CSA Group

ANSI NGV 4.8-2012
CSA 12.8-2012

Standard for Natural gas vehicle fueling station reciprocating compressor guidelines

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10036

Preface

The ultimate purpose for this document is that it constitute the performance standard for North America regarding fueling station reciprocating compressors applicable to dispensing natural gas to vehicles. Major funding in support of the consensus process for this Standard was provided by the Natural Gas Vehicle Coalition (NGVC), whose assistance is acknowledged with thanks.

This document is designated as being Guidelines because it presents the industry's minimum requirements for it's "best practices". It is also designated as being a Standard because of the consensus process by which it has been developed and approved. In the former instance the document has been labelled according to the type of information it contains and in the latter instance according to the levels of input, evaluation and acceptance of this information.

Portions of ANSI/NGV 4.8 • CSA 12.8 are taken from API 11P, Specification for Packaged Reciprocating Compressors for Oil and Gas Production Services, Second Edition, November, 1989 and reproduced with permission of the American Petroleum Institute (API), 1220 L Street, Northwest, Washington, D.C. 20005.

This proposed standard requires the purchaser to specify certain details. A bullet (•) in the margin indicates that information and/or a decision by the purchaser is required.

This publication represents a standard for safe operation, substantial and durable construction and performance testing of compressor packages containing reciprocating compressors for natural gas dispensing systems, within limitations given below and in the scope of this standard.

This standard is based on proven engineering principles, research and the combined expertise of gas utilities, manufacturers, users, and others having specialized experience.

Nothing in this standard is to be considered in any way as indicating a measure of quality beyond compliance with the provisions it contains. It is designed to allow compliance of products which may exceed that specified in the provisions herein. In its preparation, full recognition has been given to possibilities of improvement through ingenuity of design. This standard is subject to revision as further experience and investigation may show it is necessary and desirable.

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Users of this Harmonized American National and Canadian Standards Association Standard are advised that the devices/products/activities within its scope may be subject to regulation at the Federal, state, provincial, or local levels. Users are strongly urged to investigate this possibility through appropriate channels. In the event of a conflict with this standard, the Federal, state, provincial or local regulations should be followed.

This standard does not apply to fuel system components that will be incorporated during original manufacture of motor vehicles which comply with Federal Motor Vehicle Safety Standards (FMVSS) or Canadian Motor Vehicle Safety Standards (CMVSS) for Natural Gas Powered Vehicles.

History Of Development Of ANSI NGV 4.8 • CSA 12.8

(This history is informative and is not part of the standard)

In 1988 a group of U.S. gas utilities formed the Natural Gas Vehicle (NGV) Coalition (the Coalition) to promote widespread use of compressed natural gas as a transport fuel. The Coalition organized committees to address technical, marketing and legislative issues which would affect the future expansion of a U.S. transportation industry fueled with natural gas.

The Coalition recognized that an important consideration in the successful commercialization of natural gas as a vehicle fuel was the issue of codes and standards pertaining to both fuel stations and vehicle fuel systems. The Coalition's Technology Committee was established to achieve the goal of an organized family of coordinated codes, standards and regulations addressing natural gas vehicles and fueling stations. To help achieve this goal, the Technology Committee established the Standards and Standardization Subcommittee.

During 1991, there was a growing need in the natural gas vehicle industry for guidelines pertaining to the safe assembly and operation of public compressed natural gas (CNG) dispensing equipment and related components which would fuel vehicles that operate on CNG. In response to this need the American Gas Association Laboratories (AGAL) developed A.G.A. Requirements for Compressed Natural Gas Dispensing Equipment for Vehicles, No. 2-92. AGAL also developed documents that would address related components of dispensing equipment, those are; A.G.A. Requirements for Hoses for Natural Gas Vehicles and Fuel Dispensers, No. 1-93; Manually Operated Valves for High Pressure Natural Gas, No. 2-93; Automatic, Pressure Operated Valves for High Pressure Natural Gas Service, No. 393; and Priority and Sequencing Equipment for Natural Gas Vehicle Fuelling, No. 4-93.

At the time of issuance, the aforementioned A.G.A. requirements were in compliance with NGV equipment and fueling stations specifications published by the National Fire Protection Association (NFPA) under its Standard for Compressed Natural Gas (CNG) Vehicular Fuel Systems, NFPA 52. The first edition of NFPA 52 was issued in 1984, and subsequently revised in 1988. The third edition of NFPA 52 was published in 1992, and incorporates many changes developed and recommended by the NGV Coalition's task groups.

