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

**Part 10:  
Vent valves**

**iTeh STANDARD PREVIEW**  
*Dispositifs de commande et de sécurité pour brûleurs à gaz et  
appareils à gaz — Exigences particulières —  
(standards.iteh.ai)  
Partie 10: Robinets d'évent*

ISO 23551-10:2016

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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](http://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](http://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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

ISO 23551-10:2016

A list of all parts in the ISO 23551 series, published under the general title *Safety and control devices for gas burners and gas-burning appliances — Particular requirements*, can be found on the ISO website.

## Introduction

This part of ISO 23551 is designed to be used in combination with ISO 23550. This part of ISO 23551 together with ISO 23550 establishes the full requirements as they apply to the product covered by this part of ISO 23551. 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 clause. 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.

In an attempt to develop a full International Standard, 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, some of which are addressed in [Annexes E, F and G](#). This part of ISO 23551 intends to provide 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 10: Vent valves

### 1 Scope

This part of ISO 23551 specifies the safety, design, construction and performance requirements and testing for automatic vent valves (hereafter referred to as “valves”) for use with gas burners, gas appliances burning one or more gaseous fuels.

This part of ISO 23551 is applicable to valves with declared maximum inlet pressures up to and including 500 kPa (5 bar) of nominal connection sizes up to and including DN 100 (4”).

This part of ISO 23551 is applicable to

- normally open valves,
- electrically operated valves and to valves actuated by fluids where the control valves for these fluids are actuated electrically, but not to any external devices for switching the control signal or actuating energy, and
- valves fitted with open position indicator switches.

This part of ISO 23551 is not applicable to

- valves for burners and appliances using renewables and/or waste gases (i.e. gases having corrosive characteristics),

In case valves are in contact with renewables and/or waste gases, it is recommend to use this part of ISO 23551 only if explicit information is provided and relevant test methods and requirements are specified.

- valves for appliances intended to be installed in the open air and exposed to the outdoor environment,
- valves that are connected directly to mains pipe-work or to a container that maintains a standard distribution pressure, and
- valves suitable with oil.

This part of ISO 23551 is applicable to type testing only.

NOTE Provisions for final product inspection and testing by the manufacturer are not specified.

### 2 Normative references

The following 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*

### 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1

##### **automatic vent valve**

device which closes when energized and opens automatically when de-energized

#### 3.2

##### **actuating mechanism**

part of the valve which moves the closure member

#### 3.3

##### **open position indicator switch**

device fitted to a valve which indicates when the closure member is in the open position

#### 3.4

##### **actuating energy**

required energy for the actuating mechanism to move the closure member to the closed position

Note 1 to entry: The actuating energy can have an external source (electrical, pneumatic or hydraulic) and can be transformed inside the valve.

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#### 3.5

##### **opening force**

force required to open the valve, independent of any force provided by fuel gas pressure

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#### 3.6

##### **frictional force**

largest force required to move the actuating mechanism and the closure member from the closed position to the open position with the opener spring removed, independent of any force provided by fuel gas pressure

#### 3.7

##### **actuating pressure**

hydraulic or pneumatic pressure supplied to the actuating mechanism of the valve

#### 3.8

##### **opening time**

time interval between de-energising the valve and the closure member attaining the open position

#### 3.9

##### **closing time**

time interval between energising the valve and the closure member attaining the closed position

#### 3.10

##### **delay time**

time interval between energising the valve and the start of the closure member moving to the closed position

#### 3.11

##### **control valve**

device which controls the fluid (e.g. compressed air) supplied to the actuating mechanism



**3.12****rated voltage**

voltage as stated in the installation and operating instructions at which the valve may be operated

**3.13****rated current**

current as stated in the installation and operating instructions at which the valve may be operated

**4 Classification****4.1 Classes of controls**

ISO 23550:2011, 4.1 is not applicable.

**4.2 Groups of controls**

This subclause shall be according to ISO 23550:2011, 4.2.

**5 Test conditions**

This clause shall be according to ISO 23550:2011, Clause 5.

## **6 Construction** iTeh STANDARD PREVIEW (standards.iteh.ai)

**6.1 General**

This subclause shall be according to ISO 23550:2011, 6.1.

