INTERNATIONAL STANDARD

ISO 23551-8

First edition
2016-02-01

AMENDMENT 1
2019-06

Safety and control devices for gas burners and gas-burning appliances — Particular requirements —

Part 8: Multifunctional controls

AMENDMENT 1: Overheating safety devices

Dispositifs de commande et de sécurité pour les brûleurs et les appareils à gaz — Exigences particulières —

Partie 8: Equipements multifonctionnels

AMENDEMENT 1: Dispositifs de sécurité contre les surchauffes

Reference number
ISO 23551-8:2016/Amd.1:2019(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 161, *Controls and protective devices for gas and/or oil*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Safety and control devices for gas burners and gas-burning appliances — Particular requirements —

Part 8: Multifunctional controls

AMENDMENT 1: Overheating safety devices

Clause 1, Scope

Add the following paragraph after the last paragraph:

This part of ISO 23551 is also applicable to:

— water operated gas valves (see Annex AA); and

— OSDs according to Annex BB.

Clause 3

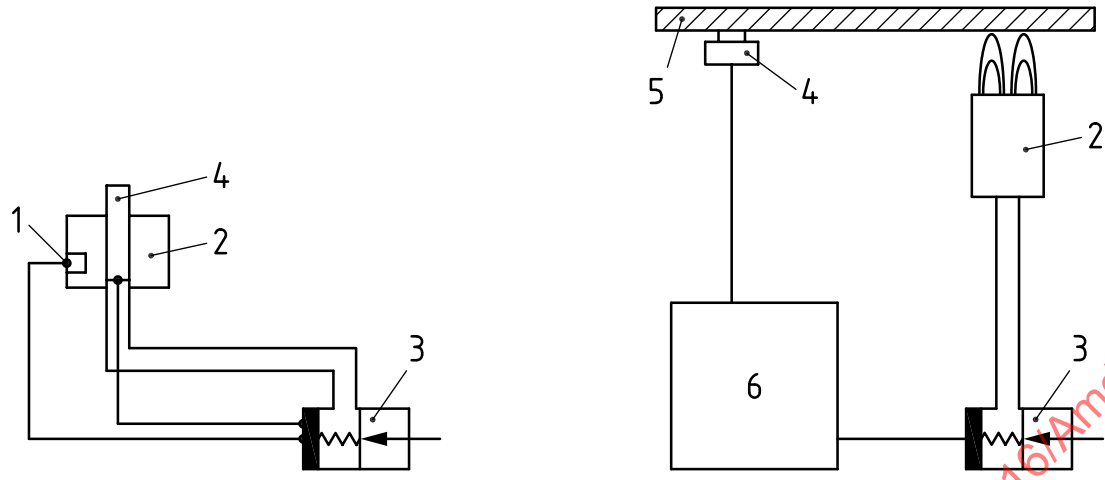
Add the following entries:

3.104
overheating safety device
OSD
temperature-sensing device which is intended to keep temperature below one particular value during abnormal operating conditions of the appliance and which has no provision for setting by the end user

Note 1 to entry: These devices usually use a thermistor or a bimetal sensing part (element).

3.105
sensing part
part of the OSD which is intended to be exposed to the influences of the activating quantity to which the automatic action of a sensing control responds

Note 1 to entry: Examples of OSDs are shown in Figure 1.



Example a) **Example b)**

Key

1	thermo-electric flame supervision control	4	sensor
2	burner	5	object to be measured (heated by burner)
3	gas shut-off valve	6	burner control unit

Figure 1 — Examples of OSDs

3.106
overheating temperature
temperature at which the OSD functions to turn off the gas supply to the burner during abnormal operating conditions of the appliance

3.107
thermistor
thermally sensitive semiconductor resistor, which shows over at least part of its resistance/temperature (R/T) characteristic a significant non-linear change in its electrical resistance with a change in temperature

[SOURCE: IEC 60730-1:2013, J.2.15.1]

3.108
bimetal
object that is composed of two separate metals joined together

6.102.1

Add the following item at the end of the list:

— OSDs (see Annex BB).

