

Specification for

Flame supervision devices for gas-burning appliances — Thermo-electric types

The European Standard EN 125:1991 with the incorporation of its amendment A1:1996, has the status of a British Standard

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National foreword

This British Standard has been prepared under the direction of the Gas Standards Policy Committee and is the English language version of EN 125 “*Flame supervision devices for gas-burning appliances — Thermo-electric flame supervision devices*” (including Amendment A1), published by the European Committee for Standardization (CEN).

EN 125 was produced as a result of international discussion in which the UK took an active part.

National appendix NA gives the constitution of the committees responsible for UK participation in the preparation of this standard.

National appendix NB gives details of international standards quoted in this standard for which there is an identical or technically equivalent British Standard.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 26, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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English version

Flame supervision devices for gas burning appliances — Thermo-electric flame supervision devices

(includes amendment A1:1996)

Dispositifs de surveillance de flamme pour
appareils utilisant les combustibles gazeux —
Dispositifs thermoélectriques de sécurité à
l'allumage et à l'extinction
(inclut l'amendement A1:1996)

Flammenüberwachungseinrichtungen für
Gasgeräte — Thermoelektrische
Züandsicherungen
(enthält Änderung A1:1996)

This European Standard was approved by CEN on 5 June 1991, amendment A1 was approved by CEN on 30 November 1995. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Standard was prepared by the technical committee CEN/TC 58 “*Safety and control devices for gas burners and gas-burning appliances*”, the Secretariat of which is held by BSI.

This European Standard has been prepared under a mandate given to CEN by the Commission of European Communities and the European Free Trade Association and supports Essential Requirements of EC Directives.

This standard covers type testing only.

In accordance with the Common CEN/CENELEC Rules, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Foreword to amendment A1

This Amendment EN 125:1991/A1:1996 to EN 125:1991 has been prepared by Technical Committee CEN/TC 58 “*Safety and control devices for gas-burners and gas-burning appliances*”, the Secretariat of which is held by BSI.

This Amendment to the European Standard EN 125:1991 is issued to align the standard with the essential requirements of the Gas Appliance Directive (90/336/EEC) and to correct errors in the first edition of the standard.

This Amendment to the European Standard EN 125:1991 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 Directive(s).

According to the CEN/CENELEC International Regulations, the national standards organizations of the following countries are bound to implement this Amendment: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 General

1.1 Object and field of application

This standard specifies the safety, constructional and performance requirements for thermo-electric flame supervision devices, energized by a thermocouple, hereafter referred to as devices, intended for use with gas appliances. It also gives the test procedures for evaluating these requirements and information necessary for the purchaser and user.

This standard applies to devices of nominal connection size up to and including DN 50 for use with one or more fuel gases of the 1st, 2nd or 3rd families.

This standard does not cover:

- a) the thermocouple; or
- b) devices which use auxiliary energy (e.g. electrical energy supplied externally).

1.2 References

ISO 7-1:1982, *Pipe threads where pressure tight joints are made on the threads —*

Part 1: Designation, dimensions and tolerances.

ISO 65:1981, *Carbon steel tubes suitable for screwing in accordance with ISO 7-1.*

ISO 228-1:1982, *Pipe threads where pressure-tight joints are not made on the threads —*

Part 1: Designation, dimensions and tolerances.

ISO 262:1973, *ISO general purpose metric screw threads — Selected sizes for screws, bolts and nuts.*

ISO 274:1975, *Copper tubes of circular section — Dimensions.*

ISO 301:1981, *Zinc alloy ingots intended for casting.*

ISO 1817:1985, *Rubber, vulcanized — Determination of the effect of liquids.*

ISO 7005:1988, *Metallic flanges.*

IEC 730-1(1986), *Automatic electrical controls for household and similar use — Part 1: General requirements.*

1.3 Definitions

1.3.1 Component parts

1.3.1.1

thermocouple

thermo-electric 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.)

