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Multifunctional controls for gas burning appliances

Mehrfachstellgeräte für Gasgeräte

Robinetterie multifonctionnelle pour les appareils utilisant les combustibles gazeux

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Multifunctional controls for gas burning appliances

Robinetterie multifonctionnelle pour les appareils utilisant les combustibles gazeux

Mehrfachstellgeräte für Gasgeräte

This European Standard was approved by CEN on 2 February 2004.

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Foreword

This document (EN 126:2004) 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 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of an identical text or by endorsement, at the latest by September 2004, and conflicting national standards shall be withdrawn at the latest by September.

This document 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).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

This document supersedes EN 126:1995.

This European Standard covers type testing only.

This standard recognizes the safety level specified by CEN/TC 58 dealing with the safety, construction and performance of controls for gas burners and gas burning appliances and to their testing.

This European Standard is to be used in conjunction with EN 13611 "Safety and control devices for gas burners and gas-burning appliances - General requirements". This control standard refers to clauses of EN 13611 or adapting it by stating "Addition", "Modification" or "Replacement" in the corresponding clause.

This European Standard is also to be used in conjunction with other specific control and appliance European Standards listed in the normative references. Again by clause reference or adaption as indicated above.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This standard is a particular standard for specific controls for gas burners and gas burning appliances which cites EN 13611 "Safety and control devices for gas burners and gas-burning appliances – General requirements" where ever possible. This standard supplements or modifies the corresponding clauses of EN 13611. The construction and performance requirements are as far as applicable in total conformity with EN 13611.

Since a multifunctional control is a combination of at least two control functions for which, also specific requirements in standards exist, these specific requirements are part of this standard if they are relevant in a multifunctional control.

1 Scope

This European Standard specifies the safety, constructional and performance requirements for multifunctional controls for gas burners and gas appliances, hereafter referred to as multifunctional controls. It also gives the test procedures for evaluating these requirements and information necessary to the purchaser and the user.

It applies to multifunctional controls of nominal inlet connection size up to and including DN 150 with a declared maximum working pressure up to and including 500 mbar for use on burners or in appliances for use with one or more fuel gases of the 1st, 2nd or 3rd families.

This European Standard covers type testing only

It applies to multifunctional controls with two or more of the following functions, one of which is a shut-off function.

These additional functions may be:

— manually operated tap

— flame supervision device

— governor

— flow rate adjuster

— water-operated gas valve

— mechanical thermostat

— gas pressure sensing device

— gas/air ratio control

Multifunctional controls complying with this standard may also include additional features (e. g. igniters, timers).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 26:1997, *Gas-fired instantaneous water heaters for sanitary uses production, fitted with atmospheric burners.*

EN 88:1991, *Pressure governors for gas appliances for inlet pressures up to 200 mbar.*

EN 125:1991, *Flame supervision devices for gas burning appliances - Thermo-electric flame supervision devices.*

EN 161:2001, *Automatic shut-off valves for gas burners and gas appliances.*

EN 257:1992, *Mechanical thermostats for gas-burning appliances.*

EN 549, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 1106:2001, *Manually operated taps for gas burning appliances.*

EN 1854:1997, *Pressure sensing devices for gas burners and gas burning appliances.*

EN 13611:2000, *Safety and control devices for gas burners and gas-burning appliances – General requirements.*

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

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 13611:2000 and the following apply.

3.1
multifunctional control
control having two or more functions, one of which is a shut-off function, integrated within one housing, whereby the functional parts can not operate if separated

3.1.1
auxiliary energy
external energy for the multifunctional control (e. g. electric, pneumatic or hydraulic auxiliary energy) other than that provided by the thermocouple

3.1.2
maximum working pressure
highest inlet pressure declared by the manufacturer at which the control may be operated

NOTE In some application standards this is also called max. operating pressure (MOP).

3.2
manually operated taps
directly or indirectly manually operated devices with one or more outlets for the control of the flow of gas from an off to an on position and vice versa [EN 1106:2001, definition 3.1.1]

3.3
thermo-electric flame supervision device
device which, in response to a sensed flame by the flame sensor, maintains the gas supply to the main burner or the main burner and the pilot burner and which shuts off the gas supply to the main burner at least, after extinction of the supervised flame [EN 125:1991, definition 1.3.1.2]

3.3.1
ignition interlock
part which prevents the operation of the igniter as long as the main gasway is open [EN 125:1991, definition 1.3.1.3]

3.3.2
re-start interlock
mechanism which prevents the manual re-opening of the gasway to the main burner or to the main burner and the pilot burner during the closing time of the flame supervision device [EN 125:1991, definition 1.3.1.4]

