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BSI Standards Publication

## Automatic shut-off valves for gas burners and gas appliances

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## National foreword

This British Standard is the UK implementation of EN 161:2022. It supersedes BS EN 161:2011+A3:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GSE/22, Safety and control devices for gas and oil burners and gas burning appliances.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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For the Northern Ireland market, UK law will continue to implement relevant EU law subject to periodic confirmation. Therefore Annex ZA/ZZ in the European text, and references to EU legislation, are still valid for this market.

UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of [www.gov.uk](http://www.gov.uk).

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**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2022.

**Amendments/corrigenda issued since publication**

Date	Text affected
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## EUROPÄISCHE NORM

October 2022

ICS 23.060.10

Supersedes EN 161:2011+A3:2013

English Version

## Automatic shut-off valves for gas burners and gas appliances

Robinetts automatiques de sectionnement pour brûleurs à gaz et appareils à gaz

Automatische Absperrventile für Gasbrenner und Gasgeräte

This European Standard was approved by CEN on 1 August 2022.

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.

CEN members are the national standards bodies of 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 United Kingdom.



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COMITÉ EUROPÉEN DE NORMALISATION  
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## Contents

Page

European foreword.....	4
Introduction .....	6
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions .....	9
4 Classification.....	11
4.1 Classes of control.....	11
4.2 Groups of control.....	11
4.3 Classes of control functions.....	11
4.4 Types of <i>DC</i> supplied controls .....	11
5 Test conditions and uncertainty of measurements.....	11
6 Design and construction.....	11
6.1 General.....	11
6.2 Mechanical parts of the control .....	11
6.3 Materials.....	14
6.4 Gas connections .....	15
6.5 Electrical parts of the control .....	15
6.6 Protection against internal faults for the purpose of functional safety .....	16
6.101 Pneumatic and hydraulic actuating mechanisms.....	16
7 Performance.....	16
7.1 General.....	16
7.2 Leak-tightness .....	16
7.3 Torsion and bending.....	16
7.4 Rated flow rate.....	17
7.5 Durability.....	17
7.6 Performance tests for electronic controls .....	17
7.7 Long-term performance for electronic controls.....	17
7.8 Data exchange.....	17
7.101 Closing function .....	17
7.102 Closing force.....	18
7.103 Delay time and opening time .....	18
7.104 Closing time .....	19
7.105 Sealing force.....	19
7.106 Closed position indicator switch .....	21
7.107 Endurance.....	21
8 Electrical requirements.....	23
8.1 General.....	23
8.2 Protection by enclosure.....	23
8.101 Switches.....	23
8.102 Plug connections.....	23
8.103 Power saving circuits.....	24
9 Electromagnetic compatibility (EMC).....	24
9.1 Protection against environmental influences .....	24
9.2 Supply voltage variations below 85 % of rated voltage .....	24

This is a preview of "BS EN 161:2022". [Click here to purchase the full version from the ANSI store.](#)

9.3	<b>Voltage dips and interruptions</b> .....	24
9.4	<b>Supply frequency variations</b> .....	25
9.5	<b>Surge immunity tests</b> .....	25
9.6	<b>Electrical fast transient/burst</b> .....	25
9.7	<b>Immunity to conducted disturbances induced by radio frequency fields</b> .....	25
9.8	<b>Immunity to radiated disturbances induced by radio frequency fields</b> .....	25
9.9	<b>Electrostatic discharge tests</b> .....	25
9.10	<b>Power frequency magnetic field immunity tests</b> .....	25
9.11	<b>Harmonics and interharmonics including mains signalling at a. c. power port, low frequency immunity tests</b> .....	25
10	<b>Marking, instructions</b> .....	25
10.1	<b>Marking</b> .....	25
10.2	<b>Instructions</b> .....	26
10.3	<b>Warning notice</b> .....	27
	<b>Annex A (informative) Abbreviations and symbols</b> .....	28
	<b>Annex B (informative) Leak-tightness test for gas controls – volumetric method</b> .....	29
	<b>Annex C (informative) Leak-tightness test for gas controls – pressure loss method</b> .....	30
	<b>Annex D (normative) Calculation of pressure loss into leakage rate</b> .....	31
	<b>Annex E (normative) Electrical/electronic component fault modes</b> .....	32
	<b>Annex F (normative) Additional requirements for safety accessories and pressure accessories as defined in EU Directive 2014/68/EU</b> .....	33
	<b>Annex G (normative) Materials for pressurized parts</b> .....	34
	<b>Annex H (normative) Additional materials for pressurized parts</b> .....	35
	<b>Annex I (normative) Requirements for controls used in DC supplied burners and appliances burning gaseous or liquid fuels</b> .....	36
	<b>Annex J (normative) Method for the determination of a Safety Integrity Level (SIL)</b> .....	37
	<b>Annex K (normative) Method for the determination of a Performance Level (PL)</b> .....	38
K.1	<b>Scope</b> .....	38
K.2	<b>Normative references</b> .....	38
K.3	<b>Terms and definitions</b> .....	38
K.4	<b>Performance</b> .....	38
K.5	<b>Marking, instructions</b> .....	40
	<b>Annex L (informative) Relationship between Safety Integrity Level (SIL) and Performance Level (PL)</b> .....	41
	<b>Annex M (normative) Reset functions</b> .....	42
	<b>Annex N (informative) Guidance document on Environmental Aspects</b> .....	43
	<b>Annex O (normative) Seals of elastomer, cork and synthetic fibre mixtures</b> .....	44
	<b>Annex AA (informative) Model of a FMEA for valves</b> .....	45
	<b>Annex ZA (informative) Relationship between this European Standard and the essential requirements of Regulation (EU) 2016/426 aimed to be covered</b> .....	63
	<b>Bibliography</b> .....	66