1.3.1.2

flame supervision device

device which, in response to the e.m.f. produced by the thermocouple maintains the gas supply to the main burner or the main burner and the pilot burner open and which shuts off the gas supply to the main burner at least, after extinction of the supervised flame (see Figure 6 and Figure 7)

1.3.1.3

ignition interlock

part which prevents the operation of the igniter as long as the main gasway is open

1.3.1.4

re-start interlock

mechanism which prevents the re-opening of the gasway to the main burner or to the main burner and the pilot burner until the armature plate has separated from the magnetic element

1.3.1.5

closure member

movable part of the device which shuts off the gas flow

1.3.2 Operational terms

1.3.2.1 leak-tightness

1.3.2.1.1

external leak-tightness

leak-tightness of a gas-carrying compartment with respect to the atmosphere

1.3.2.1.2

internal leak-tightness

leak-tightness of the closure member (in the closed position) sealing a gas-carrying compartment with respect to another compartment or to the outlet of the device

1.3.2.2 pressures

1.3.2.2.1

inlet pressure

pressure at the inlet of the device

1.3.2.2.2

outlet pressure

pressure at the outlet of the device

1.3.2.2.3

maximum working pressure

highest inlet pressure declared by the manufacturer at which the device may be operated

1.3.2.2.4

minimum working pressure

lowest inlet pressure declared by the manufacturer at which the device may be operated

1.3.2.3**pressure difference**

difference between the inlet and outlet pressures

1.3.2.4**flow rate**

volume of the medium flowing through the device in unit time

1.3.2.5**rated flow rate**

highest air flow rate at a pressure difference of 1 mbar with the device in the fully open position declared by the manufacturer corrected to standard conditions

1.3.2.6 temperature**1.3.2.6.1****maximum ambient temperature**

highest temperature of the surrounding air declared by the manufacturer at which the device may be operated

1.3.2.6.2**minimum ambient temperature**

lowest temperature of the surrounding air declared by the manufacturer at which the device may be operated

1.3.2.7**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

1.3.2.8**mounting position**

position declared by the manufacturer for mounting the device

1.3.2.9**de-energized position**

position of the valve or valves in the absence of the thermo-electrical energy

1.3.2.10 text deleted**1.4 Classification****1.4.1 Classes of device**

Devices are classified by application into classes A, B or C (see 4.9.3.2). These classes are characterized for the number of operations that may be expected of the device during the life of the appliance.

1.4.2 Groups of device

A device is classified as group 1 or group 2 according to the bending stresses that it is required to withstand (see Table 4).

— Group 1 devices

Devices for use in an appliance and/or installation where they are not subjected to bending stresses imposed by installation pipework, e.g. by the use of rigid adjacent supports.

— Group 2 devices

Devices for use in any situation, either internal or external to the appliance, typically without support.

NOTE A device which complies with the requirements for group 2 devices complies also with the requirements for group 1 devices.

1.5 Measuring units

1.5.1 All dimensions are given in millimetres.

1.5.2 All pressures are static pressures above the atmospheric pressure and are expressed in millibars.

1.5.3 Bending moments and torques are given in newton metres.

2 Construction requirements**2.1 General construction requirements**

2.1.1 Devices shall be designed, manufactured, and assembled so that they function correctly when installed and used according to the manufacturer's instructions.

They shall be designed such that in the event of failure in the thermo-electric current, the device automatically shuts off the gas supply to the burner with at least the sealing force specified in 3.10.

2.1.2 Devices shall be free from sharp edges and corners which might cause damage, injury or incorrect operation.

All parts shall be clean internally and externally.

2.1.3 Holes for screws, pins, etc., which are used for the assembly of parts of the device or for mounting, shall not penetrate gasways.

The wall thickness between these holes and gasways shall be at least 1 mm.

2.1.4 Holes necessary in manufacture which connect gasways to the atmosphere but which do not affect the function of the device shall be permanently sealed by metallic means. Suitable jointing compounds may additionally be used.