

Automatic shut-off valves for gas burners and gas appliances

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Automatic shut-off valves for gas burners and gas appliances

Robinets 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 20 February 2011 and includes Amendment 2 approved by CEN on 10 June 2012 and Amendment 3 approved by CEN on 10 November 2012.

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.

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Foreword

This document (EN 161:2011+A3:2013) 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of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.

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 supersedes A3 EN 161:2011+A2:2012 A3.

This document includes Amendment 2, approved by CEN on 2012-06-10 and Amendment 3 approved by CEN on 2012-11-10.



The start and finish of text introduced or altered by amendment is indicated in the text by tags A2 A2 and A3 A3.

This document is intended to be used in conjunction with A2 EN 13611:2007+A2:2011 A2. This document refers to clauses of A2 EN 13611:2007+A2:2011 A2 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 European Standard adds clauses or sub-clauses to the structure of A2 EN 13611:2007+A2:2011 A2 which are particular to this European Standard i.e. sub-clauses or annexes, which are additional to those in A2 EN 13611:2007+A2:2011 A2, are numbered starting from 101 or are designated as Annex AA, BB, CC etc. It should be noted that these clauses and sub-clauses are not indicated as an addition.


A3 At the time of publication of Amendment 2, Amendment 1 was still at the draft stage. Therefore, there will be no Amendment 1 for this project. The present document incorporates the changes of the original Amendment 1 and Amendment 2. A3

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


- a) alignment to A2 EN 13611:2007+A2:2011 A2;
- b) normative references: ISO 4400 and ISO 6952 are changed to EN 175301-803;
- c) terms and definitions are aligned to A2 EN 13611:2007+A2:2011 A2;
- d) A3 sub-clause 6.2.105, Balanced valves, has been changed;
- e) sub-clause 6.2.107, Additional requirements for shut-off function, has been changed; A3
- f) sub-clause 6.101 has been moved to sub-clause 8.11.102;
- g) A3 sub-clause 7.105.1, Sealing force requirements, has been changed; A3
- h) installation and operating instructions are integrated in one sub-clause;

- i)  addition of new Annexes AA and BB; 
- j) changes in Annex ZA regarding 1.2, 1.2.2, 1.2.3, 1.3, 3.1.1, 3.3, 3.6, 3.7, 3.8, 3.11, 3.12, 3.2.1 and in addition Annex II and III were deleted.

SIL classification according to EN 61508 cannot be claimed based upon compliance with this standard. Valves with SIL classification do not meet automatically the requirements of this standard.

 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 span 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 dangerous situations occurring 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. The PL assessment in Annex AA is only applicable to automatic shut-off valves which are already certified to this European Standard. 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.

To be able to provide parameters to allow for any formal Safety Integrity Level or Performance Level system assessment the Annexes AA and BB of this document define a methodology to derive the relevant parameters from the requirements of this 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.

1 Scope

This European Standard specifies the safety, construction and performance requirements for automatic shut-off valves for use with gas burners, gas appliances and similar use, hereafter referred to as 'valves'.

This European Standard is applicable to valves with declared maximum inlet pressures up to and including 500 kPa (5 bar) of nominal connection sizes up to and including DN 250 for use with one or more fuel gases in accordance with EN 437.

This European Standard is applicable to electrically operated valves and to 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.

An assessment method for valve designs is given by this European Standard.

This European Standard is also applicable to valves where the flow rate is controlled by external electrical signals, either in discrete steps or proportional to the applied signal.

This European Standard is also applicable to valves fitted with closed position indicator switches.

NOTE Provisions for final product inspection and testing by the manufacturer are not specified.

Ⓐ₃ This European standard establishes methodologies for the determination of a Performance Level (PL) in accordance with EN 13611:2007+A2:2011, Annexes K and L. Ⓐ₃

2 Normative references

The following referenced documents are indispensable for the application 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 (all parts), *Domestic cooking appliances burning gas*

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

Ⓐ₂ EN 13611:2007+A2:2011 Ⓐ₂, *Safety and control devices for gas burners and gas burning appliances — General requirements*

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

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



EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 60730-1:2000, *Automatic electrical controls for household and similar use — Part 1: General requirements (IEC 60730-1:1999, modified)*

EN 61058-1, *Switches for appliances — Part 1: General requirements (IEC 61058-1:2000 modified + A1:2001 (Equivalent))*

EN 175301-803, *Detail Specification: Rectangular connectors — Flat contacts, 0,8 mm thickness, locking screw not detachable*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in  EN 13611:2007+A2:2011  and the following apply.

3.101

automatic shut-off valve

valve which opens when energized and closes automatically when de-energized

3.102

actuating mechanism

part of the valve which moves the closure member

3.103

valve with step control

valve which controls the flow rate in steps

3.104

valve with modulating control

valve which controls the flow rate continuously between two limits in response to external electrical signals

3.105

closed position indicator switch

switch fitted to a valve which indicates when the closure member is in the closed position

3.106

actuating energy

required energy for the actuating mechanism to move the closure member to the open position

NOTE The actuating energy can have an external source (electrical, pneumatic or hydraulic) and can be transformed inside the valve.

3.107

opening force

force required to move the closure member to the open position

3.108

closing force

force available to close the valve, independent of any force provided by fuel gas pressure

3.109

sealing force

force acting on the valve seat when the closure member is in the closed position, independent of any force provided by fuel gas pressure

3.110

frictional force

largest force required to move the actuating mechanism and the closure member from the open position to the closed position with the closure spring removed, independent of any force provided by fuel gas pressure

3.111

actuating pressure

hydraulic or pneumatic pressure supplied to the actuating mechanism of the valve