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

**Part 8:
Multifunctional controls**

*Dispositifs de commande et de sécurité pour les brûleurs et les
appareils à gaz — Exigences particulières —
Partie 8: Equipements multifonctionnels*

ISO 23551-8:2016

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

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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](http://www.iso.org/foreword)

The committee responsible for this document is ISO/TC 161, *Control and protective devices for gas and/or oil burners and appliances*.

ISO 23551 consists of the following parts, under the general title *Safety and control devices for gas burners and gas-burning appliances — Particular requirements*:

- *Part 1: Automatic and semi-automatic valves*
- *Part 2: Pressure regulators*
- *Part 3: Gas/air ratio controls, pneumatic type*
- *Part 4: Valve-proving systems for automatic shut-off valves*
- *Part 5: Manual gas valves*
- *Part 6: Thermoelectric flame supervision controls*
- *Part 8: Multifunctional controls*
- *Part 9: Mechanical gas thermostats*
- *Part 10: Vent valves*

Introduction

This part of ISO 23551 is designed to be used in combination with ISO 23550. Together, they establish the full requirements as they apply to multifunctional controls. This part of ISO 23551 adapts ISO 23550, where needed, by stating “with the following modification”, “with the following addition”, “is replaced by the following” or “is not applicable” in the corresponding clauses. In order to identify specific requirements that are particular to this part of ISO 23551 that are not already covered by ISO 23550, this part of ISO 23551 may contain clauses or subclauses that are additional to the structure of ISO 23550. These clauses are numbered starting from 101 or, in the case of an Annex, are designated AA, BB, CC, etc.

It has been necessary to take into consideration the differing requirements resulting from practical experience and installation practices in various regions of the world and to recognize the variation in basic infrastructure associated with gas and/or oil controls and appliances. This part of ISO 23551 provides a basic framework of requirements that recognize these differences.

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

Part 8: Multifunctional controls

1 Scope

This part of ISO 23551 specifies the safety, construction and performance requirements for multifunctional controls intended for use with gas burners, gas appliances and similar use, hereafter referred to as “MFC”.

This part of ISO 23551 is applicable to MFC with declared maximum inlet pressures up to, and including, 50 kPa (500 mbar) of nominal connection sizes up to, and including, DN 150 for use with one or more fuel gases.

MFC consist of two or more functions, at least one of which is a mechanical control, as specified in the relevant control standards.

2 Normative references

The following referenced documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 23550:2011, *Safety and control devices for gas burners and gas-burning appliances — General requirements*

ISO 23551-1, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 1: Automatic and semi-automatic valves*

ISO 23551-2, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 2: Pressure regulators*

ISO 23551-3, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 3: Gas/air ratio controls, pneumatic type*

ISO 23551-4, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 4: Valve-proving systems for automatic shut-off valves*

ISO 23551-5, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 5: Manual gas valves*

ISO 23551-6, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 6: Thermoelectric flame supervision controls*

ISO 23551-9, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 9: Mechanical gas thermostats*

ISO 23552-1, *Safety and control devices for gas and/or oil burners and gas and/or oil appliances — Particular requirements — Part 1: Fuel/air ratio controls, electronic type*

IEC 60730-2-5, *Automatic electrical controls — Part 2-5: Particular requirements for automatic electrical burner control systems*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 23550:2011 and the following apply.

3.101

multifunctional control

combination of two or more controls, at least one of this is a mechanical control, whereby the functional parts cannot operate if separated

3.102

closing mechanism

part of the actuating mechanism that operates the closure member to the closed position guaranteeing the gas shut-off function with the required tightness

3.103

water operated gas valve

device that uses flow of water to control the flow of gas

4 Classes of control

4.1 Classes of controls

Shall be according to ISO 23550:2011, 4.1.

4.2 Groups of controls

Shall be according to ISO 23550:2011, 4.2.

5 Test conditions

Shall be according to ISO 23550:2011, Clause 5.

6 Construction

ISO 23550:2011, Clause 6 is replaced by the following.

6.101 General

MFC consist of a combination of controls according to 6.102.

Requirements for construction of the controls incorporated in the MFC are covered in the relevant control standards. Where no control standard is available, the requirements of ISO 23550:2011 are applicable.

In addition, this part of ISO 23551 covers in 6.102.2 requirements for the safety related interactions between the different functions of the MFC.

Where there are no requirements for these interactions between two or more controls, a risk assessment shall be performed. MFCs shall be designed such that access to internal parts requires the use of tools.

6.102 MFC based on combination of controls

6.102.1 General

MFC are based on a combination of the functionality provided by the controls as given by the following list:

- automatic shut-off valves according to ISO 23551-1;
- pressure regulators according to ISO 23551-2;
- pneumatic gas/air ratio controls according to ISO 23551-3;
- valve proving systems according to ISO 23551-4;
- manual gas valves according to ISO 23551-5;
- thermo electric flame supervision devices according to ISO 23551-6;
- mechanical gas thermostats according to ISO 23551-9;
- electronic fuel/air ratio controls according to ISO 23552-1;
- automatic electrical burner control system according to IEC 60730-2-5;
- water operated gas valves according to [Annex AA](#).

6.102.2 Interaction between Controls

6.102.2.1 Closing mechanism for closure member

Each automatic shut-off valve shall consist of a separate, independent closing mechanism controlling only one closure member. A check of internal leak-tightness shall be possible on each of the automatic shut-off valves. If two or more closure members are controlled by one closing mechanism, the valve is considered as one automatic shut-off valve.

6.102.2.2 Interactions between functions

The interactions between the functions of the MFC shall not interfere with the safety of the individual functions. Mechanical functions shall not affect the safety of electronic functions and vice versa.

7 Performance

ISO 23550:2011, Clause 7 is replaced by the following.

7.101 General

Requirements for performance of MFC are covered in the relevant control standards (see list in 6.102.1). Where no control standard is available, the requirements of ISO 23550:2011 are applicable.

7.102 External leak-tightness of MFC

MFC shall be leak-tight in accordance with the leakage rate given in [Table 1](#). The test is performed according to ISO 23550:2011, 7.2.2.1 and 7.2.2.2.