

~~2022-07-08~~

2023-05

ISO/~~DIS~~DIS 23551-12:~~2022~~2023(E)

ISO TC 161/WG 4

Secretariat: DIN

**Safety and control devices for gas  
burners and gas-burning appliances — Particular requirements — Part 12:  
Multifunctional controls with integral overpressure protection safety function (OPSF)  
for use with butane gas ~~cartridge~~cartridges used in portable gas appliances**

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 23551-12

<https://standards.iteh.ai/catalog/standards/sist/48097830-8a15-41de-a630-416979be0fc3/iso-23551-12>

© ISO ~~2022~~2023, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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](http://www.iso.org)

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 23551-12

<https://standards.iteh.ai/catalog/standards/sist/48097830-8a15-41de-a630-416979be0fc3/iso-23551-12>

~~Edited DIS -  
MUST BE USED  
FOR FINAL  
DRAFT~~

## Content

<b>Foreword</b> .....	<b>vi</b>
<b>Introduction</b> .....	<b>viii</b>
<b>1</b> — <b>Scope</b> .....	<b>1</b>
<b>2</b> — <b>Normative references</b> .....	<b>1</b>
<b>3</b> — <b>Terms and definitions</b> .....	<b>2</b>
<b>4</b> — <b>Classification</b> .....	<b>4</b>
<b>4.1</b> — <b>Classes of Controls</b> .....	<b>4</b>
<b>4.2</b> — <b>Group of Controls</b> .....	<b>4</b>
<b>4.3</b> — <b>Types of DC supplied controls</b> .....	<b>4</b>
<b>4.4</b> — <b>Classes of control functions</b> .....	<b>4</b>
<b>5</b> — <b>Test conditions and tolerances</b> .....	<b>4</b>
<b>6</b> — <b>Construction</b> .....	<b>4</b>
<b>6.1</b> — <b>General</b> .....	<b>4</b>
<b>6.1.1</b> — <b>Controls based on combination of functions</b> .....	<b>4</b>
<b>6.1.2</b> — <b>Interaction between Controls</b> .....	<b>4</b>
<b>6.2</b> — <b>Construction requirements</b> .....	<b>5</b>
<b>6.2.1</b> — <b>Appearance</b> .....	<b>5</b>
<b>6.2.2</b> — <b>Holes</b> .....	<b>5</b>
<b>6.2.3</b> — <b>Breather holes</b> .....	<b>5</b>
<b>6.2.4</b> — <b>Vent limiters</b> .....	<b>5</b>
<b>6.2.5</b> — <b>Screwed fastenings</b> .....	<b>5</b>
<b>6.2.6</b> — <b>Moving Parts</b> .....	<b>5</b>
<b>6.2.7</b> — <b>Sealing caps</b> .....	<b>5</b>
<b>6.2.8</b> — <b>Disassembling and assembling for servicing and/or adjustment</b> .....	<b>5</b>
<b>6.2.9</b> — <b>Auxiliary channels and orifices</b> .....	<b>5</b>
<b>6.2.10</b> — <b>Pre-setting device</b> .....	<b>5</b>
<b>6.2.11</b> — <b>Adjustments</b> .....	<b>5</b>
<b>6.2.12</b> — <b>Resistance to pressure</b> .....	<b>5</b>
<b>6.2.13</b> — <b>Signal tube connections</b> .....	<b>6</b>
<b>6.2.14</b> — <b>Operating parts of manual gas valves</b> .....	<b>6</b>
<b>6.2.15</b> — <b>Seating force</b> .....	<b>6</b>
<b>6.2.16</b> — <b>Tapered plug cavity</b> .....	<b>6</b>
<b>6.2.17</b> — <b>Pressure limiting device</b> .....	<b>6</b>
<b>6.3</b> — <b>Materials</b> .....	<b>6</b>
<b>6.3.1</b> — <b>General material requirements</b> .....	<b>6</b>
<b>6.3.2</b> — <b>Housing</b> .....	<b>6</b>
<b>6.3.3</b> — <b>Springs providing closing force and sealing force</b> .....	<b>7</b>
<b>6.3.4</b> — <b>Resistance to corrosion and surface protection</b> .....	<b>7</b>
<b>6.3.5</b> — <b>Impregnation</b> .....	<b>7</b>
<b>6.3.6</b> — <b>Seals for glands for moving parts</b> .....	<b>7</b>
<b>6.3.7</b> — <b>Jointing</b> .....	<b>8</b>
<b>6.3.8</b> — <b>Closure members</b> .....	<b>8</b>
<b>6.3.9</b> — <b>Packing</b> .....	<b>8</b>
<b>6.3.10</b> — <b>Sealing materials</b> .....	<b>8</b>
<b>6.3.11</b> — <b>Grease</b> .....	<b>8</b>

<b>6.4</b>	<b>Connections</b>	<b>9</b>
<b>6.5</b>	<b>Gas controls employing with electrical components in the gas way</b>	<b>9</b>
<b>6.6</b>	<b>Component parts</b>	<b>9</b>
<b>6.7</b>	<b>Appliance connector valves</b>	<b>9</b>
<b>6.8</b>	<b>Connection to cartridge</b>	<b>9</b>
<b>6.8.1</b>	<b>Requirement</b>	<b>9</b>
<b>6.8.2</b>	<b>Test</b>	<b>9</b>
<b>7</b>	<b>Performance</b>	<b>9</b>
<b>7.1</b>	<b>General</b>	<b>9</b>
<b>7.2</b>	<b>Leak tightness</b>	<b>9</b>
<b>7.2.1</b>	<b>Requirement</b>	<b>9</b>
<b>7.2.2</b>	<b>Test</b>	<b>10</b>
<b>7.3</b>	<b>Torsion and bending</b>	<b>11</b>
<b>7.4</b>	<b>Rated flow rate</b>	<b>11</b>
<b>7.4.1</b>	<b>General</b>	<b>11</b>
<b>7.4.2</b>	<b>Requirements</b>	<b>11</b>
<b>7.5</b>	<b>Durability</b>	<b>11</b>
<b>7.6</b>	<b>Functional requirements</b>	<b>11</b>
<b>7.6.1</b>	<b>Operation force of gas valve</b>	<b>11</b>
<b>7.6.2</b>	<b>Operation of OPSE</b>	<b>11</b>
<b>7.6.3</b>	<b>Abnormal operation of OPSE</b>	<b>12</b>
<b>7.6.4</b>	<b>Adjustment pressure of pressure regulator</b>	<b>12</b>
<b>7.6.5</b>	<b>Interlock (of thermoelectric flame supervision device)</b>	<b>12</b>
<b>7.6.6</b>	<b>Sealing force (of thermoelectric flame supervision device)</b>	<b>12</b>
<b>7.6.7</b>	<b>Closing current (of thermoelectric flame supervision device)</b>	<b>12</b>
<b>7.7</b>	<b>Endurance</b>	<b>13</b>
<b>7.7.1</b>	<b>Requirement</b>	<b>13</b>
<b>7.7.2</b>	<b>Test</b>	<b>13</b>
<b>7.8</b>	<b>Vibration test</b>	<b>14</b>
<b>7.9</b>	<b>Cold resistance</b>	<b>14</b>
<b>7.9.1</b>	<b>Requirement</b>	<b>14</b>
<b>7.9.2</b>	<b>Test</b>	<b>14</b>
<b>7.10</b>	<b>Heat resistance</b>	<b>14</b>
<b>7.10.1</b>	<b>Requirement</b>	<b>14</b>
<b>7.10.2</b>	<b>Test</b>	<b>14</b>
<b>7.11</b>	<b>Thermal shock resistance</b>	<b>14</b>
<b>7.11.1</b>	<b>Requirement</b>	<b>14</b>
<b>7.11.2</b>	<b>Test</b>	<b>15</b>
<b>7.12</b>	<b>Operation of OPSE after corrosion resistance test</b>	<b>15</b>
<b>7.12.1</b>	<b>Requirement</b>	<b>15</b>
<b>7.12.2</b>	<b>Test</b>	<b>15</b>
<b>8</b>	<b>Electrical equipment</b>	<b>15</b>
<b>9</b>	<b>Electromagnetic compatibility (EMC)</b>	<b>15</b>
<b>10</b>	<b>Marking, installation and operating instructions</b>	<b>15</b>
<b>10.1</b>	<b>Marking</b>	<b>15</b>
<b>10.2</b>	<b>Installation and operating instructions</b>	<b>15</b>
<b>10.3</b>	<b>Warning notice</b>	<b>16</b>
<b>Annex A (informative)</b>	<b>Leak tightness test — Volumetric method</b>	<b>17</b>

