

SVENSK STANDARD

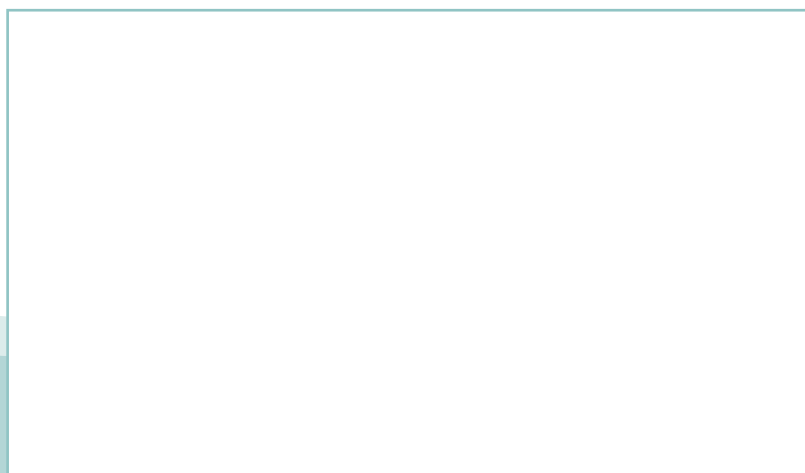
SS-EN ISO 24431:2016



Fastställt/Approved: 2016-12-08
Publicerad/Published: 2016-12-27
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 23.020.35

Gasflaskor – Gasflaskor för komprimerade och kondenserade gaser (exklusive acetylene) – Kontroll vid fyllning (ISO 24431:2016)

Gas cylinders – Seamless, welded and composite cylinders for compressed and liquefied gases (excluding acetylene) – Inspection at time of filling (ISO 24431:2016)



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Europastandarden EN ISO 24431:2016 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 24431:2016.

The European Standard EN ISO 24431:2016 has the status of a Swedish Standard. This document contains the official English version of EN ISO 24431:2016.

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Denna standard är framtagen av kommittén för Gasflaskor, SIS/TK 296.

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EUROPEAN STANDARD

EN ISO 24431

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2016

ICS 23.020.35

English Version

Gas cylinders - Seamless, welded and composite cylinders for compressed and liquefied gases (excluding acetylene) - Inspection at time of filling (ISO 24431:2016)

Bouteilles à gaz - Bouteilles à gaz comprimés et
liquéfiés (à l'exception de l'acétylène) sans soudure,
soudées et composites - Contrôle au moment du
remplissage (ISO 24431:2016)

Gasflaschen - Nahtlose, geschweißte und Composite-
Flaschen für verdichtete und verflüssigte Gase
(ausgenommen Acetylen) - Inspektion zum Zeitpunkt
des Füllens (ISO 24431:2016)

This European Standard was approved by CEN on 13 September 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword	☞
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Identification of cylinder owner	4
5 Filling inspection	5
5.1 General.....	5
5.2 Verification of serviceable condition of individual cylinders before filling.....	5
5.2.1 General criteria.....	5
5.2.2 Exterior condition.....	5
5.2.3 Interior condition.....	7
5.2.4 Cylinder tare.....	7
5.2.5 Calculation of weight of gas to be filled into the cylinder.....	8
5.2.6 Provisions for visually inspecting cylinders fitted with coverings.....	8
5.2.7 Verification of the integrity of permanent attachments.....	9
5.2.8 Verification of valve integrity and suitability.....	9
5.2.9 Provisions for palletized cylinders.....	10
5.2.10 Rejected cylinders.....	10
5.3 Verification during filling.....	10
5.4 Verification after filling.....	10
5.4.1 General.....	10
5.4.2 Verification of gas tightness.....	10
5.4.3 Verification of correct filling pressure.....	11
5.4.4 Verification of correct filling weight.....	11
5.4.5 Verification of valve protection.....	11
5.4.6 Verification of correct product labelling.....	11
6 Cylinders rejected for filling	11
Annex A (informative) Residual pressure check	12
Annex B (informative) Example of a procedure to establish a correct tare	13
Bibliography	14

European foreword

This document (EN ISO 24431:2016) 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 May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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 24431:2016 has been approved by CEN as EN ISO 24431:2016 without any modification.

Introduction

This International Standard covers requirements that reflect current practice and experience.

Each transportable gas cylinder is inspected at the time of filling in order to establish that

- it has no defects which render it unsafe for filling or continued use,
- it can be identified and complies with the relevant requirements with regard to marking (e.g. within test period, labelling, colour coding and completeness of its accessories), and
- its valve functions satisfactorily.

The cylinder filling inspection is carried out exclusively by persons who have the appropriate training and competencies, so as to ensure that each cylinder is safe for continued use.

Guidance and requirements provided in this International Standard allow fillers to determine when cylinders should be rejected for filling. This International Standard is intended to be used as a basis for developing specific operating procedures for a filling operation.

CAUTION — Some of the tests specified in this International Standard involve the use of processes which could lead to a hazardous situation.

This International Standard is intended to be used under a variety of national regulatory regimes, but has been written so that it is suitable for the application of the UN Model Regulations.^[1] Attention is drawn to requirements in the relevant national regulations of the country (countries) where the cylinders are intended to be used that might override the requirements given in this International Standard. Where there is any conflict between this International Standard and any applicable regulation, the regulation always takes precedence.

