SLOVENSKI STANDARD
SIST EN 125:2022

01-december-2022

Nadomešča:
SIST EN 125:2010+A1:2016

Naprave za nadzor plamena pri plinskih aparatih - Termoelektrična varovala

Flame supervision devices for gas burning appliances - Thermoelectric flame supervision devices

Flammenüberwachungseinrichtungen für Gasgeräte - Thermoelektrische Zündsicherungen

Dispositifs de surveillance de flamme pour appareils à gaz - Dispositifs thermoélectriques de surveillance de flamme

Ta slovenski standard je istoveten z: **EN 125:2022**

ICS:

27.060.20	Plinski gorilniki	Gas fuel burners

SIST EN 125:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 125

October 2022

ICS 27.060.20

Supersedes EN 125:2010+A1:2015

English Version

Flame supervision devices for gas burning appliances - Thermoelectric flame supervision devices

Dispositifs de surveillance de flamme pour appareils à gaz - Dispositifs thermoélectriques de surveillance de flamme

Flammenüberwachungseinrichtungen für Gasgeräte - Thermoelektrische Zündsicherungen

This European Standard was approved by CEN on 8 August 2022.

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

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Ref. No. EN 125:2022 E

Contents

Page

European foreword

This document (EN 125:2022) 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of an identical text or by endorsement, at the latest by April 2023, and conflicting national standards shall be withdrawn at the latest by October 2025.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 125:2010+A1:2015.

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) clarification regarding sealing forces in the same and opposite direction of closing member.

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.

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).

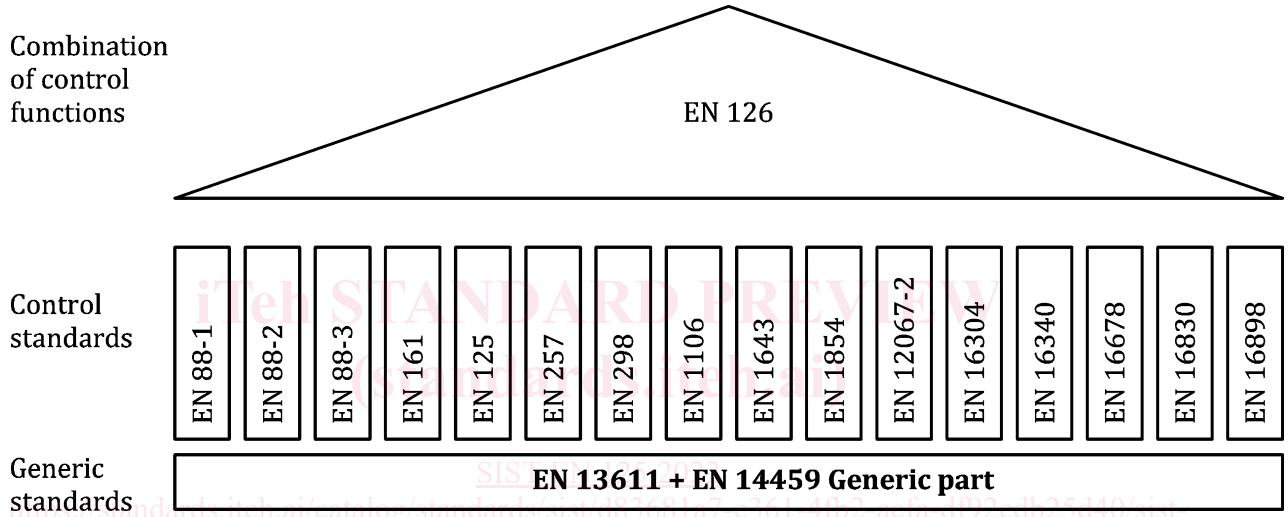

Figure 1 — Interrelation of control standards

EN 13611:2019 should be used in conjunction with the specific standard for a specific type of control (e.g. 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:—[1], 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.

1 Under preparation. Stage at the time of publication: FprEN 1854:2022.

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 designed as Annex AA, BB, CC, etc. It should be noted that these clauses, subclauses and Annexes are not indicated as an addition.

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 thermoelectric flame supervision devices, energized by a thermocouple intended for use with burners and appliances burning one or more gaseous fuels, hereafter referred to as “controls”.

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

Addition:

This document is not applicable to:

— the thermocouple;

— controls which use auxiliary energy (e.g. electrical energy supplied externally).

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13611:2019 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.101
thermocouple
thermoelectric flame sensing element that responds to the temperature of the supervised flame, and in which the flame effect produces an electromotive force (e.m.f.)

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

3.102
thermoelectric flame supervision device
control which, in response to the e.m.f. produced by the thermocouple, maintains the gas way to the main burner or the main burner and the pilot burner open and which shuts off the gas way to the main burner at least, after extinction of the supervised flame

Note 1 to entry: For further reference, see Figure AA.1 and Figure AA.2.

3.103
ignition interlock
part which prevents the igniter from operating as long as the main gas way is open

3.104
re-start interlock
mechanism which prevents the re-opening of the gas way to the main burner or to the main burner and the pilot burner until the armature plate has separated from the magnetic element

Note 1 to entry: For further information, see Figure AA.1 and Figure AA.2.

