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OHUTUS- JA JUHTSEADMED. ÜLDNÕUDED**

**Safety and control devices for burners and appliances
burning gaseous and/or liquid fuels - General
requirements**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13611:2019 sisaldab Euroopa standardi EN 13611:2019 ja selle paranduse AC:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 13611:2019 consists of the English text of the European standard EN 13611:2019 and its corrigendum AC:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 27.03.2019.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 27.03.2019.
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English Version

**Safety and control devices for burners and appliances
burning gaseous and/or liquid fuels - General
requirements**

Équipements auxiliaires pour brûleurs et appareils
utilisant des combustibles gazeux ou liquides -
Exigences générales

Sicherheits- und Regeleinrichtungen für Brenner und
Brennstoffgeräte für gasförmige und/oder flüssige
Brennstoffe - Allgemeine Anforderungen

This European Standard was approved by CEN on 17 June 2018.

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.

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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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 13611:2019) has been prepared by Technical Committee CEN/TC 58 “Safety and control devices for burners and appliances burning gaseous or liquid fuels”, the secretariat of which is held by BSI.

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 September 2019, and conflicting national standards shall be withdrawn at the latest by September 2019.

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 EN 13611:2015.

It should be noted that the following significant changes compared to the previous edition have been incorporated in this European Standard:

- a) Clause 2 “Normative references” has been updated;
- b) In Clause 3 “Terms and definitions” the definition for “instructions” was added;
- c) In the whole standard the term “installation and operating instructions” was replaced by “instructions”;
- d) Annex ZA has been updated with respect to Directive 2009/142/EC relating to appliances burning gaseous fuels (GAD);
- e) Annex ZB has been added with respect to Regulation (EU) 2016/426 on appliances burning gaseous fuels (GAR);
- f) The Bibliography has been updated.

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 Directives.

For relationship with EU Directives, see informative Annex ZA, ZB and ZC, which are an integral part of this document.

Product specific control standards of CEN/TC 58 make use of this standard by adapting this standard and stating “addition”, “modification” or “replacement” in their corresponding clauses.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This standard recognizes the safety level specified by CEN/TC 58 and is regarded as a horizontal standard dealing with the safety, construction and performance of controls for burners and appliances burning gaseous and/or liquid fuels and to their testing.

The general requirements for controls are given in this document, and methods for classification and assessment for new controls and control functions are given in EN 14459:2015 (see Figure 1). EN 126 (see Figure 1) specifies multifunctional controls combining two or more controls and Application Control Functions, one of which is a mechanical control function. The requirements for controls and Application Control Functions are given in the specific control standard (see Figure 1, control functions).

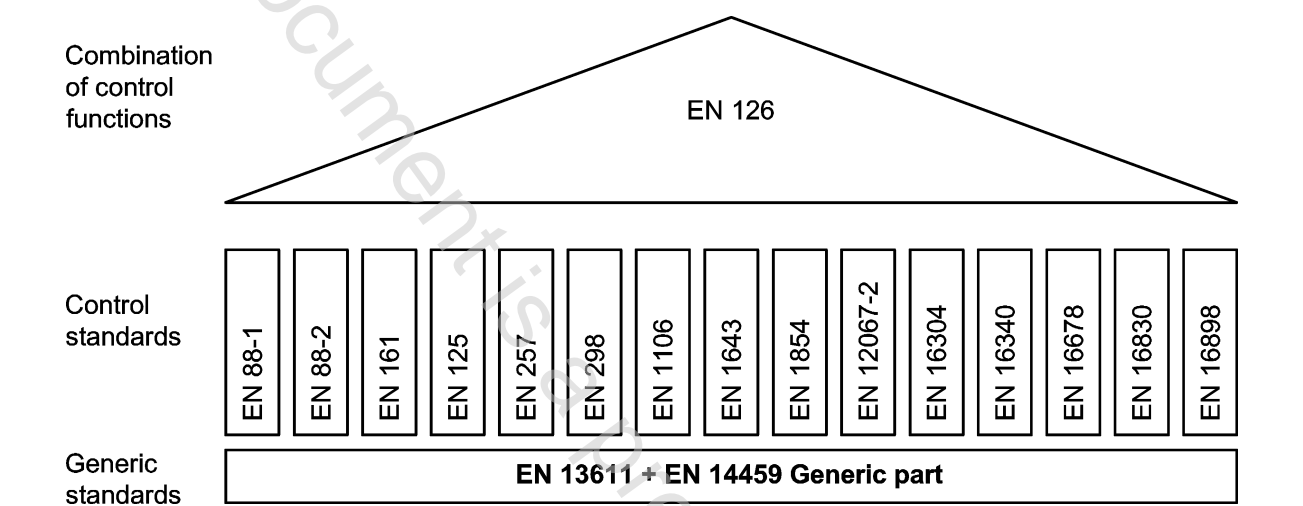


Figure 1 — Interrelation of control standards

This European Standard should be used in conjunction with the specific standard for a specific type of control, (e.g. EN 88-1:2011, EN 88-2:2007, EN 125:2010, EN 126:2012, EN 161:2011+A3:2013, EN 257:2010, EN 298:2012, EN 1106:2010, EN 1643:2014, EN 1854:2010, EN 12067-2:2004, EN 16304:2013 and EN 16340:2014), or for controls for specific applications. This standard can also be applied, so far as reasonable, to controls not mentioned in a specific standard and to controls designed on new principles, in which case additional requirements can be necessary. EN 14459:2015 provides methods for classification and assessment of new control principles.

