

Bezpečnostné a ovládacie zariadenia horákov a spotrebičov na plynné palivá Časť 2: Regulátory tlaku plynu na vstupný tlak od 50 kPa do 500 kPa vrátane

STN EN 88-2+A1

06 1021

Safety and control devices for gas burners and gas burning appliances - Part 2: Pressure regulators for inlet pressures above 50 kPa up to and including 500 kPa

Táto norma obsahuje anglickú verziu európskej normy. This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/25

Obsahuje: EN 88-2:2022+A1:2024

Oznámením tejto normy sa od 30.11.2027 ruší STN EN 88-2 (06 1021) z januára 2023

140064

STN EN 88-2+A1: 2025

EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 88-2:2022+A1

November 2024

ICS 23.060.40

English Version

Safety and control devices for gas burners and gas burning appliances - Part 2: Pressure regulators for inlet pressures above 50 kPa up to and including 500 kPa

Dispositifs de sécurité et de contrôle pour les brûleurs à gaz et appareils utilisant des combustibles gazeux -Partie 2 : Régulateurs de pression pour pressions amont comprises entre 50 kPa et 500 kPa Sicherheits- und Regeleinrichtungen für Gasbrenner und Gasgeräte - Teil 2: Druckregler für Eingangsdrücke über 50 kPa bis einschließlich 500 kPa

This European Standard was approved by CEN on 8 August 2022 and includes Amendment 1 approved by CEN on 3 July 2024.

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.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

Europ	ean foreword	5
Introd	luction	6
1	Scope	8
2	Normative references	8
3	Terms and definitions	9
4	Classification	14
4.1	Classes of control	
4.2	Groups of control	
4.3	Classes of control functions	
4.4	Types of <i>DC</i> supplied controls	
5	Test conditions and uncertainty of measurements	15
6	Design and construction	15
6.1	General	15
6.2	Mechanical parts of the control	
6.2.1	Appearance	
6.2.2	Holes	15
6.2.3	Breather holes	15
6.2.4	Screwed fastenings	
6.2.5	Jointing	
6.2.6	Moving parts	
6.2.7	Sealing caps	
6.2.8	Dismantling and reassembly	
6.2.9	Auxiliary canals and orifices	
	Presetting device	
6.2.10		
6.2.10	8 8	
6.2.10	- · / · - · · · ·	
6.2.10		
6.2.10	_	
6.2.10	0	
6.2.10	1	
	Materials	
6.3.1	General material requirements	
6.3.2	HousingZinc alloys	
6.3.3 6.3.4	Springs	
6.3. 4	Resistance to corrosion and surface protection	
6.3.6	Impregnation	
6.3.7	Seals for glands for moving parts	
6.4	Gas connections	
6.5	Electrical parts of the control	
6.5.1	General	
6.5.2	Switching elements	
6.5.3	Electrical components	
6.6	Protection against internal faults for the purpose of functional safety	

7	Performance	18
7.1	General	18
7.2	Leak-tightness	19
7.2.1	Requirements	19
7.2.2	Tests	
7.3	Torsion and bending	
7.4	Rated flow rate	
7.4.1	Requirements	
7.4.2	Test	
7.4.3	Conversion of air flow rate	
7. 1 .5	Durability	_
7.5.1	Elastomers in contact with gas	
7.5.1 7.5.2	Marking	
7.5.2 7.5.3	Resistance to scratching	
	0	
7.5.4	Resistance to humidity	
7.6	Performance tests for electronic controls	_
7.7	Long-term performance for electronic controls	
7.8	Data exchange	
	Pressure regulator performance	
7.101.		
7.101.	1	
	Safety devices	
7.102.	r	
7.102.	2 Under-pressure safety shut-off devices	30
7.102.	3 Endurance of safety device	30
8	Electrical requirements	21
8.1	4	
_	General	
8.2	Protection by enclosure	
8.101	Plug connections	31
9	Electromagnetic compatibility (EMC)	32
9.1	Protection against environmental influences	32
9.2	Supply voltage variations below 85 % of rated voltage	
9.3	Voltage dips and interruptions	
9.4	Supply frequency variations	
9.5	Surge immunity tests	
9.6	Electrical fast transient/burst	
9.7	Immunity to conducted disturbances induced by radio frequency fields	
9.8	Immunity to radiated disturbances induced by radio frequency fields	
9.9	Electrostatic discharge tests	
	Power frequency magnetic field immunity tests	34 22
9.10		32
9.11	Harmonics and interharmonics including mains signalling at a. c. power port, low	22
	frequency immunity tests	32
10	Marking, instructions	33
10.1	Marking	33
10.2	Instructions	
10.3	Warning notice	
Annex	A (informative) Abbreviations and Symbols	35
Annex	B (informative) Leak-tightness tests for gas controls – volumetric method	36
	C (informative) Leak-tightness tests for gas controls – pressure loss method	
Annex	D (normative) Conversion of pressure loss into leakage rate	38
	-	

