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

Part 8:  
**Multifunctional controls**

**AMENDMENT 1: Overheating safety  
devices**  
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*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*



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

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# 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.

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#### *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

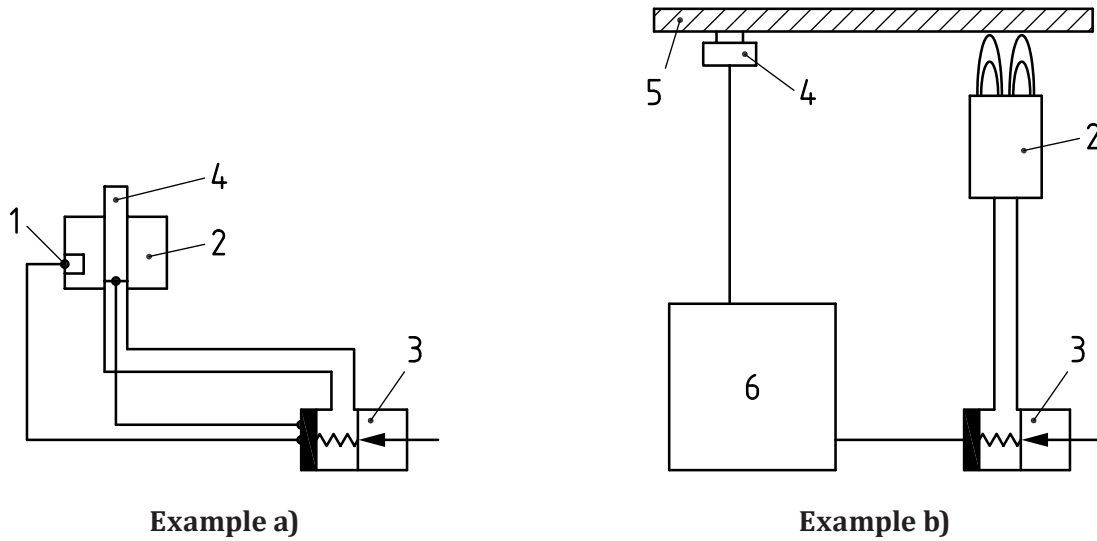
Note 1 to entry: These devices usually use a thermistor or a bimetal sensing part (element).

#### **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.



- 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  
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**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  
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**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

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###### 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

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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  $\pm 5$  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



at temperature extremes shall be not less than 5 min. Following the test, the devices shall meet the requirements of BB.2.2.2.1. Activation of the shut-off function during the temperature cycles shall be considered a failure.

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