In International Standards, weight is equivalent to a force, expressed in Newtons. However, in common parlance (as used in terms defined in this International Standard), the word “weight” continues to be used to mean “mass”, although this practice is deprecated (see ISO 80000-4).

Gas cylinders — Seamless, welded and composite cylinders for compressed and liquefied gases (excluding acetylene) — Inspection at time of filling

1 Scope

This International Standard specifies the inspection requirements at the time of filling, and applies to seamless or welded transportable gas cylinders made of steel or aluminium-alloy (Type 1), and for composite transportable gas cylinders (Types 2 to 5 inclusive) for liquefied or compressed gases of a water capacity up to 150 l. It may be applicable to cylinders and tubes with a water capacity between 150 l and 450 l, provided they are inspected and filled as individual cylinders and tubes.

This International Standard does not apply to acetylene cylinders, bundles of cylinders, tubes, multiple-element gas container (MEGCs) or battery vehicles.

This International Standard may also be applicable to LPG. For specific LPG applications, refer to ISO 10691.

For cylinders manifolded in bundles, refer to ISO 11755.

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 6406, *Gas cylinders — Seamless steel gas cylinders — Periodic inspection and testing*

ISO 7225, *Gas cylinders — Precautionary labels*

ISO 10460, *Gas cylinders — Welded carbon-steel gas cylinders — Periodic inspection and testing*

ISO 10461, *Gas cylinders — Seamless aluminium-alloy gas cylinders — Periodic inspection and testing*

ISO 11623, *Gas cylinders — Composite construction — Periodic inspection and testing*

ISO 13769, *Gas cylinders — Stamp marking*

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 following terms and definitions apply.

3.1

compressed gas

gas which when packaged under pressure for transport is entirely gaseous at -50 °C

Note 1 to entry: This category includes all gases with a critical temperature less than or equal to -50 °C .

3.2

covering

protective or non-protective, transparent or non-transparent, device or attachment that can interfere with an external visual inspection

SS-EN ISO 24431:2016 (E)**3.3****cylinder marking**

permanent and durable information on the cylinder required by the relevant design standard and/or ISO 13769 and the regulations in the country(ies) of use

3.4**empty weight**

mass of the cylinder including all permanent attachments (e.g. neckring, footring), but excluding the mass of valve, valve cap or valve guard and any coating

Note 1 to entry: See Introduction for terminology regarding weight and mass.

3.5**examination**

process having the object of determining a condition by judgement

Note 1 to entry: The examination results in a pass or fail or further measurement, testing or gauging.

[SOURCE: ISO 10286:2015]

3.6**fibre**

continuous filament of glass, aramid, carbon or other material

3.7**filler**

person (or persons) responsible for *inspection* (3.10) prior to, during and immediately after filling, who has received an appropriate level of training for the work involved

3.8**filling pressure**

pressure to which a cylinder is filled at the time of filling

Note 1 to entry: Filling pressure varies according to the gas temperature in the cylinder, which is dependent on the charging parameters and ambient conditions. It is normally higher than the *working pressure* (3.27) (because of the heat of compression) and always less than the test pressure.

3.9**filling ratio**

ratio of the mass of gas to the mass of water at 15 °C that would fill completely a cylinder fitted ready for use

Note 1 to entry: Synonyms are filling factor and filling degree, often expressed in kg/l or similar.

[SOURCE: ISO 10286:2015]

3.10**inspection**

evaluation of conformity by observation and judgment accompanied as appropriate by measurement, *examination* (3.5), testing or gauging

[SOURCE: ISO 10286:2015]

3.11**liner**

inner portion of the composite cylinder comprising a metallic or non-metallic vessel, whose purpose is to both contain the gas and transmit the gas pressure to the composite overwrap

3.12**liquefied gas**

gas which, when packaged under pressure, is partially liquid at temperatures above -50 °C

Note 1 to entry: A distinction is made between

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

3.13**maximum permissible filling weight****maximum permissible filling mass**

maximum mass of gas in kg which is allowed in a filled cylinder

Note 1 to entry: This term applies to *liquefied gas* (3.12).

3.14**pallet**

device for handling several cylinders at the same time

3.15**pressure relief device**

device that protects the cylinder against overpressurization

Note 1 to entry: This is a collective term that includes a bursting disk, fusible plug or pressure relief valve.

3.16**protective attachments**

component (or components) connected to the cylinder that prevents or resists damage to the cylinder and/or valve

Note 1 to entry: Some protective attachments are designed to be removed at the time of requalification or prefill inspection (3.10).

3.17**service life**

number of years a cylinder is permitted to be in service

Note 1 to entry: Usually applied to composite designs, and when required, the service life is marked in accordance with an applicable standard or regulation (e.g. "FINAL 2019/10" in ISO 13769).

3.18**sleeve**

thin *covering* (3.2) fitted to the outside surface of the cylinder such as by stretching or heat shrinking

Note 1 to entry: Some sleeves are designed to be removed at the time of prefill inspection (3.10).

3.19**rejected cylinder**

cylinder not fit for filling in its present condition

3.20**tare**

weight of the cylinder when empty, including accessories fitted and coatings as presented for filling

3.21**total weight****total mass**

tare (3.20) of the cylinder plus the *maximum permissible filling weight* (3.13)