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ANSI Z21.21-2015 • CSA 6.5-2015

Automatic valves for gas appliances

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Automatic valves for gas appliances



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Interprovincial Gas Advisory Council



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Preface

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

This Standard was prepared by the Z21/CSA Joint Technical Sub-committee on Standards for Automatic Gas Controls under the jurisdiction of the Technical Committee on Gas Appliances and Related Accessories, The Z21/83 Technical Committee on Performance and Installation of Gas Burning Appliances and Related Accessories, and the Strategic Steering Committee for Fuel Burning Appliances and has been formally approved by the Technical Committee(s), American National Standards Institute, and the Interprovincial Gas Advisory Council.

Interpretations: The Strategic Steering Committee on Standards for Fuel Burning 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 committee interpretation has not already been published, CSA Group’s procedures for interpretation shall be followed to determine the intended safety principle.”

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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.

This, 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.

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 Z21.21a-1998 • CSA 6.5a-M98 Z21.21b-1999 • CSA 6.5b-1999	Z21.21-2005 • CSA 6.5-2005 Z21.21a-2010 • CSA 6.5a-2010 Z21.21b-2011 • CSA 6.5b-2011
Z21.21-2000 • CSA 6.5-2000 Z21.21a-2001 • CSA 6.5a-2001 Z21.21b-2004 • CSA 6.5b-2004	Z21.21-2012 • CSA 6.5-2012

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

ANSI Z21.21-2015 • CSA 6.5-2015.

Note: *This edition of Z21.21 • CSA 6.5 incorporates changes to the 2012 edition. Changes, other than editorial, are denoted by a delta symbol in the margin.*

ANSI Z21.21-2015 • CSA 6.5-2015

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.

Δ 1.3

This Standard applies to automatic valves having maximum operating gas pressure ratings from ½ 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 ½ 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 (1) 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)

1.6

If a value for measurement as given in this Standard is followed by an equivalent value in other units, the first stated value is to be regarded as the specification.

1.7

All references to psi throughout this Standard are to be considered gauge pressures unless otherwise specified.

1.8

Additional provisions concerning electrical coverage applicable to units defined for use in the United States are outlined in Clause 9, Items unique to the United States.

1.9

Additional provisions concerning electrical coverage, instructions, and markings applicable to units destined for use in Canada are outlined in Clause 10, Items unique to Canada.

1.10

Clause 2, Reference publications, contains a list of standards specifically referenced in this Standard and sources from which they may be obtained.

Δ 1.11

In this Standard, “shall” is used to express a requirement, i.e., a provision that the use shall satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised by not required; and “may” is used to express an option or that which is permissible with the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the editions listed below.

CSA Group

ANSI Z21.78-2010 • CSA 6.20-2010
Combination Gas Controls for Gas Appliances

CSA B149.1-10
Natural Gas and Propane Installation Code

CSA C22.1-15
Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations