

CGA E-12 — 2023

**3<sup>RD</sup> EDITION**

# STANDARD FOR SAFETY DEVICES USED IN GAS WELDING, CUTTING, AND ALLIED PROCESSES

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NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendix A (Informative) is for information only.

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## 1 Scope

This publication provides specifications, definitions, and performance tests for hose line safety devices for systems and equipment using fuel gases and oxygen or compressed air for welding, cutting, and allied processes.

This publication gives users an overview of the available types of safety devices and their function.

For connections, this publication does not cover nor preclude incorporating modified connections with soft tips, O-rings, filters, restrictors, or other features for special applications.

This publication does not apply to pressure relief devices (PRDs) incorporated in regulators. Pressure relief valves in regulators shall be in accordance with CGA E-4, *Standard for Gas Pressure Regulators* [1].<sup>1</sup>

## 2 Definitions

For the purposes of this publication, the following definitions apply.

### 2.1 Publication terminology

#### 2.1.1 Shall

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

#### 2.1.2 Should

Indicates that a procedure is recommended.

#### 2.1.3 May

Indicates that the procedure is optional.

#### 2.1.4 Will

Used only to indicate the future, not a degree of requirement.

#### 2.1.5 Can

Indicates a possibility or ability.

### 2.2 Technical definitions

#### 2.2.1 Flashback

Rapid, sustained, or momentary retrogression of a flame upstream in compressed gas systems.

#### 2.2.2 Flashback arrestor

Device designed to protect equipment upstream of the device from a flame front, see Figure 1.

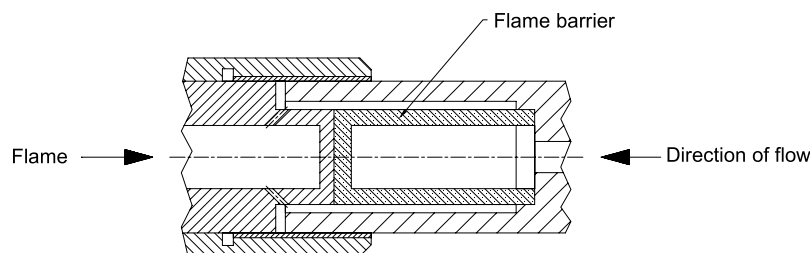


Figure 1—Typical flashback arrestor

<sup>1</sup> References are shown by bracketed numbers and are listed in order of appearance in the reference section.

### 2.2.3 Safety device

Any device that, by design, when installed and used according to the specifications of the manufacturer of the device, will decrease the incidence and/or severity of equipment damage and/or personal injury in an event or condition resulting when equipment is misused, damaged, or malfunctions.

### 2.2.4 Upstream/downstream

Refers to a location relative to the flow of gas.

NOTE—The normal direction of flow should be understood as gas movement from an upstream source or supply towards a downstream use or process.

### 2.2.5 Valves

#### 2.2.5.1 Check valve

Device designed to reduce the possibility of reverse flow of gas, see Figure 2.

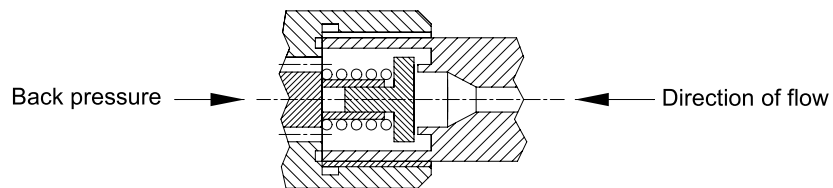


Figure 2—Typical check valve

#### 2.2.5.2 Excess flow shutoff valve

Device that shuts off the flow of gas in the normal direction if that flow exceeds a predetermined value, see Figure 3.

NOTE—These devices can be manually or automatically reset.

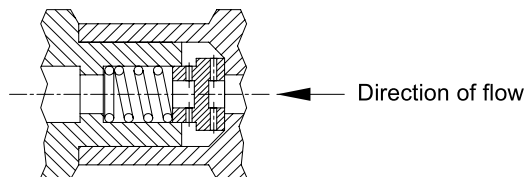


Figure 3—Typical excess flow shutoff valve

#### 2.2.5.3 Pressure relief valve

Pressure activated device designed to relieve excess pressure inside compressed gas systems, see Figure 4.

NOTE—The device can be self-reseating when pressure returns to less than the start-to-discharge pressure.

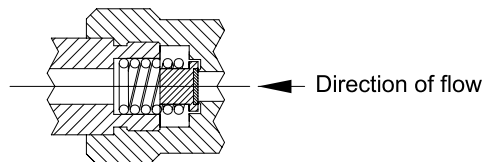


Figure 4—Typical pressure relief valve