Primarily in industrial applications it is common practice to rate the safety of a plant based on values describing the likelihood of a dangerous failure. These values are being used to determine Safety Integrity Levels or Performance Levels when the system is being assessed in its entirety.

CEN/TC 58 standards for safety relevant controls do go beyond this approach, because for a certain life time for which the product is specified, designed and tested a dangerous failure is not allowed at all. Failure modes are described and assessed in greater detail.

Measures to prevent from dangerous situations are defined. Field experience over many decades is reflected in the CEN/TC 58 standards. Requirements of these standards can be considered as proven in practice.

To be able to provide values for the parameters that are needed for the determination of a Safety Integrity Level (SIL) or of a Performance Level (PL), Annex J and Annex K of this document specify a possible methodology to derive values for the relevant parameters from the requirements of this European Standard. Only controls that conform to the relevant CEN/TC 58 control standard can be assessed for SIL or PL classification according to these Annexes.

It cannot be presumed that any Safety Integrity Level or Performance Level assessment alone would imply that requirements of a CEN/TC 58 standard have been met.

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1 Scope

This European Standard specifies the general safety, design, construction, and performance requirements and testing of safety, control or regulating devices (hereafter referred to as controls) for burners and appliances burning one or more gaseous fuels or liquid fuels. This European Standard is applicable to controls with declared maximum inlet pressure up to and including 500 kPa and of nominal connection sizes up to and including DN 250.

This European standard specifies general product requirements for the following controls:

- automatic shut-off valves;
- automatic burner control systems;
- flame supervision devices;
- gas/air ratio controls;
- pressure regulators;
- manual taps;
- mechanical thermostats;
- multifunctional controls;
- pressure sensing devices;
- valve proving systems;
- automatic vent valves.

This European standard applies for control functions that are not covered by a specific control standard for burners and appliances burning one or more gaseous fuels or liquid fuels.

This European Standard applies also for safety accessories and pressure accessories with a product of the maximum allowable pressure PS and the volume V of less than $600\,000\text{ kPa} \cdot \text{dm}^3$ ($6\,000\text{ bar} \cdot \text{L}$) or with a product of PS and DN of less than $300\,000\text{ kPa}$ ($3\,000\text{ bar}$).

This European Standard applies for *AC* and *DC* supplied controls (for controls supplied by stand-alone battery system, battery systems for mobile applications or systems which are intended to be connected to *DC* supply networks controls see Annex I).

This European Standard is applicable to reset functions used for reset from lockout, e.g. due to ignition failure or temperature cut-out in burners and appliances (see Annex M).

This European Standard establishes methodologies for the determination of a Safety Integrity Level (SIL) and the determination of a Performance Level (PL) (see Annex J, Annex K and Annex L).

This European Standard gives guidelines for environmental aspects (see Annex N).

This European Standard does not apply to mechanical controls for use with liquid fuels.

The protection against environmental impact in open air (i.e. capable of withstanding UV radiation, wind, rain, snow, dirt deposits, condensation, ice and hoar frost (see IEV 441-11-05:2005), earthquake and external fire) is not covered by this standard.

This European Standard should be used in conjunction with the specific control standard (see Bibliography).

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 377:1993,¹⁾ *Lubricants for applications in appliances and associated controls using combustible gases except those designed for use in industrial processes*

EN 485-2:2016, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 2: Mechanical properties*

EN 549:1994, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 586-2:1994, *Aluminium and aluminium alloys - Forgings - Part 2: Mechanical properties and additional property requirements*

EN 573-3:2013, *Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition and form of products*

EN 751-1:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 1: Anaerobic jointing compounds*

EN 751-2:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 2: Non-hardening jointing compounds*

EN 751-3:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 3: Unsintered PTFE tapes*

EN 754-2:2016, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 2: Mechanical properties*

EN 755-2:2016, *Aluminium and aluminium alloys - Extruded rod/bar, tube and profiles - Part 2: Mechanical properties*

EN 1057:2006,²⁾ *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1563:2018, *Founding - Spheroidal graphite cast irons*

EN 1559-1:2011, *Founding - Technical conditions of delivery - Part 1: General*

EN 1652:1997, *Copper and copper alloys - Plate, sheet, strip and circles for general purposes*

EN 1706:2010, *Aluminium and aluminium alloys - Castings - Chemical composition and mechanical properties*

EN 1759-1:2004, *Flanges and their joint - Circular flanges for pipes, valves, fittings and accessories, Class designated - Part 1: Steel flanges, NPS 1/2 to 24*

1) As amended by EN 377:1993+A1:1996

2) As amended by EN 1057:2006+A1:2010

EN 1759-3:2003, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, Class designated - Part 3: Copper alloy flanges*

