

INTERNATIONAL STANDARD

ISO 3500

Second edition
1990-11-15

Seamless steel CO₂ cylinders for fixed fire-fighting installations on ships

*Bouteilles à CO₂ en acier, sans soudure, pour installations fixes de lutte
contre l'incendie à bord des navires*



Reference number
ISO 3500:1990(E)

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ISO 3500:1990

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 3500 was prepared by Technical Committee ISO/TC 58, *Gas cylinders*.

This second edition cancels and replaces the first edition (ISO 3500:1976), of which it constitutes a minor revision.

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Seamless steel CO₂ cylinders for fixed fire-fighting installations on ships

1 Scope

This International Standard specifies the principal external dimensions, accessories, filling ratio and marking for seamless steel CO₂ cylinders used in fire-fighting installations on board ships, in order to facilitate their interchangeability.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 448:1981, *Gas cylinders for industrial use — Marking for identification of content*.

ISO 3864:1984, *Safety colours and safety signs*.

ISO 4705:1983, *Refillable seamless steel gas cylinders*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 tare: The combined mass, expressed in kilograms, of the empty cylinder, neck collar, valve and syphon tube.

3.2 permissible filling ratio: The maximum permissible mass of carbon dioxide in kilograms per litre of internal cylinder volume.

4 General characteristics

4.1 Cylinder

4.1.1 The external dimensions of the cylinder, illustrated in figure 1, shall be in accordance with the values given in table 1.

4.1.2 The cylinder shall be designed for a minimum test pressure of 250 bar¹⁾ and shall conform to the requirements of ISO 4705.

4.2 Valve

The valve outlet connecting thread shall be of the following profile:

- Thread form: Whitworth — External
- Basic major diameter: 21,8 mm
- Pitch: 1,814 mm
- Direction: Right-hand

NOTE 1 For information on the national standards specifying this type of outlet, see ISO/TR 7470:1988, *Valve outlets for gas cylinders — List of provisions which are either standardized or in use*.

4.3 Safety devices

A safety device shall be fitted to prevent the cylinder gas pressure rising above 200 bar.

1) 1 bar = 10⁵ Pa = 10⁵ N/m²

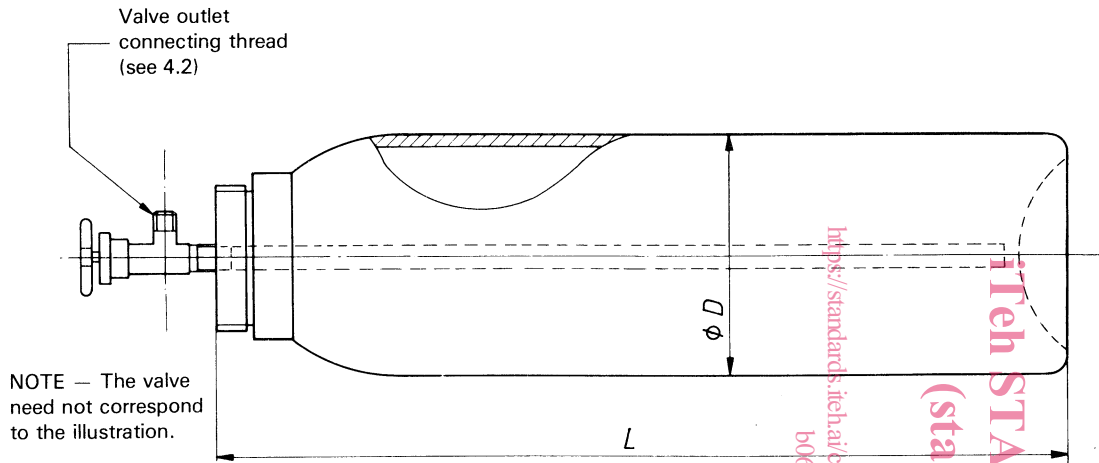


Figure 1 — Cylinder dimensions

Table 1 — General characteristics

Reference size	Volume min.	Maximum permissible mass of CO ₂ ¹⁾	Outside diameter ²⁾	Length ²⁾
	L		D	L
		kg	mm	mm
A	45	30	227 to 235	1 263 to 1 420
B	67,5	45	265 to 273	1 395 to 1 562

1) The maximum permissible filling ratio is 0,67 kg of CO₂ per litre of internal cylinder volume.
 2) In order to obtain the minimum specified volume, it is necessary to give ranges for both outside diameter and length because of the possible variations in the different manufacturing processes involved.

5 Identification of content

5.1 Colour

The cylinder shall be finished in safety red with the gas identification in white lettering, in accordance with the requirements of ISO 3864.

5.2 Marking

The cylinder shall be legibly marked at the valve end of the cylinder and preferably off the cylindrical part of the body with the chemical symbol and name of the gas, i.e.

CO₂
CARBON DIOXIDE

in accordance with ISO 448.

The presence of the cylinder syphon tube shall be indicated, for example by means of a disc between the valve and the cylinder or a white line painted parallel to the longitudinal axis.

6 Additional stamped marking

In addition to the marking requirements detailed in 5.2 and those specified in ISO 4705, the cylinder shall bear the following stamped marks:

TARE kg

CO₂ kg

NOTE 2 The tare is defined in 3.1. The mass of CO₂ corresponds to the permissible filling ratio as defined in 3.2.

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Descriptors: shipbuilding, fire equipment, fire extinguishers, fixed extinguishers, carbon dioxide extinguishers, gas cylinders, steel products, specifications, dimensions, marking.

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