CGA V-9—2019

COMPRESSED GAS ASSOCIATION STANDARD FOR COMPRESSED GAS CYLINDER VALVES

EIGHTH EDITION

CGA

Compressed Gas Association

The Standard For Safety Since 1913

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Work Item 16-010
Cylinder Valve Committee

NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendices A, B, and C (Informative) are for information only.

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SEVENTH EDITION: 2012
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1 Introduction

The Compressed Gas Association, Inc. (CGA) has long recognized the need to promote public safety in the use of cylinder valves. This standard defines factors that contribute to the safe design, manufacture, and use of cylinder valves for compressed gases.

Compressed gases supplied in cylinders are diverse in their chemical composition and properties. Some are oxidizers, some are flammables, some are inert, etc. Gases vary in degrees of corrosivity, toxicity, and pressure and exist not only in the pure state but also in a variety of mixtures. Thus, it is a primary safety requirement of the cylinder valve that it is designed and tested for its intended use.

2 Scope

This standard covers cylinder valve design, manufacture, and use including performance requirements such as operating temperature limits, pressure ranges, and flow capabilities. It also includes requirements such as materials, inlet and outlet connections, cleaning, qualification and production testing, maintenance, and reconditioning. This standard also includes guidelines and requirements for the design, material selection, testing, and marking of cylinder valve protection caps. Except as noted in the last paragraph of this section, this standard is intended for valves for compressed gases packaged in U.S. Department of Transportation (DOT) and Transport Canada (TC) cylinders.

This standard provides information on valve selection, valve use guidelines, and valve protection caps (see Appendix A, Appendix B, and Section 10, respectively).

This standard does not prejudice the continued use of valves in service or in inventory at a manufacturer's or user's site that were manufactured before the effective date of this standard provided the valves are identifiable to the original valve manufacturer and traceable to a manufacturing period. The identifying marks shall be permanent and visible on an installed valve.

The effective date of this standard is three years from the date of the publication of this edition, which was November 15, 2019. Valves manufactured on and after the effective date of this standard shall be in compliance with this standard.

This standard does not prohibit the use of valves that are Listed.

The following valves shall meet the requirements of ISO 10297, *Gas cylinders—Cylinder valves—Specification and type testing* as well as the additional requirements given in this standard:

- cylinder valves intended to be fitted to refillable transportable gas cylinders;
- main valves (excluding ball valves) for cylinder bundles;
- cylinder valves or main valves with an integrated pressure regulator (VIPR) for nonmedical purposes;
- cylinder valves for pressure drums; and
- cylinder valves for tubes (excluding ball valves) not mounted to a chassis or framework [1].[1]

This standard does not apply to:

- Cylinder valves used with nonrefillable cylinders (such as DOT-39, TC-39M, and nonrefillable cylinders manufactured under special permits or equivalency certificate);
- Self-closing cylinder valves installed on refillable cylinders that comply with ISO 17879, *Gas cylinders—Self closing cylinder valves—Specifications and type testing* [2];
- Cylinder valves used in DOT-2P and DOT-2Q (TC-2P and TC-2Q) cylinders;

[1] References are shown by bracketed numbers and are listed in order of appearance in the reference section

- Cylinder valves with an integrated pressure regulator (VIPR) used for medical purposes. See CGA E-18, *Medical Gas Valve Integrated Pressure Regulators* [3];
- Pressure regulating portion of valves with integrated pressure regulators (VIPRs) for nonmedical purposes. The shutoff valve portion shall comply with this standard;
- Cylinder valves on DOT-4L (TC-4LM) cylinders;
- Cylinder valves in refrigerated liquid service;
- Cylinder valves on DOT/TC/UN cylinders (tubes) that are mounted to a chassis or framework for road transportation; and
- Quick release cylinder valves (for example, for fire-extinguishing, explosion protection, and rescue applications) that comply with ISO 17871, *Gas cylinders—Quick-release cylinder valves—Specification and type testing* [4].

3 Definitions

For the purpose of this standard, the following definitions apply.

3.1 Publication terminology

3.1.1 Shall
Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 Should
Indicates that a procedure is recommended.

3.1.3 May
Indicates that the procedure is optional.

3.1.4 Will
Is used only to indicate the future, not a degree of requirement.

3.1.5 Can
Indicates a possibility or ability.

3.2 Technical definitions

3.2.1 Cylinder valve
Mechanical device attached to a compressed gas cylinder that permits flow into or out of the cylinder when the device is in the open position and prevents flow when in the closed position.

3.2.2 Cylinder valve protection cap
Device fixed over a cylinder's valve during handling, transportation, and storage.

NOTE—It is attached to the cylinder by a threaded connection or other means and usually is removed to allow access to the cylinder valve.

3.2.3 General purpose valves
Valves used for industrial compressed gases.

3.2.4 Listed
Approved by an independent source to a relevant Underwriters Laboratories (UL) valve standard(s) that also performs periodic inspection of production.