CSA GROUP™

CSA/ANSI HGV 4.10:21

National Standard of Canada
American National Standard

Standard for fittings for use in compressed gaseous hydrogen fuelling stations

Approved American National Standard
ANSI

Standards Council of Canada
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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 to judge its suitability for their particular purpose.

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ANSI provides that the interests of the public may have appropriate participation and representation in standardization activity, and cooperates with departments and agencies of U.S. Federal, state and local governments in achieving compatibility between government codes and standards and the voluntary standards of industry and commerce.

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25 West 43rd Street, Fourth floor
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National Standard of Canada
American National Standard

CSA/ANSI HGV 4.10:21

Standard for fittings for use in compressed gaseous hydrogen fuelling stations

Interprovincial Gas Advisory Council

American National Standards Institute, Inc.

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Preface

This is the second edition of CSA/ANSI HGV 4.10, *Standard for fittings for use in compressed gaseous hydrogen fuelling stations*. It supersedes the previous edition published in 2013.

This edition of CSA HGV 4.10 has been updated to include requirements for new technology and has been reformatted to comply with current editorial practices at CSA Group.

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

CSA Group acknowledges that the development of this Standard was made possible, in part, by the financial support of Natural Resources Canada.

This Standard was prepared by the Subcommittee for Standards on Fittings for Compressed Hydrogen Gas and Hydrogen-Rich Gas Mixtures, under the jurisdiction of the Technical Committee on Hydrogen Transportation and the Strategic Steering Committee on Transportation, and has been formally approved by the Technical Committee 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 developed in compliance with the American National Standards Institute (ANSI).

Interpretations: The Strategic Steering Committee on Transportation 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) *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 user of the Standard to judge its suitability for their particular purpose.*
3) *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.*
4) *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**.
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.*

CSA/ANSI HGV 4.10:21
Standard for fittings for use in compressed gaseous hydrogen fuelling stations

1 Scope

1.1 General

1.1.1 Scope of this Standard

This Standard specifies methods for testing and evaluating fittings for use with compressed hydrogen gas and hydrogen-rich gas mixtures.

1.1.2 Applicability of this Standard

This Standard was developed primarily for hydrogen fuelling station applications. However, this does not preclude other industries from adopting this Standard for their own use.

1.2 Fitting types

In this Standard, the term “fittings” includes connectors, stud ends for ports, tees, elbows, crosses, adaptors and manifold blocks.

1.3 Exclusions

This Standard does not apply to stand-alone components, such as

a) quick action couplings (i.e., quick connects), flanges, or weld fittings; and
b) fittings for handling liquid hydrogen.

1.4 New vs. historical fitting designs

This Standard is intended for new fitting designs and existing designs made with new materials. It is not intended for existing fitting designs with history of use, fittings made of existing materials with history of use, or fittings qualified by industry-recognized organizations (e.g., ASME, CGA, MSS, and SAE) for use in compressed gaseous hydrogen applications.

Note: *However, such exclusions do not preclude manufacturers from using this Standard for certification purposes for existing fitting configurations with history of use.*

1.5 Precedence of requirements

Application-specific standards supersede the requirements of this Standard.

1.6 Terminology

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the Standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within 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 the text explanatory or informative material.