CSA GROUP™

**CSA/ANSI Z21.21:19 • CSA 6.5:19**
National Standard of Canada
American National Standard

# Automatic valves for gas appliances



Standards Council of Canada
Conseil canadien des normes

REVISED MARCH 2021

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# *Revision History*

## CSA/ANSI Z21.21:19 • CSA 6.5:19, Automatic valves for gas appliances

| **Update No. 1 — March 2021** | **Revision symbol (in margin)** |
|---|---|
| Clauses 5.6.1, 5.11.1, 5.15, and 7.6 | ① |

| **Revision from previous edition** | **Revision symbol (in margin)** |
|---|---|
| Clauses 4.10.3, 5.4.1, 5.11.1, and 7.6 | Δ |

# *Standards Update Service*

## *CSA/ANSI Z21.21:19 • CSA 6.5:19*
## *June 2019*

**Title:** *Automatic valves for gas appliances*

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*National Standard of Canada*
*American National Standard*

# *CSA/ANSI Z21.21:19 • CSA 6.5:19*
# ***Automatic valves for gas appliances***

*Interprovincial Gas Advisory Council*



*American National Standards Institute, Inc.*

*Approved on April 9, 2019 by ANSI*
*Approved on March 9, 2019 by IGAC*
*Effective in Canada September 9, 2020*
*Published in June 2019 by CSA Group*
*A not-for-profit private sector organization*
*178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3*

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*ICS 23.060*
*ISBN 978-1-4883-1534-3*

# Contents





  

  

# Preface

This is the sixth edition of CSA/ANSI Z21.21 • CSA 6.5, *Automatic valves for gas appliances*. It supersedes the previous editions published in 2015, 2012, 2005, 2000, and 1995.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was prepared by the Z21/CSA Joint Technical Subcommittee on Automatic Gas Controls, under the jurisdiction of the Z21/83 Technical Committee on Performance and Installation of Gas-Burning Appliances and Related Accessories and the Strategic Steering Committee on Fuels and Appliances. It has been formally approved by the Z21/83 Technical Committee, the Technical Committee on Gas Appliances and Related Accessories, and the Interprovincial Gas Advisory Council.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

This Standard has been approved by the American National Standards Institute (ANSI) as an American National Standard.

Interpretations: The Strategic Steering Committee on Fuels and Appliances has provided the following direction for the interpretation of standards under its jurisdiction: "The literal text shall be used in judging compliance of products with the safety requirements of this Standard. When the literal text cannot be applied to the product, such as for new materials or construction, and when a relevant CSA committee interpretation has not already been published, CSA Group's procedures for interpretation shall be followed to determine the intended safety principle."

**Notes:**

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *This Standard contains SI (Metric) units corresponding to the yard/pound quantities, the purpose being to allow the standard to be used in SI (Metric) units. (IEEE/ASTM SI 10,* American National Standard for Metric Practice*, or ISO 80000-1:2009,* Quantities and units – Part 1: General*, is used as a guide in making metric conversion from yard/pound quantities. If a value for a measurement and a corresponding value in other units are stated, the first stated value is to be regarded as the requirement. The given corresponding value may be approximate. If a value for a measurement and a corresponding value in other units are both specified as a quoted marking requirement, the first stated unit, or both, are to be provided.*
3) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
4) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization – Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity." It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
5) *This Standard is subject to review within five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line:*
   a) *Standard designation (number);*
   b) *relevant clause, table, and/or figure number;*
   c) *wording of the proposed change; and*
   d) *rationale for the change.*



  

6) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include "Request for interpretation" in the subject line:*
   a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
   b) *provide an explanation of circumstances surrounding the actual field condition; and*
   c) *where possible, phrase the request in such a way that a specific "yes" or "no" answer will address the issue.*

   *Committee interpretations are processed in accordance with the* CSA Directives and guidelines governing standardization *and are available on the* Current Standards Activities *page at standardsactivities.csa.ca.*

# History of the development of Automatic valves for gas appliances

**Note:** *This history is informative and is not part of the standard.*

With the onset of the Free Trade Agreement between the United States and Canada on January 2, 1988, significant attention was given to the harmonization of the United States and Canadian safety standards addressing gas-fired equipment for residential, commercial, and industrial applications. It was believed that the elimination of the differences between the standards would remove potential trade barriers and provide an atmosphere in which North American manufacturers could market more freely in the United States and Canada. The harmonization of these standards was also seen as a step toward harmonization with international standards.

With the formation of joint subcommittees, a Canadian Gas Association Standards Steering Committee on Gas Burning Appliances and Related Accessories was established to parallel Accredited Standards Committees Z21 and Z83, and to support the formation of joint subcommittees. Operating procedures, in accordance with American National Standards Institute procedures, for joint subcommittees were developed and subsequently approved by ANSI on April 1, 1993.

A comparison document was prepared during 1992 of the American National Standard for Automatic Gas Valves, ANSI Z21.21 including proposed revisions under development, and the National Standards of Canada for Automatic Valves for Gas Appliances, CAN1-6.5, and Automatic Safety Shut-Off Gas Valves, CAN/CGA-3.9. At its July 12-13, 1993 meeting, the Joint Automatic Gas Control Subcommittee adopted the first draft harmonized automatic gas valve standard based on the comparison document for distribution for review and comment during May 1994.