3.105
sealing force
force acting on the closure member when the closure member is in the closed position, independent of any force provided by fuel gas pressure

3.106
closed position
position of the closure member(s) in the absence of the thermoelectric energy

4 Classification

4.1 Classes of control

EN 13611:2019, 4.1 is replaced by the following:

Controls shall be classified A, B or C according to the number of operations as tested in 7.105.2.2.

4.2 Groups of control

Shall be according to EN 13611:2019, 4.2.

4.3 Classes of control functions

EN 13611:2019, 4.3 is not applicable.

4.4 Types of DC supplied controls

EN 13611:2019, 4.4 is not applicable.

5 Test conditions and uncertainty of measurements

Shall be according to EN 13611:2019, Clause 5.

6 Design and construction

6.1 General

Shall be according to EN 13611:2019, 6.1 with the following modification and addition:

The 3rd paragraph of EN 13611:2019, 6.1 is not applicable.

Controls shall shut off the gas way to the burner automatically with at least the sealing force specified in 7.104 in case of failure in the thermoelectric current. Controls shall also be designed so that during ignition either the gas way to the main burner is open, if there is no pilot burner, or the gas way to the main burner is closed and that to the pilot burner is open.

6.2 Mechanical parts of the control

6.2.1 Appearance

Shall be according to EN 13611:2019, 6.2.1.

6.2.2 Holes

Shall be according to EN 13611:2019, 6.2.2.

6.2.3 Breather holes

EN 13611:2019, 6.2.3 is not applicable.

6.2.4 Screwed fastenings

Shall be according to EN 13611:2019, 6.2.4.

6.2.5 Jointing

Shall be according to EN 13611:2019, 6.2.5.

6.2.6 Moving parts

Shall be according to EN 13611:2019, 6.2.6.

6.2.7 Sealing caps

Shall be according to EN 13611:2019, 6.2.7.

6.2.8 Dismantling and reassembly

Shall be according to EN 13611:2019, 6.2.8.

6.2.9 Auxiliary canals and orifices

Shall be according to EN 13611:2019, 6.2.9.

6.2.10 Presetting device

Shall be according to EN 13611:2019, 6.2.10.

6.3 Materials

6.3.1 General material requirements

Shall be according to EN 13611:2019, 6.3.1.

6.3.2 Housing

Shall be according to EN 13611:2019, 6.3.2.

6.3.3 Zinc alloys

Shall be according to EN 13611:2019, 6.3.3.

6.3.4 Springs

Shall be according to EN 13611:2019, 6.3.4.

6.3.5 Resistance to corrosion and surface protection

Shall be according to EN 13611:2019, 6.3.5.

6.3.6 Impregnation

Shall be according to EN 13611:2019, 6.3.6.

6.3.7 Seals for glands for moving parts

Shall be according to EN 13611:2019, 6.3.7.

6.4 Gas connections

6.4.1 Making connections

Shall be according to EN 13611:2019, 6.4.1.

6.4.2 Connection sizes

Shall be according to EN 13611:2019, 6.4.2.

6.4.3 Threads

Shall be according to EN 13611:2019, 6.4.3.

6.4.4 Union joints

Shall be according to EN 13611:2019, 6.4.4.

6.4.5 Flanges

Shall be according to EN 13611:2019, 6.4.5.

6.4.6 Compression fittings

Shall be according to EN 13611:2019, 6.4.6.

6.4.7 Nipples for pressure test

Shall be according to EN 13611:2019, 6.4.7.

6.4.8 Strainers

Shall be according to EN 13611:2019, 6.4.8 with the following addition:

Strainers fitted to controls of DN 25 and above shall be accessible for cleaning or replacement without the need to remove the control body by dismantling threaded or welded pipe work.

6.5 Electronic parts of the control

EN 13611:2019, 6.5 is not applicable.

6.6 Protection against internal faults for the purpose of functional safety

EN 13611:2019, 6.6 is not applicable.

7 Performance

7.1 General

Shall be according to EN 13611:2019, 7.1 with the following addition:

Tests shall be conducted in the sequence shown in Table 1.

Table 1 — Sequence of testing

Clauses no.	Type of test
7.2	Test for leak-tightness
7.4	Test for rated flow rate
7.101.2	Test for operating torque and force
7.102.2	Test for interlocks
7.104.2	Test for sealing force
7.103.2	Test for closing current
7.3	Torsion and bending tests
7.105.2.1	Static endurance test
7.105.2.2	Dynamic endurance test
7.5	Durability

7.2 Leak-tightness

7.2.1 Requirements

EN 13611:2019, 7.2 is replaced by the following:

Controls shall be leak-tight in accordance with the leakage rates given in Table 2.

Table 2 — Maximum leakage rates

Gas connection nominal inlet size DN	Maximum leakage rates cm³/h of air			
	Internal leak tightness		External leak tightness	
	Closed (de-energized) position	Ignition position	Operating and closed (de-energized) position	Ignition position
DN < 10	20		20	170
10 ≤ DN ≤ 25	40	5 000	40	190
25 < DN ≤ 50	60		60	210

NOTE The ignition position is manually actuated for a limited time.