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Nekurjene tlačne posode - 8. del: Dodatne zahteve za tlačne posode iz aluminija in aluminijevih zlitin

Unfired pressure vessels - Part 8: Additional requirements for pressure vessels of aluminium and aluminium alloys

Unbefeuerte Druckbehälter - Teil 8: Zusätzliche Anforderungen an Druckbehälter aus Aluminium und Aluminiumlegierungen

Récipients sous pression non soumis à la flamme - Partie 8: Exigences complémentaires pour les récipients sous pression en aluminium et alliages d'aluminium

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23.020.32	Tlačne posode	Pressure vessels
77.150.10	Aluminijski izdelki	Aluminium products

SIST EN 13445-8:2026

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Sample Document

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EUROPEAN STANDARD
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EN 13445-8

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**Unfired pressure vessels - Part 8: Additional requirements
for pressure vessels of aluminium and aluminium alloys**

Réceptacles sous pression non soumis à la flamme -
Partie 8: Exigences complémentaires pour les
réceptacles sous pression en aluminium et alliages
d'aluminium

Unbefeuerte Druckbehälter - Teil 8: Zusätzliche
Anforderungen an Druckbehälter aus Aluminium und
Aluminiumlegierungen

This European Standard was approved by CEN on 24 June 2026.

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EN 13445-8:2026 (E)

European foreword

This document (EN 13445-8:2026) has been prepared by Technical Committee CEN/TC 54 “Unfired pressure vessels”, 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of an identical text or by endorsement, at the latest by December 2026, and conflicting national standards shall be withdrawn at the latest by December 2026.

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.

This document supersedes EN 13445-8:2021.

Annex Y provides details of significant technical changes between this European Standard and the previous edition.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

A list of all parts in the EN 13445 series can be found on the CEN website.

Although these Parts may be obtained separately, it should be recognized that the Parts are interdependent. As such, the manufacture of unfired pressure vessels requires the application of all the relevant Parts in order for the requirements of the Standard to be satisfactorily fulfilled.

Corrections to the standard interpretations where several options seem possible are conducted through the Migration Help Desk (MHD). Information related to the Help Desk can be found at <https://unm.fr/en/maintenance-agencies/maintenance-agency-en-13445/>. A form for submitting questions can be downloaded from the link to the MHD website. After subject experts have agreed an answer, the answer will be communicated to the questioner. Corrected pages will be given specific issue number and issued by CEN according to CEN Rules. Interpretation sheets will be posted on the website of the MHD.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

1 Scope

This document specifies requirements for unfired pressure vessels and their parts made of aluminium and aluminium alloys in addition to the general requirements for unfired pressure vessels under EN 13445:2026 Parts 1 to 5. This document specifies unfired pressure vessels for loads up to 500 full cycles.

NOTE Cast materials are not included in this version. Details regarding cast materials will be subject to an amendment to or a revision of this document.

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.

EN 485-2:2016+A1:2018, *Aluminium and aluminium alloys — Sheet, strip and plate — Part 2: Mechanical properties*

EN 573-3:2019+A2:2023, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition and form of products*

EN 586-2:1994, *Aluminium and aluminium alloys — Forgings — Part 2: Mechanical properties and additional property requirements*

EN 754-2: 2024, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 2: Mechanical properties*

EN 755-1:2016, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 1: Technical conditions for inspection and delivery*

EN 755-2:2025, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 2: Mechanical properties*

EN 755-8:2016, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 8: Porthole tubes, tolerances on dimensions and form*

EN 764-5:2014, *Pressure Equipment — Part 5: Inspection documentation of metallic materials and compliance with the material specification*

EN 10204:2004, *Metallic products — Types of inspection documents*

EN 12392:2025, *Aluminium and aluminium alloys — Wrought products and cast products — Special requirements for products intended for the production of pressure equipment*

EN 13445-1:2026, *Unfired pressure vessels — Part 1: General*

EN 13445-2:2026, *Unfired pressure vessels — Part 2: Materials*

EN 13445-3:2026, *Unfired pressure vessels — Part 3: Design*

EN 13445-4:2026, *Unfired pressure vessels — Part 4: Fabrication*

EN 13445-5:2026, *Unfired pressure vessels — Part 5: Inspection and testing*

EN 13445-8:2026 (E)

