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VALMISTAMISELE

Unfired pressure vessels - Requirements for the design
and fabrication of pressure vessels and pressure vessel
parts constructed from cast iron with an elongation
after fracture equal or less than 15 %

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 15776:2022 sisaldab Euroopa standardi EN 15776:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 15776:2022 consists of the English text of the European standard EN 15776:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
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English Version

Unfired pressure vessels - Requirements for the design
and fabrication of pressure vessels and pressure vessel
parts constructed from cast iron with an elongation after
fracture equal or less than 15 %

Réceptacles sous pression non soumis à la flamme -
Exigences pour la conception et la fabrication des
réceptacles et parties sous pression moulés en fonte à
allongement, après rupture, inférieur ou égal à 15 %

Unbefeuerte Druckbehälter - Anforderungen an die
Konstruktion und Herstellung von Druckbehältern und
Druckbehälterteilen aus Gusseisen mit einer
Bruchdehnung von 15 % oder weniger

This European Standard was approved by CEN on 6 May 2020.

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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: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 15776:2022) 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of an identical text or by endorsement, at the latest by January 2023, and conflicting national standards shall be withdrawn at the latest by January 2023.

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 15776:2011+A1:2015.

Compared to the previous edition EN 15776:2011+A1:2015, the following changes have been made:

- clarifications to a number of the formulae and tables;
- update of references.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

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 organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document is a stand-alone document and may be used for cast iron pressure equipment with certain restrictions and limitations.

Attention is drawn to the references to EN 13445-6:2021 for design and fabrication according to specific grades of material standards EN 1563:2018 and EN 13835:2012 which are found in some clauses of this document, EN 15776:2022. Requirements for the design, material, manufacturing and testing of pressure vessels and pressure vessel parts made from ferritic or austenitic spheroidal graphite cast iron grades with an elongation after fracture higher than 15 % are given in EN 13445-6:2021.

Cast iron with elongation after fracture equal or less than 15 % may only be used for pressure equipment when operational and technical advantages are indicating its use instead of the cast iron grades given in EN 13445-6:2021 with elongation after fracture higher than 15 %.

NOTE For the design and fabrication of cast iron pressure equipment standards with higher elongations and ductility, see EN 13445-6:2021.

1 Scope

This document specifies requirements for the design, material, manufacturing and testing of cast iron pressure vessels and pressure vessel parts made from materials for which details are specified from the following material standards for specific grades which meet the criterion of an elongation after fracture less than or equal to 15 %:

- EN 1561:2011, *Founding — Grey cast irons*;
- EN 1563:2018, *Founding — Spheroidal graphite cast irons*;
- EN 13835:2012, *Founding — Austenitic cast irons*.

The application of this document is limited to pressure equipment and pressure parts containing a fluid of group 2 (non-hazardous fluid) according to the European legislation for pressure equipment.

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

EN 1370:2011, *Founding — Examination of surface condition*

EN 1371-1:2011, *Founding — Liquid penetrant testing — Part 1: Sand, gravity die and low pressure die castings*

EN 1559-1:2011, *Founding — Technical conditions of delivery — Part 1: General*

EN 1559-3:2011, *Founding — Technical conditions of delivery — Part 3: Additional requirements for iron castings*

EN 1561:2011, *Founding — Grey cast irons*

EN 1563:2018, *Founding — Spheroidal graphite cast irons*

EN 12680-3:2011, *Founding — Ultrasonic testing — Part 3: Spheroidal graphite cast iron castings*

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

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

EN 13445-6:2021, *Unfired pressure vessels — Part 6: Requirements for the design and fabrication of pressure vessels and pressure parts constructed from spheroidal graphite cast iron*

EN 13835:2012, *Founding — Austenitic cast irons*

EN ISO 8062-3:2007, *Geometrical Product Specifications (GPS) — Dimensional and geometrical tolerances for moulded parts — Part 3: General dimensional and geometrical tolerances and machining allowances for castings (ISO 8062-3:2007)*