

**Gas cylinders - Seamless steel and seamless aluminium-alloy gas cylinders and tubes - Periodic inspection and testing (ISO 18119:2018 + ISO 18119:2018/Amd 1:2021)**

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

See Eesti standard EVS-EN ISO 18119:2018+A1:2021 sisaldab Euroopa standardi EN ISO 18119:2018 ja selle muudatuse A1:2021 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 18119:2018+A1:2021 consists of the English text of the European standard EN ISO 18119:2018 and its amendment A1:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.  Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.10.2018, muudatus A1 26.05.2021.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.  Date of Availability of the European standard is 24.10.2018, for A1 26.05.2021.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega $\boxed{A1}$ $\boxed{A1}$ .  Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags $\boxed{A1}$ $\boxed{A1}$ .  The standard is available from the Estonian Centre for Standardisation and Accreditation.

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EUROPEAN STANDARD

**EN ISO 18119 + A1**

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**Gas cylinders - Seamless steel and seamless aluminium-alloy gas cylinders and tubes - Periodic inspection and testing (ISO 18119:2018 + ISO 18119:2018/Amd 1:2021)**

Bouteilles à gaz - Bouteilles et tubes à gaz en acier et en alliages d'aluminium, sans soudure - Contrôles et essais périodiques (ISO 18119:2018 + ISO 18119:2018/Amd 1:2021)

Gasflaschen - Nahtlose Gasflaschen und Großflaschen aus Stahl und Aluminiumlegierungen - Wiederkehrende Inspektion und Prüfung (ISO 18119:2018 + ISO 18119:2018/Amd 1:2021)

This European Standard was approved by CEN on 17 May 2018. Amendment A1 was approved by CEN on 14 May 2021.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## **European foreword**

This document (EN ISO 18119:2018) 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 April 2019, and conflicting national standards shall be withdrawn at the latest by April 2019.

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This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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## **Endorsement notice**

The text of ISO 18119:2018 has been approved by CEN as EN ISO 18119:2018 without any modification.

## **A1** Amendment A1 European foreword

This document (EN ISO 18119:2018/A1:2021) 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 18119:2018 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

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### **Endorsement notice**

The text of ISO 18119:2018/Amd 1:2021 has been approved by CEN as EN ISO 18119:2018/A1:2021 without any modification. **A1**

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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](http://www.iso.org/directives)).

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This document was prepared by ISO/TC 58, *Gas cylinders*, Subcommittee SC 4, *Operational requirements for gas cylinders*.

This first edition cancels and replaces ISO 6406:2005 and ISO 10461:2005, which have been technically revised. It also incorporates the Amendment ISO 10461:2005/Amd 1:2006.

The main changes are:

- a section has been added for symbols used in the document;
- a detailed account of steps to be taken if the actual cylinder wall thickness is less than the minimum design wall thickness has been added;
- a clearer way to ultrasonically test cylinders with a built-in footing, especially for seamless steel cylinders with a convex base, has been added;
- improved guidelines have been added for dealing with the effects of heating of seamless aluminium-alloy cylinders.

## **A1** Amendment A1 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.

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This document was prepared by Technical Committee ISO/TC 58, *Gas cylinders*, Subcommittee SC 4, *Operational requirements for gas cylinders*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 23, *Transportable gas cylinders*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html). <sup>A1</sup>

## Introduction

This document provides information and procedures for the periodic inspection and testing of seamless steel and seamless aluminium-alloy cylinders and the condition of the test equipment. The principal aim of periodic inspection and testing is that at the completion of the test the cylinders have been requalified and are suitable to be reintroduced into service for a further period of time.

This document requires that well-trained and competent personnel undertake the work as described in this document, who consult the cylinder's manufacturer if there are doubts about aspects of the document, so that the cylinder manufacturer's current recommendations are taken into account.

This document has been written so that it is suitable to be referenced in the UN *Model Regulations*<sup>[23]</sup>.

# Gas cylinders — Seamless steel and seamless aluminium-alloy gas cylinders and tubes — Periodic inspection and testing

CAUTION — Some of the tests specified in this document involve the use of processes that could lead to a hazardous situation.

## 1 Scope

This document specifies the requirements for periodic inspection and testing to verify the integrity of cylinders and tubes to be re-introduced into service for a further period of time.

This document is applicable to seamless steel and seamless aluminium-alloy transportable gas cylinders (single or those that comprise a bundle) intended for compressed and liquefied gases under pressure, of water capacity from 0,5 l up to 150 l and to seamless steel and seamless aluminium-alloy transportable gas tubes (single or those that comprise a bundle) intended for compressed and liquefied gases under pressure, of water capacity greater than 150 l. It also applies, as far as practical, to cylinders of less than 0,5 l water capacity.

This document does not apply to the periodic inspection and maintenance of acetylene cylinders or to the periodic inspection and testing of composite cylinders.

NOTE Unless noted by exception, the use of the word “cylinder” in this document refers to both cylinders and tubes.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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*

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

ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel*

ISO 9809-1, *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 10286, *Gas cylinders — Terminology*

ISO 11621, *Gas cylinders — Procedures for change of gas service*

ISO 13769<sup>1</sup>, *Gas cylinders — Stamp marking*

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<sup>1</sup> To be published. Stage at the time of publication: ISO/FDIS 13769:2018.

ISO 22434, *Transportable gas cylinders — Inspection and maintenance of cylinder valves*

ISO 25760, *Gas cylinders — Operational procedures for the safe removal of valves from gas cylinders*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10286 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

#### 3.1

##### **liquefied gas**

gas, which, when packaged under pressure, is partially liquid at temperatures above  $-50\text{ °C}$

Note 1 to entry: A distinction is made between

- a) high pressure liquefied gas: a gas with a critical temperature between  $-50\text{ °C}$  and  $65\text{ °C}$ , and
- b) low pressure liquefied gas: a gas with a critical temperature above  $65\text{ °C}$ .

#### 3.2

##### **rejected cylinder**

cylinder not fit for service

#### 3.3

##### **competent authority**

any national body or authority designated or otherwise recognized as such, having jurisdiction for the transport of dangerous goods and the approval of gas cylinders

Note 1 to entry: Adapted from UN *Model Regulations*<sup>[23]</sup>.

#### 3.4

##### **minimum design wall thickness**

thickness of the cylinder wall calculated from the design standard, taking into account the material properties and dimensions at time of manufacture

#### 3.5

##### **stove**

treat by heating in a stove or an oven in order to apply a desired surface coating

### 4 Abbreviated terms and symbols

FBH	flat bottom hole
PE	permanent expansion
SBT	sidewall-to-base transition region
UT	ultrasonic testing
<i>C</i>	compressibility (expressed in $\text{m}^2/\text{N}$ or $\text{Pa}^{-1}$ )
<i>D</i>	depth of notch in ultrasonic test sample (expressed in mm)