

ICS 13.340.30  
CCS C 73



**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 16556-2007**

Replacing GB/T 16556-2007

---

**Respiratory protection - Self-contained open-circuit  
compressed air breathing apparatus  
(English Translation)**

**Issued on: August 29, 2025**

**Implemented on: September 1, 2026**

---

**Issued by: State Administration for Market Regulation**

## Table of Contents

|                                                              |
|--------------------------------------------------------------|
| Preface                                                      |
| 1 Scope                                                      |
| 2 Normative References                                       |
| 3 Terms and Definitions                                      |
| 4 Classification and Labeling                                |
| 5 Technical Requirements                                     |
| 6 Test Method                                                |
| 7 Labeling, packaging, and manufacturer-provided information |
| Appendix A (Normative) Flame Engulfment Test Method          |
| References                                                   |

## Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document replaces GB/T 16556-2007 "Self-Contained Open-Circuit Compressed Air Breathing Apparatus". Compared with GB/T 16556-2007, the following changes are made.

Aside from structural adjustments and editorial changes, the main technical changes are as follows.

- a) The classification and labeling have been changed (see Chapter 4, Chapter 4 of the 2007 edition);
- b) The technical requirements for expiratory resistance have been changed (see 5.5.2, 5.21.2 in the 2007 edition);
- c) Requirements for the overall flame retardancy of emergency air respirators and flame engulfment test methods have been added (see 5.8.2.2, 6.9.4, and Appendix A);
- d) Requirements and test methods for the water immersion resistance of respirators have been added (see 5.10 and 6.11);
- e) The requirements for mask leakage rate, airtightness, and impact resistance have been changed (see 5.11, 5.8.2, 5.8.4, and 5.8.6 of the 2007 edition);
- f) Increased requirements for the protection of face shield lenses against high-speed

particle impacts (see 5.11);

g) The technical requirements and test methods for pressure regulator safety valves have been revised (see 5.19.2, 6.16, 5.16.2 and 6.10 in the 2007 edition);

h) The explosion-proof technical requirements for electronic pressure gauges and electronic alarms have been revised (see 5.20.3, 5.21.3, and 5.17.3 and 5.18.3 in the 2007 edition);

i) The temperature and flame adaptability test methods have been changed (see 6.9, 6.5 in the 2007 edition);

j) Technical requirements and test methods for medium-pressure auxiliary joints have been added (see 5.22, 6.14.2);

k) Added technical requirements and test methods for rapid inflation devices (see 5.23, 6.19);

l) Technical requirements and test methods for quick-change gas cylinder devices have been added (see 5.24 and 6.20);

m) Added technical requirements and test methods for pressure head-up display devices (see 5.25, 6.21);

n) A test method for low-temperature alarm performance of alarm devices has been added (see 6.18.3).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the Ministry of Emergency Management of the People's Republic of China.

The release history of this document and the document it replaces is as follows.

---First published as GB 16556-1996 in 1996, and first revised as GB/T 16556-2007 in 2007;

---This is the second revision.

Self-contained open-circuit compressed air breathing apparatus

## 1 Scope

This document specifies the technical requirements, labeling, packaging, and manufacturer information for self-contained open-circuit compressed air breathing apparatus, and provides a classification system.

The symbols and tags describe the corresponding test methods.

This document applies to self-contained open-circuit compressed air breathing apparatus

(hereinafter referred to as air breathing apparatus) for industrial and emergency use.

This document does not apply to closed-circuit breathing apparatus, diving breathing apparatus, escape breathing apparatus, and negative pressure breathing apparatus.

## 2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 1226 General Pressure Gauges GB 2626-2019 Respiratory Protection - Self-priming Filtering Respirators for Particulate Matter GB 2890-2022 Respiratory Protective Self-priming Filtering Gas Mask GB/T 3836.1 Explosive Atmospheres - Part 1: General Requirements for Equipment GB/T 3836.4 Explosive atmospheres - Part 4: Equipment protected by intrinsic safety type "i" GB/T 4208-2017 Degrees of protection provided by enclosures (IP code) GB/T 5099.1 Seamless steel gas cylinders - Part 1: Steel cylinders with a tensile strength of less than 1100 MPa after quenching and tempering.

GB/T 5099.3 Seamless steel gas cylinders - Part 3: Normalized steel cylinders GB/T 5099.4 Seamless steel gas cylinders - Part 4: Seamless stainless steel gas cylinders GB/T 7307-2001 55° Non-sealing Pipe Threads GB/T 12903 Terminology for Personal Protective Equipment GB 14866-2023 General Technical Specification for Eye and Face Protective Equipment GB/T 23465-2009 Practical Performance Evaluation of Respiratory Protective Equipment GB/T 28053 Aluminum Alloy Liner Carbon Fiber Fully Wound Gas Cylinder GB 31975 Technical requirements for compressed air for respiratory protection GB/T 32166.2-2015 Personal Protective Equipment - Eye and Face Protection; Occupational Eye and Face Protection - Part 2: Measurement Methods GB/T 34527 Technical requirements for cylinder valves for air respirators

## 3 Terms and Definitions

The terms and definitions defined in GB/T 12903 and the following terms and definitions apply to this document.

By ensuring a tight seal between the mask and the wearer's face, the wearer's respiratory organs, eyes, and face are kept away from toxic or oxygen-deficient air.

A respirator that completely isolates the user, who carries their own clean compressed air as a breathing source, and whose exhaled air is directly released into the ambient air.

and emergency services A self-contained open-circuit compressed air breathing apparatus

used by personnel undertaking emergency tasks such as fire fighting, hazardous chemical disposal, and rescue.

In addition to the areas where emergency air respirators are applicable, they are also suitable for use in mining, petrochemical, industrial and commercial, metallurgical, transportation, municipal construction, public utilities, and other fields.

A self-contained open-circuit compressed air breathing apparatus used by workers in various industries.

static pressure

The pressure inside the mask cavity when the air supply valve positive pressure device is turned on and the air circuit of the air respirator is balanced.

#### **4.1.1 Classification by Applicable Occasion**

According to their applicable occasions, air respirators are divided into.

- a) Industrial air respirator, marking code. GY;
- b) Emergency air respirator, marking code. YJ.

#### **4.1.2 Classification by Cylinder Material**

According to the material of the air cylinder, air respirators are divided into.

- a) Seamless steel gas cylinder, marked with code. G;
- b) Aluminum alloy liner carbon fiber fully wrapped gas cylinder (referred to as "composite gas cylinder"), marking code. F.

#### **4.1.3 Classification by nominal volume of gas cylinders**

The nominal volume of the air cylinder for an air respirator should be no less than 3L and no more than 12L. The cylinder can be marked with a value of 3 based on its actual nominal volume.

4.7, 6.8, 8, 9, 12, etc.

### **4.2 Marking**

Product markings include the product name, this document number, applicable category of the air respirator, cylinder material category, nominal cylinder volume, and cylinder number.

It consists of six parts, including nominal work pressure.

Example 1. Emergency air respirator, using an aluminum alloy liner and carbon fiber fully wound cylinder, with a nominal cylinder volume of 9L and a nominal working pressure of