EN 1759-4:2003, *Flanges and their joint - Circular flanges for pipes, valves, fittings and accessories, class designated - Part 4: Aluminium alloy flanges*

EN 1774:1997, *Zinc and zinc alloys - Alloys for foundry purposes - Ingot and liquid*

EN 1982:2017, *Copper and copper alloys - Ingots and castings*

EN 10025-1:2004, *Hot rolled products of structural steels - Part 1: General technical delivery conditions*

EN 10028-2:2017, *Flat products made of steels for pressure purposes — Part 2: Non-alloy and alloy steels with specified elevated temperature properties*

EN 10028-3:2017, *Flat products made of steels for pressure purposes — Part 3: Weldable fine grain steels, normalized*

EN 10028-4:2017, *Flat products made of steels for pressure purposes — Part 4: Nickel alloy steels with specified low temperature properties*

EN 10028-5:2017, *Flat products made of steels for pressure purposes — Part 5: Weldable fine grain steels, thermomechanically rolled*

EN 10028-6:2017, *Flat products made of steels for pressure purposes — Part 6: Weldable fine grain steels, quenched and tempered*

EN 10028-7:2016, *Flat products made of steels for pressure purposes - Part 7: Stainless steels*

EN 10083-2:2006, *Steels for quenching and tempering - Part 2: Technical delivery conditions for non alloy steels*

EN 10083-3:2006, *Steels for quenching and tempering - Part 3: Technical delivery conditions for alloy steels*

EN 10087:1998, *Free-cutting steels - Technical delivery conditions for semi-finished products, hot-rolled bars and rods*

EN 10088-1:2014, *Stainless steels - Part 1: List of stainless steels*

EN 10088-3:2014, *Stainless steels - Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes*

EN 10111:2008, *Continuously hot rolled low carbon steel sheet and strip for cold forming - Technical delivery conditions*

EN 10130:2006, *Cold rolled low carbon steel flat products for cold forming - Technical delivery conditions*

EN 10213:2007,³⁾ *Steel castings for pressure purposes*

EN 10216-1:2013, *Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 1: Non-alloy steel tubes with specified room temperature properties*

3) As amended by EN 10213:2007+A1:2016

EN 10216-5:2013, *Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 5: Stainless steel tubes*

EN 10222-1:2017, *Steel forgings for pressure purposes — Part 1: General requirements for open die forgings*

EN 10222-5:2017, *Steel forgings for pressure purposes — Part 5: Martensitic, austenitic and austenitic-ferritic stainless steels*

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 10250-1:1999, *Open die steel forgings for general engineering purposes - Part 1: General requirements*

EN 10250-2:1999, *Open die steel forgings for general engineering purposes - Part 2: Non-alloy quality and special steels*

EN 10250-3:1999, *Open die steel forgings for general engineering purposes - Part 3: Alloy special steels*

EN 10250-4:1999, *Open die steel forgings for general engineering purposes - Part 4: Stainless steels*

EN 10255:2004,⁴⁾ *Non-Alloy steel tubes suitable for welding and threading - Technical delivery conditions*

EN 10272:2016, *Stainless steel bars for pressure purposes*

EN 10277-3:2008, *Bright steel products - Technical delivery conditions - Part 3: Free-cutting steels*

EN 10293:2015, *Steel castings - Steel castings for general engineering uses*

EN 10297-1:2003, *Seamless circular steel tubes for mechanical and general engineering purposes - Technical delivery conditions - Part 1: Non-alloy and alloy steel tubes*

EN 10305-1:2016, *Steel tubes for precision applications - Technical delivery conditions - Part 1: Seamless cold drawn tubes*

EN 10305-4:2016, *Steel tubes for precision applications - Technical delivery conditions - Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems*

EN 10346:2015, *Continuously hot-dip coated steel flat products for cold forming - Technical delivery conditions*

EN 12163:2016, *Copper and copper alloys - Rod for general purposes*

EN 12164:2016, *Copper and copper alloys - Rod for free machining purposes*

EN 12165:2016, *Copper and copper alloys - Wrought and unwrought forging stock*

EN 12167:2016, *Copper and copper alloys - Profiles and bars for general purposes*

4) As amended by EN 10255:2004+A1:2007

EN 12186:2014, *Gas infrastructure - Gas pressure regulating stations for transmission and distribution - Functional requirements*

EN 12279:2000, *Gas supply systems - Gas pressure regulating installations on service lines - Functional requirements*

EN 12516-1:2014, *Industrial valves - Shell design strength - Part 1: Tabulation method for steel valve shells*

EN 13445-4:2014, *Unfired pressure vessels - Part 4: Fabrication*

EN 13555:2014, *Flanges and their joints - Gasket parameters and test procedures relevant to the design rules for gasketed circular flange connections*

EN 13906-1:2013, *Cylindrical helical springs made from round wire and bar - Calculation and design - Part 1 : Compression springs*

EN 13906-2:2013, *Cylindrical helical springs made from round wire and bar - Calculation and design - Part 2: Extension springs*

EN 50159:2010, *Railway applications - Communication, signalling and processing systems - Safety-related communication in transmission systems*

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