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**Gas cylinders — Refillable seamless  
aluminium alloy gas cylinders — Design,  
construction and testing**

*Bouteilles à gaz — Bouteilles sans soudure en alliage d'aluminium  
destinées à être rechargées — Conception, construction et essais*



## Contents

Page

<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Symbols</b> .....	<b>2</b>
<b>5 Inspection and testing</b> .....	<b>3</b>
<b>6 Materials</b> .....	<b>3</b>
<b>7 Design</b> .....	<b>6</b>
<b>8 Construction and workmanship</b> .....	<b>10</b>
<b>9 Type approval procedure</b> .....	<b>11</b>
<b>10 Batch tests</b> .....	<b>13</b>
<b>11 Tests on every cylinder</b> .....	<b>18</b>
<b>12 Certification</b> .....	<b>20</b>
<b>13 Marking</b> .....	<b>20</b>
<b>Annex A (normative) Corrosion tests</b> .....	<b>21</b>
<b>Annex B (normative) Test method to determined sustained-load-cracking resistance of aluminium alloy cylinders</b> .....	<b>31</b>
<b>Annex C (informative) Typical type approval certificate</b> .....	<b>38</b>
<b>Annex D (informative) Acceptance certificate</b> .....	<b>39</b>
<b>Bibliography</b> .....	<b>41</b>

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 7866 was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 3, *Cylinder design*.

Annexes A and B form a normative part of this International Standard. Annexes C and D are for information only.

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## Introduction

The purpose of this International Standard is to provide a specification for the design, manufacture, inspection and testing of a seamless aluminium cylinder for worldwide usage. The objective is to balance design and economic efficiency against international acceptance and universal utility.

This International Standard aims to eliminate the concern about climate, duplicate inspections and restrictions currently existing because of lack of definitive International Standards. This International Standard should not be construed as reflecting on the suitability of the practices of any nation or region.

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# Gas cylinders — Refillable seamless aluminium alloy gas cylinders — Design, construction and testing

## 1 Scope

This International Standard specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes and tests at manufacture of refillable seamless aluminium alloy gas cylinders of water capacities from 0,5 l up to and including 150 l for compressed, liquefied and dissolved gases for worldwide use (normally up to + 65 °C).

NOTE If so desired, cylinders of water capacity less than 0,5 l may be manufactured and certified to this International Standard.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 6506:1981<sup>1)</sup>, *Metallic materials — Hardness test — Brinell test.*

ISO 6508:1986<sup>2)</sup>, *Metallic materials — Hardness test — Rockwell test (scales A - B - C - D - E - F - G - H - K).*

ISO 6892:1998, *Metallic materials — Tensile testing at ambient temperature.*

ISO 7438:1985, *Metallic materials — Bend test.*

ISO 7539-6:1989, *Corrosion of metals and alloys — Stress corrosion testing — Part 6: Preparation and use of pre-cracked specimens.*

ISO 11114-1:1997, *Transportable gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 1: Metallic materials.*

ISO 13341:1997, *Transportable gas cylinders — Fitting of valves to gas cylinders.*

ISO 13769<sup>3)</sup>, *Gas cylinders — Stamp marking.*

<sup>1)</sup> To be withdrawn and replaced by ISO 6506-1, ISO 6506-2 and ISO 6506-3.

<sup>2)</sup> To be withdrawn and replaced by ISO 6508-1, ISO 6508-2 and ISO 6508-3.

<sup>3)</sup> To be published.