of the water heating efficiency of a package	180
Annex ZA (informative) Clauses of this European Standard addressing essential requirements or provisions of EU Directive 2009/142/EC, "Directive relating to appliances burning gaseous fuels (codified version)" (GAD).....	181
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.....	184
Annex ZC (informative) Relationship between this European Standard and the Requirements of COMMISSION REGULATION (EU) 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	185
Annex ZD (informative) Relationship between this European Standard and the Requirements of COMMISSION DELEGATED REGULATION (EU) No 811/2013 of 18 February 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the 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	186
Bibliography.....	188

Foreword

This document (EN 15502-1:2012+A1:2015) 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 December 2015, and conflicting national standards shall be withdrawn at the latest by December 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1, approved by CEN on 2015-04-24.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

This document supersedes EN 15502-1:2012.

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

- Technical changes related to ecodesign and energy labelling:in:
 - Clause 8, Operational requirements;
 - Clause 9, Useful efficiencies;
 - Clause 10, Electric auxiliary energy.
- Additions related to ecodesign and energy labelling:
 - Clause 13, Requirements for Eco-design Regulation (No 813/2013) and Energy Labelling Regulation (No 811/2013);
 - AnnexAA;
 - Annex BB;
 - Annex CC;
 - Annex DD;
 - Annex ZC;
 - Annex ZD.
- Changes to solve the inconsistencies identified in the letter 13-215 'GAD 2009 142 EC issues of 7 Nov 2013 by Mr Gwenole Cozogou of the commission to CEN:
 - Annex ZA. **A1**

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.

A1 This document has been prepared under mandate M/495, 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. **A1**

A1 For relationship with EU Directive(s) and Commission Regulations, see informative Annexes ZA, ZB, ZC and ZD which are integral parts of this document. **A1**

Annex V lists which existing standards are intended to be replaced by this standard in combination with the relevant Part 2. The standards listed in Annex V are to be used until the relevant Part 2 cover the types indicated. This European Standard by itself does not replace any European Standard.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

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 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 sanitary hot water function;
- a function to supply the combustion air from the outside of the building;
- 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. Connection to a chimney and the means of combustion air supply is particularly relevant.

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

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

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.

This European Standard is to be used in conjunction with the specific Part 2.

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 European Standard specifies the common requirements and test methods concerning, in particular the construction, safety, fitness for purpose, and rational use of energy, as well as the classification^[A1], marking and energy labelling^[A1] 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 European Standard is to be used in conjunction with the specific Parts 2 (Part 2-1 and following ones).

This European Standard applies to boilers of types B and C ^[A1] *deleted text* ^[A1].

^[A1] NOTE For further background information on appliance types see CEN/TR 1749:2014 [1]. ^[A1]

- 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 heat transfer fluid 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) ^[A1] which are declared in the installation instructions 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". ^[A1]

- f) which are intended to be installed inside a building or in a partially protected place;
- g) which are intended to produce hot water either by the instantaneous or storage principle, the whole being marketed as a single unit.

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

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 European Standard 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.

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 88-1:2011, *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, *Flame supervision devices for gas burning appliances - Thermoelectric flame supervision devices*

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

EN 161:2011, *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 437:2003+A1:2009, *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 1092-1:2007, *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*

[A1] deleted text **[A1]**

EN 10029:2010, *Hot-rolled steel plates 3 mm thick or above - Tolerances on dimensions and shape*

EN 10226-1:2004, *Pipe threads where pressure tight joints are made on the threads - Part 1: Taper external threads and parallel internal threads - Dimensions, tolerances and designation*

EN 10226-2:2005, *Pipe threads where pressure tight joints are made on the threads - Part 2: Taper external threads and taper internal threads - Dimensions, tolerances and designation*

EN 12067-2:2004, *Gas/air ratio controls for gas burners and gas burning appliances - Part 2: Electronic types*

EN 13203-1:2006, *Gas-fired domestic appliances producing hot water — Appliances not exceeding 70 kW heat input and 300 l water storage capacity — Part 1: Assessment of performance of hot water deliveries*

[A1] EN 13203-2:2015 **[A1]**, *Gas-fired domestic appliances producing hot water — Part 2: Assessment of energy consumption*

EN 13611:2007+A2:2011, *Safety and control devices for gas burners and gas burning appliances - General requirements*

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EN ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

prEN ISO 2553:2011, *Welding and allied processes — Symbolic representation on drawings — Welded, brazed and soldered joints (ISO/DIS 2553:2011)*

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ISO 857-1:1998, *Welding and allied processes — Vocabulary — Part 1: Metal welding processes*

ISO 857-2:2005, *Welding and allied processes — Vocabulary — Part 2: Soldering and brazing processes and related terms*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 437:2003+A1:2009 and the following apply.

3.1.1

gas supply

3.1.1.1

aeration adjuster

device enabling the primary aeration of a burner to be set to the desired value according to the supply conditions

3.1.1.2

gas circuit

assembly of parts of the boiler that carry or contain the combustible gas between the boiler gas inlet connection and the point at which air is admitted

3.1.1.3

gas inlet connection

part of the boiler intended to be connected to the gas supply

3.1.1.4

gas rate adjuster

component allowing the gas rate of the burner to be brought to a predetermined value according to the supply conditions

Note 1 to entry: The action of operating this device is called "adjustment of the gas rate".