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**6.2 Construction requirements****6.2.1 Appearance**

This subclause shall be according to ISO 23550:2011, 6.2.1.

**6.2.1.1 Design**

There shall be no exposed shafts or operating levers which could adversely affect the ability of valves to open.

**6.2.2 Holes**

This subclause shall be according to ISO 23550:2011, 6.2.2.

**6.2.3 Breather holes**

This subclause shall be according to ISO 23550:2011, 6.2.3.

**6.2.4 Screwed fastenings**

This subclause shall be according to ISO 23550:2011, 6.2.4.

**6.2.5 Jointing**

This subclause shall be according to ISO 23550:2011, 6.2.5.

### 6.2.6 Moving parts

This subclause shall be according to ISO 23550:2011, 6.2.6.

### 6.2.7 Sealing caps

This subclause shall be according to ISO 23550:2011, 6.2.7.

### 6.2.8 Dismantling and reassembling for servicing and/or adjustment

This subclause shall be according to ISO 23550:2011, 6.2.8.

### 6.2.9 Auxiliary channels

This subclause shall be according to ISO 23550:2011, 6.2.9.

### 6.2.10 Open position indicator switch

Open position indicator switches, where fitted, shall not impair the correct operation of valves. Adjusters shall be sealed to indicate interference. Any drift of the switch and actuating mechanism from its setting shall not impair correct valve operation.

### 6.2.11 Controls assembled to a valve

Other controls assembled to a valve shall not interfere with its opening function.

## 6.3 Materials

### 6.3.1 General material requirements

This subclause shall be according to ISO 23550:2011, 6.3.1.

### 6.3.2 Housing

This subclause shall be according to ISO 23550:2011, 6.3.2.

### 6.3.3 Springs

ISO 23550:2011, 6.3.3 is replaced by the following.

Opening force shall be provided by spring action.

Springs providing the opening force for any closure member of the valve shall be calculated and designed in such a way as to withstand oscillating loads and at least  $10^6$  operations.

If a satisfactory calculation cannot be submitted to the test laboratory, the springs shall be subjected to an endurance test of  $2 \times 10^6$  operations under normal operating conditions.

Springs with a diameter up to and including 2,5 mm shall be made from corrosion-resistant materials.

Springs with wire diameter above 2,5 mm shall be made either from corrosion-resistant materials or shall be protected against corrosion.

### 6.3.4 Resistance to corrosion and surface protection

This subclause shall be according to ISO 23550:2011, 6.3.4.

**6.3.5 Impregnation**

This subclause shall be according to ISO 23550:2011, 6.3.5.

**6.3.6 Seals for glands for moving parts**

This subclause shall be according to ISO 23550:2011, 6.3.6.

**6.3.7 Closure member**

Closure members shall either have a mechanical support (e.g. metallic) to carry the opening force or shall be made of metal.

**6.4 Gas connections****6.4.1 Making connections**

This subclause shall be according to ISO 23550:2011, 6.4.1.

**6.4.2 Connection sizes**

This subclause shall be according to ISO 23550:2011, 6.4.2.

**6.4.3 Threads**

This subclause shall be according to ISO 23550:2011, 6.4.3.

**6.4.4 Union joints**

This subclause shall be according to ISO 23550:2011, 6.4.4.

**6.4.5 Flanges**

This subclause shall be according to ISO 23550:2011, 6.4.5.

**6.4.6 Compression fittings**

This subclause shall be according to ISO 23550:2011, 6.4.6.

**6.4.7 Nipples for pressure tests**

This subclause shall be according to ISO 23550:2011, 6.4.7

**6.4.8 Strainers**

This subclause shall be according to ISO 23550:2011, 6.4.8 with the following addition.

Strainers fitted to valves of DN 25 and above shall be accessible for cleaning or replacement without removing the valve body by dismantling threaded or welded pipework.

**6.4.9 Pneumatic and hydraulic actuating mechanisms**

Pneumatically or hydraulically actuated valves shall be provided with protection to ensure that the blockage of an orifice in the control system does not adversely affect the performance requirements as given in [Clause 7](#).