In January of 1993, a joint meeting was held between the Coalition's Dispenser/Compressor/Inspection, and Measurement & Metering Task Groups, and the Canadian Gas Association Subcommittee's on Standards for Dispensing and Metering Devices, and for Compressors for NGV Dispensing Stations. During the coarse of the meeting the U.S. Task Groups and Canadian Subcommittee's agreed to initiate harmonization between the memberships's, and for all specifications of applicable NGV dispensing equipment standards. The newly formed group was title the NGVC/CGA Joint Subcommittee on Standards for Dispensing Devices and Related Components.

In May 1994 the joint subcommittee agreed to designate the applicable standards with the following nomenclature.

- ANSI/IAS NGV 4.1-1999 • CSA 12.5-M99, NGV DISPENSING SYSTEMS;
  ANSI/IAS NGV 4.2-1999 • CSA 12.52-M99, HOSES FOR NATURAL GAS VEHICLES AND DISPENSING SYSTEMS;
- ANSI/IAS NGV 4.4-1999 • CSA 12.54-M99, BREAKAWAY DEVICES FOR NATURAL GAS DISPENSING HOSES AND SYSTEMS;
- ANSI/IAS NGV 4.6-1999 • CSA 12.56-M99, MANUALLY OPERATED VALVES FOR NATURAL GAS DISPENSING SYSTEMS;

- ANSI NGV 4.7- • CSA 12.57-, AUTOMATIC PRESSURE OPERATED VALVES -FOR NATURAL GAS DISPENSING SYSTEMS; AND
- ANSI/NGV 4.8-2002 • CSA 12.8-2002, NATURAL GAS FUELING STATION RECIPROCATING COMPRESSOR GUIDELINES.

The first edition of the harmonized ANSI/CSA Standard for Natural Gas Fueling Station Reciprocating Compressor Guidelines, was approved in the U.S. by the American National Standards Institute, Inc. on February 6, 2002, and in Canada by the CSA NGV Standards Steering Committee on Natural Gas Vehicles and Fuelling on December 18, 2000, and the Canadian Interprovincial Gas Advisory Council (IGAC) on November 23, 2000.

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

ANSI NGV 4.8-2002 • CSA 12.8-2002

ANSI NGV 4.8-2012 • CSA 12.8-2012

This, the second edition, consists of the original standard's coverage found in the ANSI NGV 4.8-2002 • CSA 12.8-2002 standard. No changes were made to this document.

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Published in May 2012 by CSA Group
A not-for-profit private sector organization
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NOTE

This standard contains SI (Metric) equivalents to the yard/pound quantities, the purpose being to allow the standard to be used in SI (Metric) units. (Standard for use of the International System of Units (SI): The Modern Metric System, IEEE/ASTM SI I0 or Metric Practice Guide, CAN/CSA Z234.1 are used as a guide in making metric conversion from yard/pound quantities.) If a value for a measurement and an equivalent value in other units, the first stated is to be regarded as the requirement. The given equivalent value may be approximate. If a value for a measurement and an equivalent value in other units, are both specified as a quoted marking requirement, the first stated unit, or both shall be provided.

ANSI NGV 4.8-2012 • CSA 12.8-2012
Standard for natural gas vehicle fueling station reciprocating compressor guidelines

Part I: General

1.1 Scope

This standard describes the general requirements for compressor packages containing reciprocating compressors used in compressed natural gas fueling station service.

This standard applies to compressor designs referenced in Part 2 (Compressor). Coverage for other compressor designs can be provided at an appropriate time.

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

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. For Canadian applications see Exhibit B, "Items Unique to Canada."

Note: Hazardous situations can occur if S.I. fasteners are used with those which are not, which is mechanically feasible. S.I. elements can not be safely used with anything other than S.I.

Use of the word "Shall"

Where the word "shall" is used in this document it indicated a requirement (unless approved otherwise by the authority having jurisdiction); "should" indicates a recommendation or that which is advised but not mandatory; and "may" indicates an advisory or optional statement.

Use of Notes

Notes accompanying clauses do not include mandatory or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material that is not properly a part of the Standard. Notes to figures and tables are considered part of the figure or table and may be written as mandatory requirements; legends to figures are also considered part of the requirements of the figure.

1.2 Applications

Except as stated in this standard, compressor packages shall be designed, manufactured, and tested in accordance with the applicable requirements of the standards referenced. Unless otherwise indicated in this standard, the latest edition of any referenced standard/code shall be used.