

## Unfired pressure vessels - Part 3: Design

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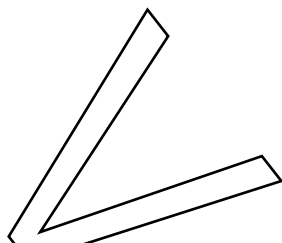


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English version

October 2005 - Up to Issue 16



## Unfired pressure vessels - Part 3: Design

Réceptifs sous pression non soumis à la flamme - Partie  
3: Conception

Unbefeuerte Druckbehälter - Teil 3: Konstruktion

This European Standard was approved by CEN on 23 May 2002.

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## Foreword

This document (EN 13445-3:2002, EN 13445-3:2002/A4:2005, EN 13445-3:2002/A5:2006 and EN 13445-3:2002/A6:2006) has been prepared by Technical Committee CEN/TC 54 "Unfired pressure vessels", the secretariat of which is held by BSI.

EN 13445-3:2002 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2002, and conflicting national standards shall be withdrawn at the latest by November 2002. EN 13445-3:2002/A4:2005 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2006, and conflicting national standards shall be withdrawn at the latest by January 2006. EN 13445-3:2002/A5:2006 and EN 13445-3:2002/A6:2006 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2006, and conflicting national standards shall be withdrawn at the latest by August 2006.

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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, and supports essential requirements of EU Directive 97/23/EC.

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

In this standard the Annexes A, B, C, E, F, G, J, R and Q are normative and the Annexes D, H, I, K, L, M, N and O are informative.

This European Standard consists of the following Parts.

- Part 1: General.
- Part 2: Materials.
- Part 3: Design.
- Part 4: Fabrication.
- Part 5: Inspection and Testing.
- Part 6: Requirements for the design and fabrication of pressure vessels and pressure parts constructed from spheroidal graphite cast iron.

CR 13445-7, Unfired pressure vessels - Part 7: Guidance on the use of conformity assessment procedures.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## 1 Scope

This Part of this European Standard specifies requirements for the design of unfired pressure vessels covered by EN 13445-1:2002 and constructed of steels in accordance with EN 13445-2:2002.

EN 13445-5:2002, Annex C specifies requirements for the design of access and inspection openings, closing mechanisms and special locking elements.

NOTE This Part applies to design of vessels before putting into service. It may be used for in service calculation or analysis subject to appropriate adjustment.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

EN 286-2:1992, *Simple unfired pressure vessels designed to contain air or nitrogen — Part 2: Pressure vessels for air braking and auxiliary systems for motor vehicles and their trailers.*

EN 288-8:1995, *Specification and approval of welding procedures for metallic materials — Part 8: Approval by a pre-production welding test.*

prEN 764-1:2001, *Pressure equipment — Terminology — Part 1: Pressure, temperature, volume, nominal size*

EN 764-2:2002, *Pressure equipment — Part 2: Quantities, symbols and units*

EN 764-3:2002, *Pressure equipment — Part 3: Definition of parties involved*

EN 1092, *Flanges and their joints. Circular flanges for pipes, valves, fittings and accessories, PN-designated.*

EN 1591-1:2001, *Flanges and their joints - Design rules for gasketed circular flange connections – Calculation method.*

EN 1708-1:1999, *Welding - Basic weld joint details in steel – Part 1: Pressurized components*

EN ISO 4014:2000, *Hexagon head bolts — Product grades A and B (ISO 4014:1999).*

EN ISO 4016:2000, *Hexagon head bolts — Product grade C (ISO 4016:1999).*

ISO 261:1998, *ISO general purpose metric screw threads — General plan*

## 3 Terms and definitions

For the purposes of this Part of this European Standard, the terms and definitions given in EN 13445-1:2002, EN 13445-2:2002 and the following apply:

### 3.1 action

imposed thermo-mechanical influence which causes stress and/or strain in a structure, e.g. an imposed pressure, force, temperature

### 3.2 analysis thickness

effective thickness available to resist the loadings in corroded condition



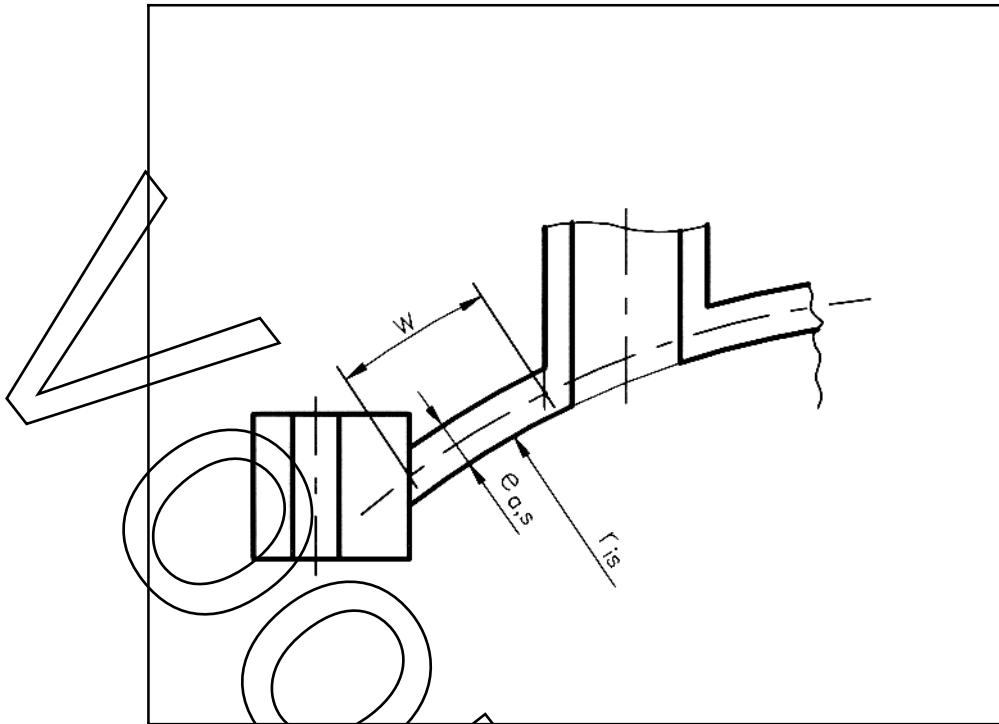


Figure 9.7-11 Opening in a domed and bolted end close to the junction with the flange

Preview

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