CGA

Compressed Gas Association

The Standard For Safety Since 1913

CGA E-16—2015

STANDARD FOR COMPRESSED GAS CHECK VALVES FOR PRESSURES UP TO 3500 PSI

SECOND EDITION

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Work Item 11-018
Industrial Gases Apparatus Committee

NOTE—Technical changes from the previous edition are underlined.

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1 Introduction

Many years of field use and experience have shown that various types of equipment using the Compressed Gas Association (CGA) standard cylinder valve, pipeline, and manifold connections are reliably safe when operated in accordance with manufacturer's instructions. Under certain circumstances, the user's failure to follow these instructions can cause the backflow of unwanted gas into a pipeline, cylinder, or other equipment.

The purpose of a check valve is to reduce the possibility of a reverse flow of gas or simply to keep the atmosphere, moisture, dirt, etc. from backing up into a system when changing connections. Check valves are not intended to act as fire stops (flame arrestors) or as replacements for shutoff valves.

Check valves that meet the requirements of this standard must not be misconstrued as a substitution or replacement for the backflow check provisions in National Fire Protection Association (NFPA) 51, *Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes*; CGA E-12, *Safety Devices Used in Gas Welding, Cutting, and Allied Processes*; or NFPA 99, *Health Care Facilities Codes*, unless properly specified for that particular use [1, 2, 3].[1]

Safe use of gas piping equipment, including check valves, can only be assured by the observance of proper operating procedures and safe practices recommended by the equipment manufacturers, industry associations, and regulatory bodies.

2 Scope

This standard applies to check valves used in general industrial and medical compressed gas service designed for service pressures up to 3500 psi (24 130 kPa) at 120° F (49° C), and used in conjunction with cylinder valve or manifold connections specified by various standards of CGA.[2] These connections may be incorporated as part of equipment; such as regulator inlet connections, manifold connections, or other high pressure hose line (pigtail) inlet and outlet connections. See CGA E-3, *Low Pressure Pipeline Station Outlet/Regulator Inlet Connection Standard*; CGA E-9, *Standard for Flexible, PTFE-Lined Pigtails for Compressed Gas Service;* CGA E-11, *Stationary Compressed Gas Cylinder Discharging Manifolds for Working Pressure up to 3000 psig;* CGA V-1, *Standard for Compressed Gas Cylinder Outlet and Inlet Connections*; and CGA V-10, *High Pressure Gas Trailer Connections* [5, 6, 7, 8, 9].

This standard does not apply to check valves used as an integral part of a regulator, residual pressure cylinder valve, gas pump, or otherwise internal component of other equipment. This standard does not apply to cryogenic or liquefied gas check valves.

Flammable, toxic, high purity, or specialty gas applications can require additional specialized design requirements.

The effective date of this standard is one year from the date of publication of this edition, which is May 4, 2016. Check valves manufactured on and after the effective date of this standard shall be in compliance with this standard.

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.

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

[2] kPa shall indicate gauge pressure unless otherwise noted as (kPa, abs) for absolute pressure or (kPa, differential) for differential pressure. All kPa values are rounded off per CGA P-11, *Metric Practice Guide for the Compressed Gas Industry* [4].