

Zero governors for gas burners and gas burning appliances

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ICS 23.060.40

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National foreword

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- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
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Summary of pages

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English version

Zero governors for gas burners and gas burning appliances

Détendeurs à zéro pour brûleurs à gaz et
appareils à gaz

Nulldruckregler für Gasbrenner und Gasgeräte

This European Standard was approved by CEN on 26 July 1998.

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CEN

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

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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by February 1999, and conflicting national standards shall be withdrawn at the latest by February 1999.

This European Standard 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 standard.

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

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1 Scope

This standard specifies the safety, constructional and performance requirements for zero pressure governors, hereafter referred to as zero governors, 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 zero governors for gas-burning appliances that may be used and tested independently of these appliances. These zero governors are suitable for one or more of the fuel gases of the 1st, 2nd and 3rd families, at inlet pressures up to and including 200 mbar.

This standard does not cover:

- a) zero governors connected directly to distribution pipework or to a container that maintains a standard distribution pressure;
- b) zero governors intended for gas appliances to be installed out-of-doors and exposed to the environment.

This standard covers type testing only.

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.

ISO 7-1:1994, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*.

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

ISO 68:1973, *ISO general purpose screw threads. Basic profile*.

ISO 228-1:1994, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*.

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, *Metallic flanges*.

EN 60730-1:1995, *Automatic electrical controls for household and similar use — Part 1: General requirements*.

3 Definitions

For the purposes of this standard, the following definitions apply.

3.1

zero governor (atmospheric pressure regulator)

device which maintains the outlet pressure constant at a value equal to or close to atmospheric pressure independent of the variations in the inlet pressure and/or flow rate within defined limits

3.2 pressures

3.2.1

inlet pressure (p_1)

pressure at the inlet of the zero governor

3.2.2

outlet pressure (p_2)

pressure at the outlet of the zero governor

3.2.3

test pressure

pressure to be applied during a test

3.2.4

pressure drop

pressure difference between the inlet and the outlet pressure with the zero governor valve open to its fullest extent

3.2.5

maximum inlet pressure ($p_{1\max}$)

highest inlet pressure declared by the manufacturer

3.2.6

minimum inlet pressure ($p_{1\min}$)

lowest inlet pressure declared by the manufacturer

3.2.7

inlet pressure range

range of inlet pressures between the maximum and minimum values

3.2.8

setting point

this refers to the inlet and outlet pressures declared by the manufacturer, at which the zero governor is initially adjusted for test purposes (see 6.5.1 and 7.6.3) at a declared flow rate. The respective pressures and flow rate are termed “inlet setting pressure”, “outlet setting pressure” and “setting flow rate”

3.3 flow rates

3.3.1

maximum flow rate ($q_{\max}$)

maximum rate, as a function of inlet and outlet pressures, declared by the manufacturer and expressed in m³/h of air at standard conditions. For a non-adjustable zero governor there is only one maximum flow rate

3.3.2

minimum flow rate ($q_{\min}$)

minimum rate, as a function of inlet and outlet pressures, declared by the manufacturer and expressed in m^3/h of air at standard conditions. For a non-adjustable zero governor there is only one minimum flow rate

3.3.3

flow rate range

range of flow rates between the maximum and minimum values

3.3.4

setting flow rate

see 3.2.8

3.4 component parts

3.4.1

breather hole

orifice that allows atmospheric pressure to be maintained in a compartment of variable volume

3.4.2

diaphragm

flexible member which, under the influence of the forces arising from loading and pressure, operates the zero governor valve

3.5 performance terms

3.5.1

external leak-tightness (soundness)

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

3.5.2

lock-up pressure

outlet pressure at which a zero governor closes when the outlet of the governor is sealed. The increase in outlet pressure is expressed in mbar

3.5.3

maximum ambient temperature

highest temperature of the surrounding air, declared by the manufacturer at which the zero governor may be operated

3.5.4

minimum ambient temperature

lowest temperature of the surrounding air, declared by the manufacturer at which the zero governor may be operated

3.5.5

mounting position

position declared by the manufacturer for mounting the zero governor

3.6

response time

the maximum time taken for the output to reach stable conditions in response to a change in inlet pressure

3.7 classification (see Table 3)

3.7.1

group 1

a zero governor for use in an appliance and/or installation where it is not subjected to bending stresses imposed by installation pipework, e.g. by the use of rigid adjacent supports

3.7.2

group 2

a zero governor for use in any situation, either internal or external to the appliance, typically without supports.

NOTE A zero governor which meets the requirements of group 2 also meets the requirements for group 1.

4 Units of measurement

4.1 All dimensions are given in millimetres.

4.2 All pressures are static pressures relative to atmospheric pressure and are expressed in millibars¹⁾.

4.3 Bending moment and torques are given in newton metres.

5 Construction requirements

5.1 General

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

5.1.2 All parts of a zero governor shall be free from sharp edges and corners which might cause damage, injury or incorrect operation.

5.1.3 Holes for screws, pins, etc., which are used for the assembly of parts of the zero governor and for mounting, shall not penetrate gasways. The wall thickness between these holes and gasways shall be at least 1 mm.

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

5.1.5 Closure parts, including those of measuring and test points, which may be dismantled for servicing, adjustment or conversion, shall be constructed such that leak-tightness in accordance with 7.3 is achieved by mechanical means (e.g. metal to metal joints, O-rings). This excludes all jointing compounds such as liquids, pastes and tapes.

¹⁾ 1 mbar = 100 N/m² = 100 Pa.