This is a preview of "BS EN 161:2022". [Click here to purchase the full version from the ANSI store.](#)

## European foreword

This document (EN 161:2022) 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 April 2023, and conflicting national standards shall be withdrawn at the latest by October 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 EN 161:2011+A3:2013.

The following significant changes compared to the previous edition have been incorporated in this document:

- a) alignment with EN 13611:2019;
- b) requirements from EU Directive 2014/68/EU were not adopted;
- c) terms and definitions are aligned with EN 13611:2019;
- d) reference to EN 437 removed;
- e) different leak-tightness requirement for balanced valves;
- f) EN 13611:2019, 6.5.2 switching elements and EN 13611:2019, 6.5.3.3 sensing elements are not applicable any more;
- g) general requirements of 7.1 moved to EN 13611:2019, 7.1;
- h) pressure limit for nipples for pressure test removed;
- i) requirements of 6.4.8 moved to EN 13611:2019, 6.4.8, except from Class J valves;
- j) requirements of 6.6 protection against internal faults for the purpose of functional safety, 7.6 performance tests and 7.7 long-term performance of electronic parts are not applicable anymore;
- k) requirements of 7.107.2, Table 2 test cycles, endurance test was adapted.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part 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.



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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.

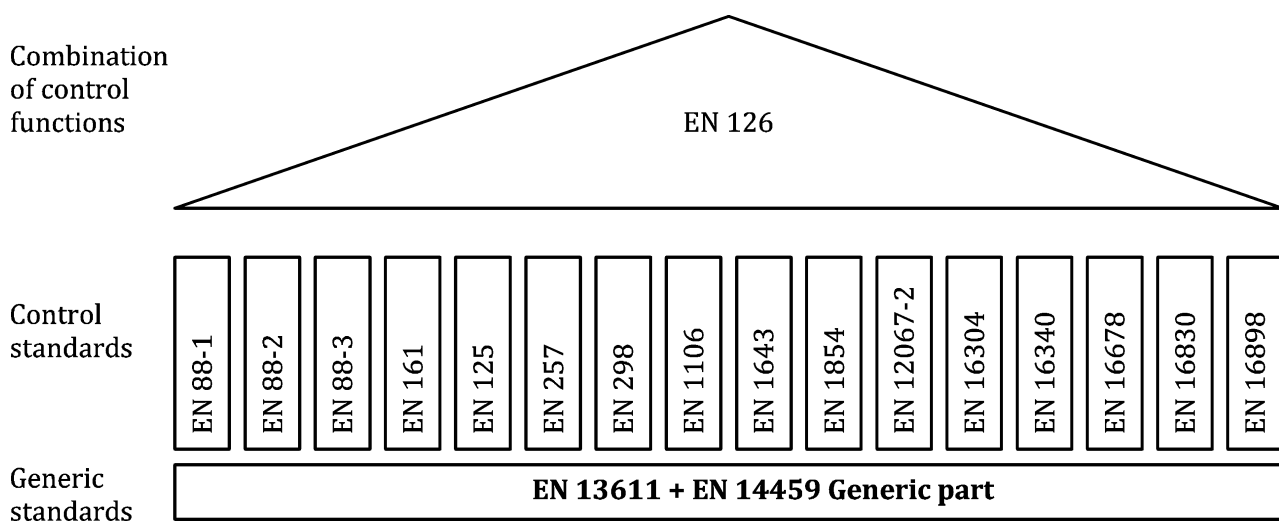
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## Introduction

This document is intended to be used in conjunction with EN 13611:2019.

