CSA/ANSI HGV 5.2:24

National Standard of Canada
American National Standard

Compact hydrogen fuelling systems

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National Standard of Canada
American National Standard

CSA/ANSI HGV 5.2:24

Compact hydrogen fuelling systems

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Preface

This is the first edition of CSA/ANSI HGV 5.2, *Compact hydrogen fuelling systems*.

The CSA Subcommittee reviewed coverage in a variety of standards (CSA Interim Requirement IR 3-18, as well as others from CSA Group and industry hydrogen standards) and current code requirements to develop this new Standard that would focus on coverage for compact hydrogen fuelling systems (cHFS).

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

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

This Standard was prepared by the Subcommittee on Hydrogen Fuelling Systems, 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.

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 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 users 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.csagroup.org.*
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.*

SDG Foreword

CSA Group develops and maintains Standards across a broad range of topics, most of which support the United Nations Sustainable Development Goals (UN SDGs) towards shaping a sustainable and resilient future.

Through a robust mapping process, connections between CSA/ANSI HGV 5.2:24 and the following SDGs have been identified:

SDG		
Targets	7.a, 7.2	9.2, 9.4

CSA/ANSI HGV 5.2:24 has notable linkages with the following SDGs:

- SDG 7: *Affordable and Clean Energy*
- SDG 9: *Industry, Innovation, and Infrastructure*

For further information on CSA Group's SDG Mapping initiative, please visit: https://www.csagroup.org/sdg/

Disclaimer: It is important to note that although some Standards explicitly support SDG targets, not all Standards link to the SDGs. Standards users should always take care and be specific when claiming their support of SDGs through the use of Standards. The SDG mapping outcomes made available by CSA Group are intended to assist users in their evaluation of how the application of a Standard can support their work towards SDG achievement.

CSA/ANSI HGV 5.2:24
Compact hydrogen fuelling systems

1 Scope

1.1 General

This Standard specifies the mechanical, electrical, and safety requirements for newly designed and manufactured compact hydrogen fuelling systems (cHFS) and similar integral hydrogen generation, compression, storage, and dispensing systems intended to fuel on- or off-road hydrogen motor vehicles equipped with onboard fuel containers that are compliant with SAE J2579 or UN Global Technical Regulation No. 13.

1.2 Application

The requirements in Clause 1.1 apply to integrated or factory-matched (i.e., modular) hydrogen generating and fuelling equipment that

a) is intended for fuelling of hydrogen-powered vehicles only;
b) is intended for indoor or outdoor installations;
c) has a hydrogen generator within the enclosure or hydrogen pipeline source;
d) produces (or consumes if pipeline is used) hydrogen at a rate equal to or less than the limit referenced in NFPA 2, Section 10.7.4.2;
e) has a compressor with a single or multiple compression stages;
f) is intended to meet the installation fire safety requirements in accordance with NFPA 2 or CAN/BNQ 1784-000;
g) is intended for fill pressures of 350 bar and/or 700 bar fuelling;
h) is intended for fuel quality that meets or exceeds requirements in SAE J2719; and
i) consists of single and/or dual hose fuelling systems.

Note: *A cHFS that also supplies oxygen as a product is excluded from the Scope of this Standard.*

1.3 Unit of measure

The values given in SI units are the units of record for the purposes of this Standard. The values given in parentheses are for information and comparison only.

1.4 Standard conditions

Unless otherwise stated, standard conditions are as follows:

a) temperature, 15 °C; and
b) pressure, 101 kPa.

1.5 Pressure references

Unless otherwise specified, all references to pressure throughout this standard are to be considered gauge pressures.

1.6 Resolution of conflict

In the case of conflict between this Standard and federal, provincial, state, or local requirements, the authority having jurisdiction (AHJ) over requirements take precedence.