
INTERNATIONAL STANDARD



3500

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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

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Price based on 2 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3500 was drawn up by Technical Committee ISO/TC 58, *Gas cylinders*, and was circulated to the Member Bodies in September 1974.

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It has been approved by the Member Bodies of the following countries :

Australia	India	Romania
Austria	Iran	South Africa, Rep. of
Belgium	Ireland	Sweden
Bulgaria	Israel	Turkey
Czechoslovakia	Mexico	United Kingdom
Finland	Netherlands	U.S.S.R.
Germany	Portugal	Yugoslavia

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The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Canada	Japan	U.S.A.
France	New Zeland	
Italy	Norway	

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

1 SCOPE AND FIELD OF APPLICATION

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 REFERENCES

ISO/R 228, *Pipe threads where pressure-tight joints are not made on the threads (1/8 inch to 6 inches).*

ISO/R 408, *Safety colours.*

ISO/R 448, *Marking of industrial gas cylinders for the identification of the content.*

ISO 4705, *Seamless steel gas cylinders – Design, construction and acceptance.*¹⁾

3 DEFINITIONS

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

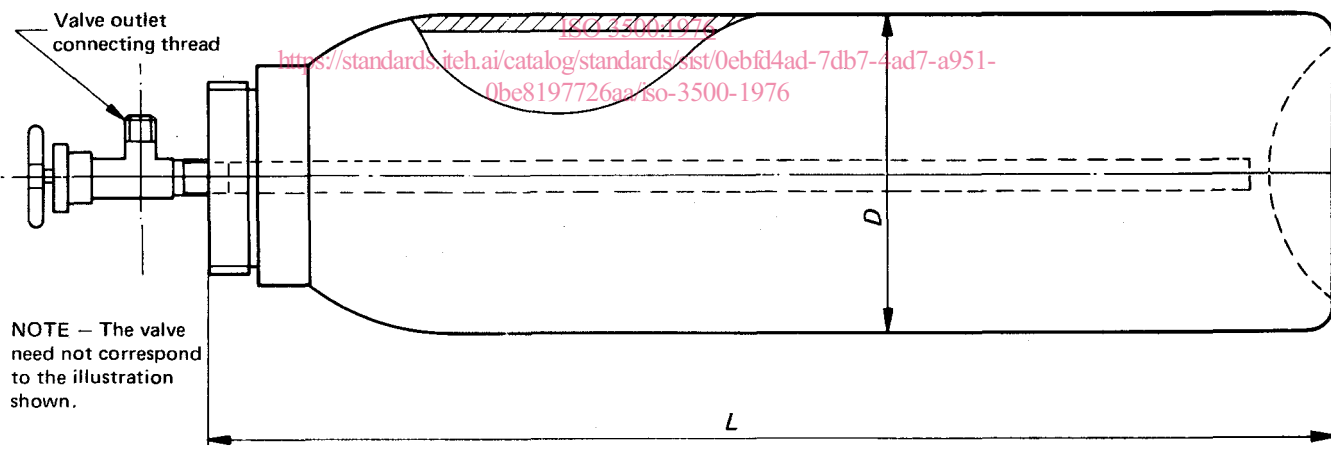
3.1 tare : The combined mass, expressed in kilograms, of empty cylinder, neck collar, valve and syphon tube.

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 shall be in accordance with the values given in the table.



NOTE – The valve need not correspond to the illustration shown.

FIGURE – Cylinder dimensions

TABLE – General characteristics

Reference size	Volume (min.)	Maximum permissible mass of CO ₂ *	Outside diameter** <i>D</i>	Length** <i>L</i>
	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

* The maximum permissible filling quantity is 0,67 kg of CO₂ per litre of cylinder volume.

** In order to obtain the minimum specified volume, it is necessary to provide ranges for both outside diameter and length having regard to the possible variations in manufacturing processes involved.

1) In preparation.

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 (Ref. ISO/R 228)
- Major diameter 21,8 mm
- Pitch 1,814 mm
- Direction Right-hand

4.3 Safety devices

A safety device shall be fitted to prevent the cylinder gas pressure rising above 200 bar¹⁾.

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/R 408.

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/R 448.

The presence of the cylinder syphon tube shall be indicated, for example by means of a disc between valve and 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 marks :

TARE kg

CO₂ kg

NOTE – The tare is the mass as defined in 3.1. The mass of CO₂ is the maximum permissible mass as defined in 3.2.

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1) 1 bar = 10⁵ N/m² = 100 kPa