EN 13611:2019 recognizes the safety level specified by CEN/TC 58 and is regarded as a horizontal standard dealing with the safety, construction, performance and testing of controls for burners and appliances burning gaseous and/or liquid fuels.

The general requirements for controls are given in EN 13611:2019, and methods for classification and assessment for new controls and control functions are given in EN 14459:2021 (see Figure 1). EN 126:2012 (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**

EN 13611:2019 should be used in conjunction with the specific standard for a specific type of control (e.g. EN 88-1:2022, EN 88-2:2022, EN 88-3:2022, EN 125:2022, EN 126:2012, EN 161:2022, EN 257:2022, EN 298:2022, EN 1106:2022, EN 1643:2022, EN 1854:—<sup>1</sup>, EN 12067-2:2022, EN 16304:2022, EN 16340:2014, EN 16678:2022 and EN 16898:2022), or for controls for specific applications.

EN 13611:2019 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 14459:2021 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.

<sup>1</sup> Under preparation. Stage at the time of publication: FprEN 1854:2022.

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Measures to prevent from dangerous situations are defined. Field experience over many decades is reflected in the CEN/TC 58 standards. Requirements of EN 13611:2019 can be considered as proven in practice.

This document refers to clauses of EN 13611:2019 or adapts clauses by stating "with the following modification", "with the following addition", "is replaced by the following" or "is not applicable" in the corresponding clause.

This document adds clauses or subclauses to the structure of EN 13611:2019 which are particular to this document. Subclauses which are additional to those in EN 13611:2019 are numbered starting from 101. Additional Annexes are designated as Annex AA, Annex BB, Annex CC etc. It should be noted that these clauses, subclauses and Annexes are not indicated as an addition.

If by reference to EN 13611:2019 the term "control" is given, this term should be read as "valve".

This document establishes methodologies for the determination of a Performance Level (PL) in accordance with EN 13611:2019, Annexes K and L.

EN 161 compliance for valves cannot be claimed based upon Performance Level (PL) classification according to EN ISO 13849-1:2015 or Safety Integrity Level (SIL) classification according to EN 61508-1:2010.

Valves with PL or SIL classification do not automatically meet the requirements of this document.

Performance Level (PL) classification according to EN ISO 13849-1:2015 or Safety Integrity Level (SIL) classification according to EN 61508-1:2010 cannot be claimed based upon compliance with this standard only.

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## 1 Scope

EN 13611:2019, Clause 1 applies with the following modification and addition:

Modification:

The 1<sup>st</sup> paragraph of EN 13611:2019, Clause 1 is replaced by:

This document specifies the safety, design, construction, and performance requirements and testing for automatic shut-off valves for burners and appliances burning one or more gaseous fuels, hereafter referred to as “valves”.

This document is applicable to valves with declared maximum inlet pressures up to and including 500 kPa and of nominal connection sizes up to and including DN 250.

Addition:

This document is applicable to:

- electrically actuated valves;
- valves actuated by fluids where the control valves for these fluids are actuated electrically, but not to any external electrical devices for switching the control signal or actuating energy;
- valves where the flow rate is controlled by external electrical signals, either in discrete steps or proportional to the applied signal;
- valves fitted with closed position indicator switches.

An assessment method for valve designs is given by this document.

The 4<sup>th</sup> paragraph of EN 13611:2019, Clause 1 is removed.

## 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 30-1-4:2012, *Domestic cooking appliances burning gas — Safety — Part 1-4: Appliances having one or more burners with an automatic burner control system*

EN 298:2022, *Automatic gas burner control systems for gas burners and gas burning appliances with or without fans*

EN 13611:2019<sup>2</sup>, *Safety and control devices for burners and appliances burning gaseous and/or liquid fuels — General requirements*

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*

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<sup>2</sup> As impacted by EN 13611:2019/AC:2021.