Annex BB

Add new Annex BB after Annex AA as follows:

Annex BB
(normative)

Overheating safety devices

BB.1 General

This annex is applicable to the specific requirements of a MFC that incorporates an overheating safety device, hereafter referred to as "OSD". MFC which incorporates an OSD shall comply with the additional requirements given in this annex.

If the OSD includes electrical and/or electronic components, it shall be tested and evaluated using the relevant clauses in ISO 23550:2018 and IEC 60730-1 and/or other relevant standards, as applicable.

BB.2 Additional requirements

BB.2.1 Moving parts

If the OSD has moving sensing elements (e.g. with springs), the operation shall not be impaired by other parts.

The OSD can be an integral part of the MFC or non-integral, remotely mounted from the MFC.

BB.2.2 Performance requirements

BB.2.2.1 General

The performance of a MFC incorporating an OSD shall take into consideration the safety and endurance.

BB.2.2.2 Overheating temperature test

BB.2.2.2.1 Requirement

Gas flow shall be shut off when the overheating temperature is reached, as specified by the manufacturer.

BB.2.2.2.2 Test

MFC that incorporates an OSD shall be tested according to related standards or according to manufacturer instructions.

The sensing part shall be placed in an oven or mounted to a test apparatus that simulates the application, as specified in the manufacturers' documentation. The temperature of the sensing surface or medium shall be increased until the gas flow is shut off.

Measure the temperature when the gas is shut off. The OSD shall comply with the requirements of the BB.2.2.2.1.

If the sensing part is of the automatic reset type, the temperature shall be reduced until the OSD resets. The test shall be repeated five times on the same sample.

If the device is a single use device, the test shall be repeated on five separate samples and all five shall meet the requirement.

BB.2.3 Endurance

BB.2.3.1 General

An OSD shall withstand the mechanical, chemical and thermal stresses to which it can be subjected during normal use.

BB.2.3.2 Mechanical

BB.2.3.2.1 Requirement

If OSD has moving parts, it shall withstand 50 000 cycles at ambient temperature.

If the moving parts are exposed to elevated temperatures during normal use, then half of the total cycles shall be conducted at 80 % of the manufactures specified overheating temperature.

After the endurance test, the OSD shall comply with BB.2.2.2.1.

BB.2.3.2.2 Test

An MFC that incorporates an OSD shall be tested according to manufacturer instructions or specifications.

For testing purposes, one cycle consists of the full range of movement of the mechanical moving part in both directions. The rate of cycling shall be specified by the manufacturer.

BB.2.3.3 Thermal cycling of the sensing element

BB.2.3.3.1 Requirement

The sensing part of an automatic reset type OSD shall withstand 1 000 cycles of operation.

The OSD shall comply with BB.2.2.2.2, but only on the one sample used for this test.

BB.2.3.3.2 Test

The sensing part shall be placed in an oven or mounted to a test apparatus that simulates the application, as specified in the manufacturers' documentation. An OSD that senses surface temperature shall be mounted accordingly so that it is in contact with the surface.

One cycle shall consist of the following temperature cycle. The temperature of the sensing surface or medium shall be maintained at the manufacturer's declared overheating temperature ±5 K for 5 min, and then the temperature reduced or removed to allow the OSD to cool for 5 min. When the OSD reaches the declared overheating temperature, it shall function to shut off the gas flow according to the manufacturer's documentation.

BB.2.3.4 Thermal stress

BB.2.3.4.1 Requirement

The sensing part of an automatic reset type OSD shall withstand 10 000 cycles of thermal stress conditions. Four samples shall be used for this test.

BB.2.3.4.2 Test

Expose four OSD samples to 10 000 cycles. A cycle shall consist of raising the temperature of the sensing surface or medium to not less than 10 °C below the specified overheating temperature then reducing the temperature to 50 °C below the specified overheating temperature. Acclimation time