Following reconsideration and modification of the proposed draft standard for automatic gas valves, in light of comments received, the joint automatic gas controls subcommittee, at its July 14, 1994 meeting, recommended the proposed draft standard to the Z21 Committee and the CGA Standards Steering Committee, for approval.

The proposed draft of the harmonized standard for automatic gas valves was approved by the Z21 Committee by letter ballot dated January 17, 1995. The CGA Standards Steering Committee approved the proposed draft harmonized standard for automatic gas valves by letter ballot dated April 13, 1995.

The first edition of the harmonized American National Standard/CGA Standard for Automatic Gas Valves was approved by the CGA Standards Advisory Committee and the Canadian Interprovincial Gas Advisory Council on October 16, 1995 and by the American National Standards Institute, Inc., on November 15, 1995.

The second edition of the harmonized American National Standard/CSA Standard for Automatic Gas Valves for Appliances was approved by The Canadian Interprovincial Gas Advisory Council on August 22, 2000 and by the American National Standards Institute, Inc., on September 7, 2000.

The third edition of the harmonized American National Standard/CSA Standard for Automatic Gas Valves for Appliances was approved by The Canadian Interprovincial Gas Advisory Council on April 1, 2005 and by the American National Standards Institute, Inc., on March 9, 2005.

The fourth edition of the harmonized American National Standard/CSA Standard for Automatic Gas Valves for Appliances was approved by The Canadian Interprovincial Gas Advisory Council on September 4, 2012 and by the American National Standards Institute, Inc., on August 22, 2012.

  

The fifth edition of the harmonized American National Standard/CSA Standard for Automatic Gas Valves for Appliances was approved by The Canadian Interprovincial Gas Advisory Council on June 26, 2015, and by the American National Standards Institute, Inc., on June 19, 2015.

This, the sixth edition of the harmonized American National Standard/CSA Standard for Automatic Gas Valves for Appliances was approved by the Canadian Interprovincial Gas Advisory Council on March 9, 2019, and by the American National Standards Institute, Inc., on April 9, 2019.

Previous editions of the automatic gas valves for appliances standard, and addenda thereto, approved by the American National Standards Institute, Inc. and the Interprovincial Gas Advisory Council, are as follows:

| | |
|---|---|
| Z21.21-1995 • CSA 6.5-M95<br>Z21.21a-1998 • CSA 6.5a-M98<br>Z21.21b-1999 • CSA 6.5b-1999 | Z21.21-2012 • CSA 6.5-2012 |
| Z21.21-2000 • CSA 6.5-2000<br>Z21.21a-2001 • CSA 6.5a-2001<br>Z21.21b-2004 • CSA 6.5b-2004 | Z21.21-2015• CSA 6.5-2015 |
| Z21.21-2005 • CSA 6.5-2005<br>Z21.21a-2010 • CSA 6.5a-2010<br>Z21.21b-2011 • CSA 6.5b-2011 | |

The following identifies the designation and year of the harmonized standard:

CSA/ANSI Z21.21:19 • CSA 6.5:19.

**Note:** *This edition of CSA/ANSI Z21.21 • CSA 6.5 incorporates changes to the 2015 edition. Changes, other than editorial, are denoted by a delta symbol in the margin.*

  

# CSA/ANSI Z21.21:19 • CSA 6.5:19
# Automatic valves for gas appliances

## 1 Scope

### 1.1

This Standard applies to newly produced automatic valves (see Clause 3, Definitions) constructed entirely of new, unused parts and materials. These valves may be individual automatic valves or valves utilized as parts of automatic gas ignition systems.

This Standard also applies to commercial/industrial safety shutoff valves (see Clause 3), herein after referred to as C/I valves. This Standard does not apply to self-contained water heater, cooking appliance, or room heater thermostats, or self-contained automatic gas shutoff valves for hot water supply systems.

Components performing functions other than those of an automatic valve are to comply with applicable American National Standards or Canadian Standards.

Compliance of an automatic valve with this Standard does not imply that the automatic valve is acceptable for use on gas appliances without supplemental tests with the automatic valve applied to the particular appliance design.

A control that incorporates two or more automatic valves and no other function, (as defined by combination control, see Clause 3), may be tested to this Standard or to the Standard for *Combination Gas Controls for Gas Appliances,* ANSI Z21.78 • CSA 6.20, at the discretion of the manufacturer.

### 1.2

The valve operator of an automatic valve may be actuated either directly or indirectly. In addition, it may be actuated by electrical means, by mechanical means, by means of a change of the absolute pressure of gas or air upon a diaphragm, or by other means.

### 1.3

This Standard applies to automatic valves having maximum operating gas pressure ratings from 1/2 psi (3.5 kPa) up to and including 60 psi (413.7 kPa). This Standard also applies to C/I valves having maximum operating gas pressure ratings of 1/2 psi (3.5 kPa) or greater (see Clauses 6 and 7).

### 1.4

This Standard applies to automatic valves that are to be mounted in the manufacturer's specified upright position or in one or more of the optional mounting positions selected by the manufacturer. (See Clause 5.1.1.)

### 1.5

This Standard applies to automatic valves that are capable of operation at ambient temperatures of 32 °F to 125 °F (0 °C to 51.5 °C), unless a higher temperature, lower temperature, or both, are specified by the manufacturer. (See Clause 5.1.2.)