



BSI Standards Publication

Unfired pressure vessels

Part 4: Fabrication

This is a preview of BS EN 13445-4:2021+A1:2023. [Click here to purchase the full version from the ANSI store.](#)

National foreword

This British Standard is the UK implementation of EN 13445-4:2021+A1:2023. It supersedes BS EN 13445-4:2021, which is withdrawn.

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The UK participation in its preparation was entrusted to Technical Committee PVE/1, Pressure Vessels.

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

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English Version

Unfired pressure vessels - Part 4: Fabrication

Réceptifs sous pression non soumis à la flamme -
Partie 4 : Fabrication

Unbefeuerte Druckbehälter - Teil 4: Herstellung

This European Standard was approved by CEN on 24 February 2021 and includes Amendment 1 approved by CEN on 3 March 2023 and Amendment 1 approved by CEN on 13 June 2023.

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.

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European foreword

This document (EN 13445-4:2021+A1:2023) 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of an identical text or by endorsement, at the latest by February 2024, and conflicting national standards shall be withdrawn at the latest by February 2024.

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 A1 EN 13445-4:2021 A1.

This document includes Amendment 1 approved by CEN on 3 March 2023.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This document has been prepared under a standardisation request addressed to [the relevant ESO] 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.

The 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 recognised that the Parts are inter-dependant. 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 <http://www.unm.fr/en13445@unm.fr>. 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.

This document supersedes EN 13445-4:2014. This new edition incorporates the Amendments which have been approved previously by CEN members, and the corrected pages up to Issue 5 without any further technical change. Annex Y provides details of significant technical changes between this European Standard and the previous edition.

Amendments to this new edition may be issued from time to time and then used immediately as alternatives to rules contained herein. It is intended to deliver a new Issue of EN 13445:2021 each year, starting with the precedent as Issue 1, consolidating these Amendments and including other identified corrections.

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.

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1 Scope

This document specifies requirements for the manufacture of unfired pressure vessels and their parts, made of steels, including their connections to non-pressure parts. It specifies requirements for material traceability, manufacturing tolerances, welding requirements, requirements for permanent joints other than welding, production tests, forming requirements, heat treatment, repairs and finishing operations.

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.

A1 deleted references **A1**

EN 13134:2000, *Brazing — Procedure approval*

EN 13445-1:2021, *Unfired pressure vessels — Part 1: General*

EN 13445-2:2021, *Unfired pressure vessels — Part 2: Materials*

EN 13445-3:2021, *Unfired pressure vessels — Part 3: Design*

EN 13445-5:2021, *Unfired pressure vessels — Part 5: Inspection and testing*

A1 EN 14276-1:2020 **A1**, *Pressure equipment for refrigerating systems and heat pumps — Part 1: Vessels — General requirements*

A1 EN ISO 3834-2:2021, *Quality requirements for fusion welding of metallic materials — Part 2: Comprehensive quality requirements (ISO 3834-2:2021)* **A1**

A1 EN ISO 3834-3:2021, *Quality requirements for fusion welding of metallic materials — Part 3: Standard quality requirements (ISO 3834-3:2021)* **A1**

EN ISO 4136:2012, *Destructive tests on welds in metallic materials — Transverse tensile test (ISO 4136:2012)*

EN ISO 5173:2010, *Destructive tests on welds in metallic materials — Bend tests (ISO 5173:2009)*

A1 EN ISO 5178:2019, *Destructive tests on welds in metallic materials — Longitudinal tensile test on weld metal in fusion welded joints (ISO 5178:2019)* **A1**

EN ISO 9015-1:2011, *Destructive tests on welds in metallic materials — Hardness testing — Part 1: Hardness test on arc welded joints (ISO 9015-1:2001)*

A1 EN ISO 9016:2022, *Destructive tests on welds in metallic materials — Impact tests — Test specimen location, notch orientation and examination (ISO 9016:2022)* **A1**

EN ISO 9606-1:2017, *Qualification testing of welders — Fusion welding — Part 1: Steels (ISO 9606 - 1:2012 including Cor 1:2012 and Cor 2:2013)*

EN ISO 13585:2012, *Brazing — Qualification test of brazers and brazing operators (ISO 13585:2012)*