<del>Annex B (informative) Leak-tightness test — Pressure-loss method</del>	<del>18</del>
<del>Annex C (normative) Conversion of pressure loss into leakage rate</del>	<del>19</del>
<del>Annex D (normative) Gas quick connector (GQC)</del>	<del>20</del>
<del>Annex E (normative) Elastomers/requirements resistance to lubricants and gas</del>	<del>21</del>
<del>Annex F (normative) Specific regional requirements in European countries</del>	<del>22</del>
<del>Annex G (normative) Specific regional requirements in Canada and USA</del>	<del>23</del>
<del>Annex H (normative) Specific regional requirements in Japan</del>	<del>24</del>

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 23551-12

<https://standards.iteh.ai/catalog/standards/sist/48097830-8a15-41de-a630-416979be0fc3/iso-23551-12>

~~Edited DIS -  
MUST BE USED  
FOR FINAL  
DRAFT~~

**Contents**

**Foreword** .....ix

**Introduction**..... x

**1 Scope** ..... 1

**2 Normative references** ..... 1

**3 Terms and definitions**..... 2

**4 Classification**..... 6

**4.1 Classes of controls**..... 6

**4.2 Group of controls**..... 6

**4.3 Types of direct current (DC) supplied controls**..... 6

**4.4 Classes of control functions** ..... 6

**5 Test conditions and tolerances** ..... 6

**6 Construction**..... 6

**6.1 General**..... 6

**6.1.1 Controls based on combination of functions**..... 6

**6.1.2 Interaction between controls**..... 7

**6.2 Construction requirements** ..... 7

**6.2.1 Appearance**..... 7

**6.2.2 Holes**..... 7

**6.2.3 Breather holes**..... 7

**6.2.4 Vent limiters**..... 7

**6.2.5 Screwed fastenings** ..... 7

**6.2.6 Moving parts**..... 7

**6.2.7 Sealing caps** ..... 7

**6.2.8 Disassembling and assembling for servicing and/or adjustment**..... 7

**6.2.9 Auxiliary channels and orifices**..... 7

**6.2.10 Pre-setting device**..... 8

**6.2.11 Adjustments** ..... 8

**6.2.12 Resistance to pressure** ..... 8

**6.2.13 Signal tube connections** ..... 8

**6.2.14 Operating parts of manual gas valves**..... 8

**6.2.15 Seating force**..... 8

**6.2.16 Tapered plug cavity** ..... 8

**6.2.17 Pressure-limiting device**..... 8

**6.3 Materials**..... 9

**6.3.1 General material requirements**..... 9

**6.3.2 Housing** ..... 9

**6.3.3 Springs providing closing force and sealing force**..... 9

**6.3.4 Resistance to corrosion and surface protection** ..... 10

**6.3.5 Impregnation**..... 10

**6.3.6 Seals for glands for moving parts** ..... 10

**6.3.7 Jointing**..... 10

**6.3.8 Closure members**..... 10

**6.3.9 Packing**..... 10

**6.3.10 Sealing materials**..... 11

**6.3.11 Grease**..... 11

~~Edited DIS -~~  
~~MUST BE USED~~  
~~FOR FINAL~~  
~~DRAFT~~

<b>6.4</b>	<b>Connections</b>	<b>12</b>
<b>6.5</b>	<b>Gas controls employing with electrical components in the gas way</b>	<b>12</b>
<b>6.6</b>	<b>Component parts</b>	<b>12</b>
<b>6.7</b>	<b>Appliance connector valves</b>	<b>12</b>
<b>6.8</b>	<b>Connection to cartridge</b>	<b>12</b>
<b>6.8.1</b>	<b>Requirement</b>	<b>12</b>
<b>6.8.2</b>	<b>Test</b>	<b>12</b>
<b>7</b>	<b>Performance</b>	<b>12</b>
<b>7.1</b>	<b>General</b>	<b>12</b>
<b>7.2</b>	<b>Leak-tightness</b>	<b>12</b>