EN ISO 3452-1:2021, *Non-destructive testing — Penetrant testing — Part 1: General principles* (ISO 3452-1:2021)

EN ISO 3834-2:2021, *Quality requirements for fusion welding of metallic materials — Part 2: Comprehensive quality requirements* (ISO 3834-2:2021)

EN ISO 3834-3:2021, *Quality requirements for fusion welding of metallic materials — Part 3: Standard quality requirements* (ISO 3834-3:2021)

EN ISO 4063:2023, *Welding and allied processes — Nomenclature of processes and reference numbers* (ISO 4063:2023)

EN ISO 6520-1:2007, *Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 1: Fusion welding* (ISO 6520-1:2007)

EN ISO 9606-2:2004, *Qualification test of welders — Fusion welding — Part 2: Aluminium and aluminium alloys* (ISO 9606-2:2004)

EN ISO 10042:2018, *Welding — Arc-welded joints in aluminium and its alloys — Quality levels for imperfections* (ISO 10042:2018)

EN ISO 11666:2018, *Non-destructive testing of welds — Ultrasonic testing — Acceptance levels* (ISO 11666:2018)

EN ISO 14732:2025, *Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials* (ISO 14732:2025)

EN ISO 15608:2025, *Welding — Grouping system for metallic materials* (ISO 15608:2025)

EN ISO 15614-2:2025, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 2: Arc welding of aluminium and its alloys* (ISO 15614-2:2025)

EN ISO 17635:2025, *Non-destructive testing of welds — General rules for metallic materials* (ISO 17635:2025)

EN ISO 17636-1:2022, *Non-destructive testing of welds — Radiographic testing — Part 1: X- and gamma-ray techniques with film* (ISO 17636-1:2022)

EN ISO 17636-2:2022, *Non-destructive testing of welds — Radiographic testing — Part 2: X- and gamma-ray techniques with digital detectors* (ISO 17636-2:2022, Corrected version 2023-02)

EN ISO 17637:2016, *Non-destructive testing of welds — Visual testing of fusion-welded joints* (ISO 17637:2016)

EN ISO 17640:2018, *Non-destructive testing of welds — Ultrasonic testing — Techniques, testing levels, and assessment* (ISO 17640:2018)

EN ISO 23277:2015, *Non-destructive testing of welds — Penetrant testing — Acceptance levels* (ISO 23277:2015)

ISO/TR 25901-3:2016, *Welding and allied processes — Vocabulary — Part 3: Welding processes*

3 Terms, definitions, symbols and units

For the purposes of this document, the terms, definitions, symbols and units given in EN 13445:2026 Parts 1 to 5 apply.

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

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

NOTE Further symbols are listed in 8.2.3.

4 General

EN 13445-1:2026 applies.

5 Materials

5.1 General

Materials for pressure-bearing parts compliant with the requirements of this document shall be accompanied by inspection documents in accordance with EN 10204:2004.

The type of inspection document shall be in accordance with EN 764-5:2014 and include a declaration of compliance to the material specification.

The requirements of EN 13445-2:2026 shall apply with the following additions/exclusions.

5.2 Elongation after fracture

NOTE See also 4.1.4 of EN 13445-2:2026.

Aluminium and aluminium alloys used for welded parts of pressure vessels that are subjected to cold forming (e.g. rolled shells and heads) shall have a specified minimum elongation after fracture measured on a gauge length

$$L_o = 5,65\sqrt{S_o} \quad (5.2-1)$$

that is ≥ 14 % in the longitudinal or transverse direction as defined by the material specification.

Aluminium and aluminium alloys used for parts of pressure vessels that are not subject to cold forming (e.g. straight flanges and nozzles) shall have a specified minimum elongation after fracture of ≥ 10 % in the longitudinal or transverse direction as defined by the material specification, measured on a gauge length as defined in Formula (5.2-1).

5.3 Prevention of brittle fracture

EN 13445-2:2026, Annex B, is not applicable. All materials of Table 5.6-1 are suitable for any minimum metal temperature without impact testing.

NOTE See also EN 1252-1 and EN 12392:2025, B.1.