Annex	E (normative) Electrical/electronic component fault modes	39
Annex	F (normative) Additional requirements for safety accessories and pressure accessories as defined in EU Directive 2014/68/EU	40
Annex	G (normative) Materials for pressurized parts	41
Annex	H (normative) Additional materials for pressurized parts	42
Annex	I (normative) Requirements for controls used in <i>DC</i> supplied burners and appliances burning gaseous or liquid fuels	43
Annex	J (normative) Method for the determination of a Safety Integrity Level (SIL)	44
Annex	K (normative) Method for the determination of a Performance Level (PL)	45
Annex	L (informative) Relationship between Safety Integrity Level (SIL) and Performance Level (PL)	46
Annex	M (normative) Reset functions	47
Annex	N (informative) Guidance document on Environmental Aspects	48
Annex	O (normative) Seals of elastomer, cork and synthetic fibre mixtures	49
Annex	AA (informative) Typical pressure regulators and safety devices	50
AA.1	Main components of a pressure regulator	50
AA.2	Main components of a safety shut-off device	53
Annex	BB (informative) Overview of requirements and test conditions (as given in 7.101), and examples of performance curves for pressure regulators	55
Annex	CC (normative) Creep relief device	58
CC.1	General	58
CC.2	Design and construction	58
CC.3	Performance requirements	58
CC.4	Marking, instructions	58
Annex	DD (informative) Comparison between EN 334:2019 and 🖅 EN 88- 2:2022+A1:2024 🔠	59
Annex	ZA (informative) Relationship between this European Standard and the essential requirements of Regulation (EU) 2016/426 aimed to be covered	60
Bibliog	graphy	63

European foreword

This document (EN 88-2:2022+A1:2024) 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 May 2025, and conflicting national standards shall be withdrawn at the latest by November 2027.

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 includes Amendment 1 approved by CEN on 3 July 2024.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{\mathbb{A}}$ $\boxed{\mathbb{A}}$.

This document supersedes $\boxed{\mathbb{A}_1}$ EN 88-2:2022.

This standard differs from EN 88:2022 as follows:

a) Annex ZA has been brought in line with Mandate M/595 and the normative references are updated. (4)

A1) deleted text (A1

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.

The EN 88 series consists of the following parts:

- EN 88-1, Safety and control devices for gas burners and gas burning appliances Part 1: Pressure regulators for inlet pressures up to and including 50 kPa;
- EN 88-2, Safety and control devices for gas burners and gas burning appliances Part 2: Pressure regulators for inlet pressures above 50 kPa up to and including 500 kPa;
- EN 88-3, Safety and control devices for gas burners and gas burning appliances Part 3: Pressure and/or flow rate regulators for inlet pressures up to and including 500 kPa, electronic types.

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.

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.

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).

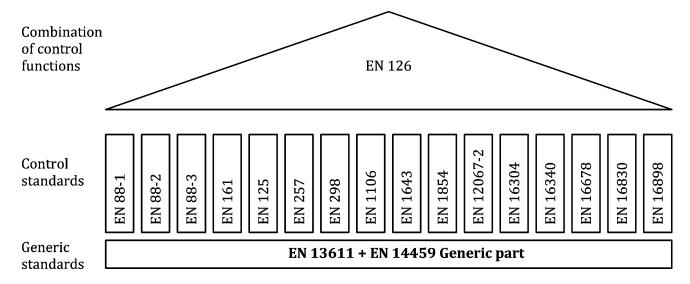


Figure 1 — Interrelation of control standards

EN 13611:2019 should be used in conjunction with the specific standard for a specific type of control (e.g. A) EN 88-1:2022+A1:2023 (A), A) EN 88-2:2022+A1:2024 (A), A) EN 88-3:2022+A1:2024 (A), A) EN 125:2022+A1:2024 (A), EN 126:2012, EN 161:2022, A) EN 257:2022+A1:2023 (A), EN 298:2022, A) EN 1106:2022+A1:2023 (A), EN 1643:2022, A) EN 1854:2022+A1:2023 (A), EN 12067-2:2022, A) EN 16304:2022+A1:2024 (A), EN 16340:2014, EN 16678:2022 and A) EN 16898:2022+A1:2023 (A), 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.

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, BB, 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 "pressure regulator".

1 Scope

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

Modification:

The 1st paragraph of EN 13611:2019, Clause 1 is replaced by:

This document specifies the safety, design, construction, and performance requirements and testing for pneumatic pressure regulators and safety devices for burners and appliances burning one or more gaseous fuels, hereafter referred to as "pressure regulators".

This document is applicable to pressure regulators with declared maximum inlet pressures above 50 kPa up to and including 500 kPa and of nominal connection sizes up to and including DN 250.

Addition:

This document is applicable to:

- pressure regulators incorporating safety devices;
- pressure regulators and safety devices which use auxiliary energy;
- stand-alone pressure regulators or pressure regulators equipped with a control device for maximum or minimum gas pressure.

This document is not applicable to:

- pressure regulators connected directly to a gas distribution network or to a container that maintains a standard distribution pressure;
- pressure regulators intended for gas appliances to be installed in the open air and exposed to the environment.

The 4th 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 161:2022, Automatic shut-off valve for gas burners and gas appliances

EN 549:2019+A2:2024 (A), Rubber materials for seals and diaphragms for gas appliances and gas equipment

EN 682:2002, ¹ Elastomeric seals — Materials requirements for seals used in pipes and fittings carrying gas and hydrocarbon fluids

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

¹ As impacted by EN 682:2002/A1:2005.

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

EN 60534-2-3:2016, Industrial-process control valves — Part 2-3: Flow capacity — Test procedures (IEC 60534-2-3:2015)

EN 175301-803:2006, Detail Specification: Rectangular connectors — Flat contacts, 0,8 mm thickness, locking screw not detachable

koniec náhľadu – text ďalej pokračuje v platenej verzii STN