<b>7.2.1</b>	<b>General</b>	<b>12</b>
<b>7.2.2</b>	<b>Requirement</b>	<b>13</b>
<b>7.2.3</b>	<b>Test</b>	<b>13</b>
<b>7.3</b>	<b>Torsion and bending</b>	<b>14</b>
<b>7.4</b>	<b>Rated flow rate</b>	<b>14</b>
<b>7.4.1</b>	<b>General</b>	<b>14</b>
<b>7.4.2</b>	<b>Requirements</b>	<b>14</b>
<b>7.5</b>	<b>Durability</b>	<b>14</b>
<b>7.6</b>	<b>Functional requirements</b>	<b>14</b>
<b>7.6.1</b>	<b>General</b>	<b>14</b>
<b>7.6.2</b>	<b>Operation force of gas valve</b>	<b>14</b>
<b>7.6.3</b>	<b>Operation of the OPSF</b>	<b>15</b>
<b>7.6.4</b>	<b>Abnormal operation of the OPSF</b>	<b>15</b>
<b>7.6.5</b>	<b>Adjustment pressure of pressure regulator</b>	<b>15</b>
<b>7.6.6</b>	<b>Interlock (of thermoelectric flame supervision device)</b>	<b>16</b>
<b>7.6.7</b>	<b>Sealing force (of thermoelectric flame supervision device)</b>	<b>16</b>
<b>7.6.8</b>	<b>Closing current (of thermoelectric flame supervision device)</b>	<b>16</b>
<b>7.7</b>	<b>Endurance</b>	<b>16</b>
<b>7.7.1</b>	<b>Requirement</b>	<b>16</b>
<b>7.7.2</b>	<b>Test</b>	<b>17</b>
<b>7.8</b>	<b>Vibration test</b>	<b>18</b>
<b>7.9</b>	<b>Cold resistance</b>	<b>18</b>
<b>7.9.1</b>	<b>Requirement</b>	<b>18</b>
<b>7.9.2</b>	<b>Test</b>	<b>18</b>
<b>7.10</b>	<b>Heat resistance</b>	<b>18</b>
<b>7.10.1</b>	<b>Requirement</b>	<b>18</b>
<b>7.10.2</b>	<b>Test</b>	<b>18</b>
<b>7.11</b>	<b>Thermal shock resistance</b>	<b>18</b>
<b>7.11.1</b>	<b>Requirement</b>	<b>18</b>
<b>7.11.2</b>	<b>Test</b>	<b>18</b>
<b>7.12</b>	<b>Operation of OPSF after corrosion resistance test</b>	<b>19</b>
<b>7.12.1</b>	<b>Requirement</b>	<b>19</b>
<b>7.12.2</b>	<b>Test</b>	<b>19</b>
<b>8</b>	<b>Electrical equipment</b>	<b>19</b>
<b>9</b>	<b>Electromagnetic compatibility (EMC)</b>	<b>19</b>
<b>10</b>	<b>Marking, installation and operating instructions</b>	<b>19</b>
<b>10.1</b>	<b>Marking</b>	<b>19</b>
<b>10.2</b>	<b>Installation and operating instructions</b>	<b>19</b>

<u>10.3 Warning notice .....</u>	<u>20</u>
<u>Annex A (informative) Leak-tightness test — Volumetric method .....</u>	<u>21</u>
<u>Annex B (informative) Leak-tightness test — Pressure-loss method .....</u>	<u>22</u>
<u>Annex C (informative) Conversion of pressure loss into leakage rate.....</u>	<u>23</u>
<u>Annex D (informative) Gas quick connector (GQC).....</u>	<u>24</u>
<u>Annex E (informative) Elastomers/requirements resistance to lubricants and gas .....</u>	<u>25</u>
<u>Annex F (informative) Specific regional requirements in European countries.....</u>	<u>26</u>
<u>Annex G (informative) Specific regional requirements in Canada and USA .....</u>	<u>27</u>
<u>Annex H (informative) Specific regional requirements in Japan.....</u>	<u>28</u>
<u>Annex I (informative) Specific regional requirements in China.....</u>	<u>30</u>
<u>Bibliography .....</u>	<u>31</u>

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 23551-12

<https://standards.iteh.ai/catalog/standards/sist/48097830-8a15-41de-a630-416979be0fc3/iso-23551-12>

~~Edited DIS -  
MUST BE USED  
FOR FINAL  
DRAFT~~



## 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~~document 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))-[www.iso.org/directives](http://www.iso.org/directives)).

