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Gas cylinders - Non-refillable metallic gas cylinders - Specification and test methods (ISO 11118:2015)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/16

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English Version

Gas cylinders - Non-refillable metallic gas cylinders - Specification and test methods (ISO 11118:2015)

Bouteilles à gaz - Bouteilles à gaz métalliques non rechargeables - Spécifications et méthodes d'essai (ISO 11118:2015)

Gasflaschen - Metallische Einwegflaschen - Festlegungen und Prüfverfahren (ISO 11118:2015)

This European Standard was approved by CEN on 22 August 2015.

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European foreword

This document (EN ISO 11118:2015) has been prepared by Technical Committee ISO/TC 58 "Gas cylinders" in collaboration with the 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of an identical text or by endorsement, at the latest by April 2016, and conflicting national standards shall be withdrawn at the latest by April 2016.

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.

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Endorsement notice

The text of ISO 11118:2015 has been approved by CEN as EN ISO 11118:2015 without any modification.

INTERNATIONAL STANDARD

ISO 11118

Second edition
2015-09-15

Gas cylinders — Non-refillable metallic gas cylinders — Specification and test methods

Bouteilles à gaz — Bouteilles à gaz métalliques non rechargeables — Spécifications et méthodes d'essai

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary Information

The committee responsible for this document is ISO/TC 58, *Gas cylinders*, Subcommittee SC 3, *Cylinder design*.

This second edition cancels and replaces the first edition (ISO 11118:1999) and ISO 13340:2001, which have been technically revised with the following changes:

— removed references to dissolved gases from the Scope;

— the edition aligns ISO 11118 and EN 12205;

— incorporates ISO 13340 in ISO 11118;

— incorporated new titles of ISO referenced documents;

— incorporated definitions and use of R_{ea}, R_{eg}, R_{ma}, and R_{mg};

— clarified requirements for the processing of carbon steel to avoid strain aging;

— added pierceable metal membranes to cylinder non-refillability;

— added test requirement for aluminium materials for intercrystalline corrosion for seamless and welded aluminium cylinders;

— included alternative temperatures for artificial aging of carbon steel cylinder prior to burst testing;

— modified markings to align with UN requirements;

— clarified inspection criteria for each cylinder;

— corrected references to correct Annexes;

— modified burst pressure to align with other ISO Standards;

— aligned test pressure requirement of non-refillable sealing device to the same as the cylinder;

— modified Annex B for completeness;

— deleted existing Annex C since it was not needed and inserted a new Annex C for accuracy;

— added new informative Annex D for informational purposes on yield point elongation (YPE).

Introduction

This International Standard addresses the general requirements on design, construction, and initial inspection and testing of non-refillable metallic gas cylinders and their non-refillable sealing devices of the United Nations Recommendations on the Transport of Dangerous Goods: Model Regulations. The purpose of this International Standard is to provide a specification for the design, manufacture, inspection, and testing of non-refillable metallic gas cylinders for worldwide safe use, handling, and transport.

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 does not reflect on the suitability of the practice of any nation or region.

INTERNATIONAL STANDARD **ISO 11118:2015(E)**

Gas cylinders — Non-refillable metallic gas cylinders — Specification and test methods

1 Scope

This International Standard specifies minimum requirements for the material, design, inspections, construction and workmanship, manufacturing processes, and tests at manufacture of non-refillable metallic gas cylinders of welded, brazed, or seamless construction for compressed and liquefied gases including the requirements for their non-refillable sealing devices and their methods of testing.

NOTE The specific gases permitted in cylinders constructed to this International Standard can be limited by national or international requirements.

This International Standard is applicable to cylinders where

a) the test pressure does not exceed 250 bar (i.e. $p_h \leq 250$ bar) for liquefied gases and 450 bar for compressed gases;

b) the product of the test pressure and the water capacity does not exceed 1 000 bar·litres (i.e. $p_h V \leq 1\,000$ bar L);

c) the test pressure exceeds 45 bar and the water capacity does not exceed 5 l (i.e. for $p_h > 45$ bar, then $V \leq 5$ l).

2 Normative references

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

ISO 3651-2, *Determination of resistance to intergranular corrosion of stainless steels — Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels — Corrosion test in media containing sulfuric acid*

ISO 4706:2008, *Gas cylinders — Refillable welded steel cylinders — Test pressure 60 bar and below*

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

ISO 7866:2012, *Gas cylinders — Refillable seamless aluminium alloy gas cylinders — Design, construction and testing*

ISO 9329-1, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 1: Unalloyed steels with specified room temperature properties*

ISO 9606-1, *Qualification testing of welders — Fusion welding — Part 1: Steels*

ISO 9809-1:2010, *Gas cylinders — Refillable seamless steel gas cylinders — Design, construction and testing — Part 1: Quenched and tempered steel cylinders with tensile strength less than 1 100 MPa*

ISO 9809-4:2014, *Gas cylinders — Refillable seamless steel gas cylinders — Design, construction and testing — Part 4: Stainless steel cylinders with an Rm value of less than 1 100 MPa*

ISO 10156, *Gases and gas mixtures — Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets*

ISO 10297, *Gas cylinders — Cylinder valves — Specification and type testing*

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

ISO 11114-2, *Gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 2: Non-metallic materials*

ISO 15613, *Specification and qualification of welding procedures for metallic materials — Qualification based on pre-production welding test*

ISO 15614-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys*

ISO 20703:2006, *Gas cylinders — Refillable welded aluminium-alloy cylinders — Design, construction and testing*