BS EN ISO 7866:2012+A1:2020

Incorporating corrigendum April 2014

BSI Standards Publication

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

bsi.

National foreword

This British Standard is the UK implementation of EN ISO 7866:2012+A1:2020. It is identical to ISO 7866:2012, incorporating incorporating corrigendum April 2014 and amendment 1:2020. It supersedes BS EN ISO 7866:2012, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee PVE/3/3, Transportable Gas Containers - Cylinder Design, Construction and Testing at the Time of Manufacture.

A list of organizations represented on this committee can be obtained on request to its committee manager.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Amendments/corrigenda issued since publication

Date	Text affected
31 July 2014	Implementation of ISO corrigendum April 2014: Subclause A.2.4.2 updated
31 January 2021	Implementation of ISO amendment 1:2020 with CEN endorsement A1:2020

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 7866:2012+A1

December 2020

ICS 23.020.35

Supersedes EN 1975:1999

English Version

Gas cylinders - Refillable seamless aluminium alloy gas cylinders - Design, construction and testing (ISO 7866:2012)

Bouteilles à gaz - Bouteilles à gaz sans soudure en alliage d'aluminium destinées à être rechargées - Conception, construction et essais (ISO 7866:2012)

Gasflaschen - Wiederbefüllbare nahtlose Gasflaschen aus Aluminiumlegierungen - Auslegung, Bau und Prüfung (ISO 7866:2012)

This European Standard was approved by CEN on 4 August 2012.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN ISO 7866:2012: E

European foreword

This document (EN ISO 7866:2012) has been prepared by Technical Committee ISO/TC 58 "Gas cylinders" in collaboration with Technical Committee CEN/TC 23 “Transportable gas cylinders” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2013, and conflicting national standards shall be withdrawn at the latest by March 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1975:1999.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 7866:2012 has been approved by CEN as a EN ISO 7866:2012 without any modification.

European foreword to amendment A1

This document (EN ISO 7866:2012/A1:2020) has been prepared by Technical Committee ISO/TC 58 "Gas cylinders" in collaboration with Technical Committee CEN/TC 23 “Transportable gas cylinders” the secretariat of which is held by BSI.

This Amendment to the European Standard EN ISO 7866:2012 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2021, and conflicting national standards shall be withdrawn at the latest by June 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 7866:2012/Amd 1:2020 has been approved by CEN as EN ISO 7866:2012/A1:2020 without any modification.

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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 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 7866 was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 3, and by Technical Committee CEN/TC 23, *Transportable gas cylinders* in collaboration.

This second edition cancels and replaces the first edition (ISO 7866:1999), which has been technically revised.

The following significant technical changes have been carried out:

— a new subclause (11.7) has been added to address unacceptable manufacturing defects and unacceptable surface features at the time of manufacture and changes have been made to other subclauses to compliment the new subclause;

— terms and definitions and the symbols have been revised;

— terminology changes included: “stress” changed to “strength”;

— various editorial errors were corrected;

— equipment calibration requirements were added;

— defining "defect" as a feature caused by the manufacturing/manufacturer; and

— defining "imperfection" as damage or feature not caused by manufacturing/manufacturer.

Introduction

The purpose of this International Standard is to provide a specification for the design, manufacture, inspection and testing of a seamless aluminium alloy gas 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 practice of any nation or region.

Following publication, this International Standard will be submitted for reference in the UN Recommendations on the Transport of Dangerous Goods – Model Regulations.

INTERNATIONAL STANDARD ISO 7866:2012+A1:2020

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 time of manufacture of refillable seamless aluminium alloy gas cylinders of water capacities up to and including 150 litres for compressed, liquefied and dissolved gases for worldwide use (normally up to +65 °C).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

〚A1〛 ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method* 〚/A1〛

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

ISO 7438, *Metallic materials — Bend test*

〚A1〛 ISO 7539-6:2018, *Corrosion of metals and alloys — Stress corrosion testing — Part 6: Preparation and use of precracked specimens for tests under constant load or constant displacement*

ISO 18119, *Gas cylinders — Seamless steel and seamless aluminium-alloy gas cylinders and tubes — Periodic inspection and testing* 〚/A1〛

ISO 11117, *Gas cylinders — Valve protection caps and valve guards — Design, construction and tests*

ISO 13341, *Gas cylinders — Fitting of valves to gas cylinders*

ISO 13769, *Gas cylinders — Stamp marking*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
artificial ageing
heat treatment process in which the solute phase is precipitated to give an increased yield strength and tensile strength

3.2
bar·litres
product of the test pressure (in bars) and the water capacity (in litres)