~~Attention is drawn~~ISO draws attention to the possibility that ~~some of the~~ ~~elements~~implementation of this document may ~~be~~involve the ~~subject~~use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of ~~any claimed~~ patent rights- in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). 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 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](http://www.iso.org/iso/foreword.html)-[www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

A list of all parts in the ISO 23551 series can be found on the ISO website.

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](http://www.iso.org/members.html)-[www.iso.org/members.html](http://www.iso.org/members.html).

~~Edited DIS -~~  
~~MUST BE USED~~  
~~FOR FINAL~~  
~~DRAFT~~

## Introduction

This document is designed to be used in combination with ISO 23550. Together, they establish the full requirements applicable to the product such as the multifunctional controls mounted on portable gas appliances (cookers, space heaters, etc.) covered by this ~~International Standard~~document.

Where needed, this document adapts ISO 23550 by stating the corresponding clause number and adding:

- “with the following modification”;
- “with the following addition”;
- “is replaced by the following”; or
- “is not applicable”.

In order to identify specific requirements that are particular to this document and that are not already covered by ISO 23550, this document contains certain clauses or subclauses that are additional to the structure of ISO 23550. These subclauses are indicated by the introductory sentence: “Subclause (or Annex) specific to this document.”

To ensure the global relevance of this document, the differing requirements resulting from practical experience and installation practices in various regions of the world have been taken into account. The variations in basic infrastructure associated with gas controls and appliances have also been recognized, some of which are addressed in Annexes F, G and H. This document intends to provide a basic framework of requirements that recognize these differences.

ISO 23551-12

<https://standards.iteh.ai/catalog/standards/sist/48097830-8a15-41de-a630-416979be0fc3/iso-23551-12>

~~Edited DIS -  
MUST BE USED  
FOR FINAL  
DRAFT~~

x — © ISO 2022 — All rights reserved

x — © ISO 2023 — All rights reserved

# Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 12: Multifunctional controls with integral overpressure protection safety function (OPSF) for use with butane gas ~~cartridge~~cartridges used in portable gas appliances

## 1 Scope

This document specifies safety, construction, performance and testing requirements for ~~the~~ multifunctional controls with integral overpressure protection safety function (OPSF) intended for use with portable gas appliances.

This document is applicable to:

- ~~the~~ multifunctional controls which consist of a pressure-~~limiting~~ device and at least one or more controls, including but not limited to a manual gas valve, a pressure regulator and a thermoelectric flame supervision device; and
- ~~the~~ multifunctional controls with declared maximum operating pressures in normal use, up to and including 500 kPa for use with a butane gas cartridge specified by ISO/TS 21985.

This document does not apply to ~~the~~ multifunctional controls with OPSF having thread ~~connection~~connections for mounting butane gas ~~cartridge~~cartridges.

This document covers type testing only.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 301, *Zinc alloy ingots intended for castings*

ISO 9227:~~2017~~2022, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 23550:2018, *Safety and control devices for gas and/or oil burners and appliances — General requirements*

ISO 23551-2:2018, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 2: Pressure regulators*

~~ISO/DIS 23551-5:2019, 5:—, 1~~ *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 5: Manual gas valves*

ISO 23551-6:2021, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 6: Thermoelectric flame supervision controls*

~~HS K 2220: 2013, Lubricating grease~~

### **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 terminology databases for use in standardization at the following addresses:

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

#### **3.1**

##### **portable gas appliance**

portable appliance using vaporized butane from a replaceable, non-refillable, horizontally-mounted, butane gas cartridge specified by ISO/TS 21985 as the primary fuel source

#### **3.2**

##### **pressure regulator**

device that maintains the outlet pressure constant within given limits, independently of the variations in inlet pressure and/or flow rate

[SOURCE: ISO 23551-2:2018, 3.1.1]