3.4
governor
device which maintains the outlet pressure constant independent of the variations in inlet pressure and/or flow rate, within defined limits [EN 88:1991, definition 1.3.1.1]

3.5
rated flow rate
air flow rate at a given pressure difference, declared by the manufacturer, corrected to standard conditions

3.5.1
pre-setting device
device for adjusting an operating condition by an authorized person only. It may be fixed or variable, e. g. when the gas flow is adjustable, either an orifice or an adjusting screw may be used

3.6
automatic shut-off valve
valve which opens when energized and closes automatically when de-energized [EN 161:2001, definition 3.1]

3.6.1
closure member
movable part of the valve which shuts off the gas flow [EN 161:2001, definition 3.4]

3.6.2
actuating mechanism
part of the valve which moves the closure member [EN 161:2001, definition 3.5]

3.6.3
opening time
time interval between energizing the valve and the attainment of the maximum or other defined flow rate [EN 161:2001, definition 3.22]

3.6.4
closing time
time interval between de-energizing the valve and the closure member attaining the closed position [EN 161:2001, definition 3.23]

3.6.5
delay time
time interval between energizing the valve and the start of flow [EN 161:2001, definition 3.24]

3.7
automatic water-operated gas valve
valve which controls the gas flow in relation to the water flow

3.8
mechanical thermostat
thermostat which controls the temperature by adjusting the flow rate in accordance with the sensor temperature without any external energy, so that the temperature remains within given limits [EN 257:1992, definition 3.1]

3.8.1
fixed setting thermostat
thermostat that has a pre-set fixed operating temperature which cannot be adjusted by the user [EN 257:1992, definition 3. 2.2]

3.8.2
snap-acting thermostat
thermostat with only two positions for the flow rate, e.g. "Full on – Off", "Full on – Reduced rate" or "Reduced rate – Off" [EN 257:1992, definition 3.2.3]

3.8.3
backlash
difference of position of the adjusting knob when it is moved in both directions to obtain the same flow rate at a constant sensor temperature [EN 257:1992, definition 3.14]

3.8.4
calibration temperature set-point
temperature at which the calibration flow rate should be obtained with the adjustment set to the position and in the direction declared by the manufacturer [EN 257:1992, definition 3.18.6]

3.9
pressure sensing device
device which senses pressure and provides a signal [EN 1854:1997, definition 3.1]

3.10
rated voltage
voltage declared by the manufacturer at which the multifunctional control may be operated

4 Classification

4.1 Classes of shut-off valves

According to EN 161:2001, 4.1.

4.2 Classes of flame supervision devices

According to EN 125:1991, 1.4.1.

4.3 Classes of governors

According to EN 88:1991, 1.4.1.

4.4 Groups of multifunctional controls

Multifunctional controls are grouped according to EN 13611:2000, 4.2.

4.5 Classification according to the degrees of protection provided by enclosures (IP code)

According to EN 60529.

5 Units of measurement and test conditions

5.1 Dimensions

Dimensions are given in millimetres.

5.2 Pressures

Pressures are static pressures relative to atmospheric pressure and are given in millibars or bars[1)].

5.3 Bending moments and torques

Bending moments and torques are given in Newton metres (N · m).

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1) 1 mbar = 100 N/m^2 = 100 Pa

5.4 Test conditions

5.4.1 General

According to EN 13611:2000, 5.4.

5.4.2 Endurance test

Where possible combined endurance tests shall be performed. Each function shall be checked after its specified number of cycles. The remaining number of cycles for the other functions shall be performed separately.

5.4.3 Mounting position

The tests shall be performed in the mounting position declared by the manufacturer. Where there are several mounting positions, tests shall be performed in the least favourable of the declared positions.

6 Construction requirements

6.1 General

Multifunctional controls shall be designed according to EN 13611:2000, 6.1.

Addition to EN 13611:2000, 6.1:

Multifunctional controls shall be designed such that access to internal parts requires the use of tools.

6.2 Construction

6.2.1 General

Multifunctional controls shall be designed according to the following clauses of EN 13611:2000;

6.2.1 Appearance

6.2.2 Holes

6.2.3 Breather holes

6.2.4 Test for leakage of breather holes

6.2.5 Screwed fastenings

6.2.6 Jointing

6.2.7 Moving parts

6.2.8 Sealing caps

6.2.9 Dismantling and reassembling

Addition to EN 13611:2000, 6.2:

6.2.2 Auxiliary canals and orifices

Blockage of auxiliary canals and orifices shall not lead to an unsafe situation otherwise they shall be protected against blockage by suitable means.