



**CGA G-6.16-2023**  
**STANDARD FOR STATIONARY**  
**UNINSULATED CYLINDER**  
**SUPPLY SYSTEMS FOR**  
**CARBON DIOXIDE**

**FIRST EDITION**

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## 1 Introduction

Fill by pressure carbon dioxide dispensing systems are used in beverage dispensing, grow houses, extraction equipment, swimming pool pH control applications, etc. These types of systems are installed inside a customer's building (see Figures 1 and 2) and allow for filling the system remotely from outside the building. Beverage, extraction, and swimming pool applications are batch processes, and grow houses are continuous processes.

CGA G-6, *Carbon Dioxide*, contains information critical to safe storage and handling of carbon dioxide [1].<sup>1</sup> To ensure personnel safety and proper system design, reference to CGA G-6 is highly recommended [1]. Without obtaining CGA G-6, the reader will not be provided with significant information related to the physical properties and common hazards associated with storage, production, transportation, and handling of carbon dioxide [1].

## 2 Scope

This publication describes the design, installation, filling, use, and maintenance of a stationary uninsulated cylinder supply system for carbon dioxide using two or more cylinders with a directional flow control device that allows the system to function in a manner similar to a single cylinder. Unlike CGA G-6.3, *Carbon Dioxide Cylinder Filling and Handling Procedures*, where cylinders are filled individually by weight, this publication describes cylinders filled in place in accordance with the requirements of this standard [2].

This publication does address the hazards specifically associated with stationary uninsulated cylinder supply systems for carbon dioxide.

The systems in this publication have a total usable carbon dioxide capacity of 1500 lb (680.4 kg) or less. It is intended to assist designers, engineers, distributors, restaurant personnel, inspectors, other users, and all interested parties.

This publication contains minimum requirements and recommended practice for the design, construction, installation, operation, maintenance, and filling of stationary uninsulated cylinder supply systems for carbon dioxide in temperature controlled indoor environments. This publication does not address indoor or outdoor installation of these systems where the system temperature can exceed 87.9 °F (31.05 °C) (i.e., supercritical temperature of carbon dioxide) which requires additional safety and engineering controls.

This publication covers stationary uninsulated cylinder supply systems from the delivery unit pumping system to the carbon dioxide cylinder gas outlet regulator reverse flow check valve inside the building (see Figures 1 and 2). This includes interconnecting piping between cylinders and their pressure relief device (PRD) systems (see Figure 1). These systems might also be covered by various national, provincial, state, and local codes. The details of these codes are not covered in this publication. Verify applicable codes in your place of business to ensure compliance.

This publication does not address the use of individual uninsulated carbon dioxide cylinders that are filled at non-use locations, nor filling of ASME cylinders. This publication also does not address small stationary insulated supply systems which are addressed in CGA G-6.5, *Standard for Small Stationary Insulated Carbon Dioxide Supply Systems* [3].

Although this publication shows placement of carbon dioxide detection monitors in various portions of the user facility, the responsibility for the proper location, installation, maintenance, and monitoring of the detection monitoring systems and its component parts is not specifically identified in this publication. The responsibility for these activities generally lies with the user. If not, they should be fully described in an agreement between the user and the monitoring equipment manufacturer and installer or, in some instances, between the user and their carbon dioxide supplier.

While this standard provides requirements for user installations, final approval for the design, equipment, inspections, installation, and maintenance rests with authorities having jurisdiction (AHJ) in this area.

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