#### **3.3**

##### **pressure limiting device**

device having overpressure safety function (OPSF) as a function

#### **3.4**

##### **overpressure safety function**

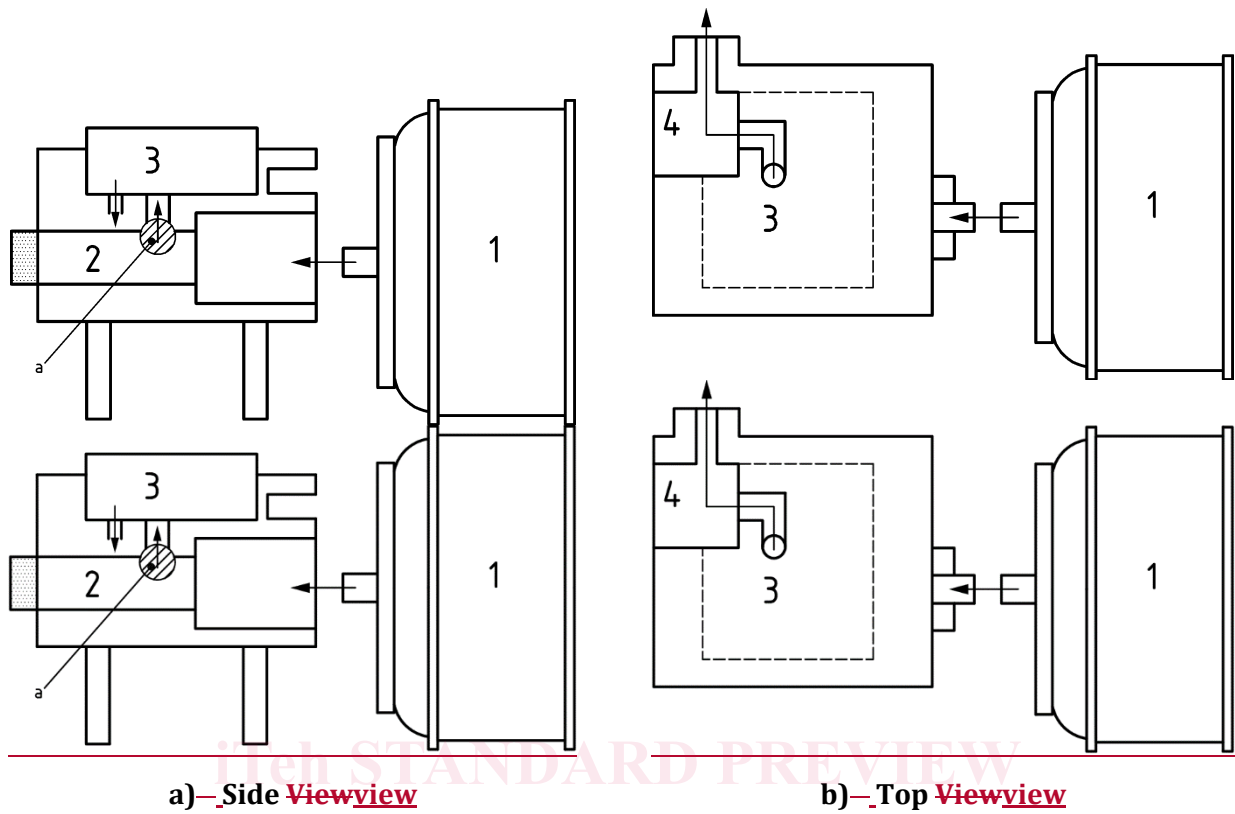
##### **OPSF**

safety function for portable gas appliances which shuts off gas supply to the burner when the supply pressure from the butane gas cartridge reaches the declared pressure range of the OPSF either by shutting off the gas passage or by releasing the cartridge

Note 1 to entry: Examples are shown in Figure 1 and Figure 2.

---

<sup>1</sup> Under preparation. Stage at the time of publication: ISO/FDIS 23551-5:2023.



**Key**

- |                            |                      |
|----------------------------|----------------------|
| 1 butane gas cartridge     | 3 pressure regulator |
| 2 pressure limiting device | 4 manual gas valve   |

**Note** — When the pressure of cartridge increases, the shut off valve mounted on pressure limiting device shuts off gas passage indicated by a.

**Figure 1 — Multifunctional control with gas passage shut off function**