

norm

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Unfired pressure vessels - Part 5:
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Foreword

This document (EN 13445-5:2002 and EN 13445-5/A2:2005) has been prepared by Technical Committee CEN/TC 54 "Unfired pressure vessels", the secretariat of which is held by BSI.

EN 13445-5:2002 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of an identical text or by endorsement, at the latest by November 2002, and conflicting national standards shall be withdrawn at the latest by November 2002.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 13445-5/A2:2005 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2005, and conflicting national standards shall be withdrawn at the latest by December 2005.

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(s).

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 and G are normative and the Annexes D, E and H 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, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This Part of this European Standard specifies the inspection and testing of individual and serially produced pressure vessels made of steels in accordance with EN 13445-2 subject to predominantly non_cyclic operation (i.e. vessels operating below 500 full equivalent pressure cycles).

Special provisions for cyclic operation are given in EN 13445-3 and in Annex G of this Part.

This Part does not give inspection and testing provisions for vessels designed using Design by Analysis – Direct Route (DBA) of EN 13445-3:2002 Annex B.

NOTE The responsibilities of parties involved in the conformity assessment procedures are given in Directive 97/23/EC. Guidance on this can be found in CR 13445-7.

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 287-1:1992, *Approval testing of welders — Fusion welding — Part 1: Steels.*

EN 473:2000, *Non-destructive testing — Qualification and certification of NDT personnel — General principles.*

EN 571-1:1997, *Non-destructive testing — Penetrant testing — Part 1: General principles.*

prEN 764-6:2002, *Pressure equipment — Part 6: Operating instructions.*

EN 583-4:1999, *Non-destructive testing — Ultrasonic examination — Part 4: Examination for discontinuities perpendicular to the surface*

EN 895:1995, *Destructive tests on welds in metallic materials — Transverse tensile test*

EN 970:1997, *Non-destructive examination of fusion welds — Visual examination.*

EN 1289:1998, *Non-destructive examination of welds — Penetrant testing of welds — Acceptance levels.*

EN 1290:1998, *Non-destructive examination of welds — Magnetic particle examination of welds.*

EN 1291:1998, *Non-destructive examination of welds — Magnetic particle testing of welds — Acceptance levels.*

EN 1418:1997, *Welding personnel — Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials.*

EN 1435:1997, *Non-destructive examination of welds — Radiographic examination of welded joints.*

EN 1712:1997, *Non-destructive examination of welds — Ultrasonic examination of welded joints — Acceptance levels.*

EN 1713:1998, *Non-destructive examination of welds — Ultrasonic examination — Characterisation of indications in welds.*

EN 1714:1997, *Non-destructive examination of welds — Ultrasonic examination of welded joints.*

EN 1779:1999, *Non-destructive testing — Leak testing — Criteria for method and technique selection.*

EN 12062:1997, *Non-destructive examination of welds — General rules for metallic materials.*

EN 12517:1998, *Non-destructive examination of welds - Radiographic examination of welded joints — Acceptance levels.*

EN 13445-2:2002, *Unfired pressure vessels — Part 2: Materials.*

EN 13445-3:2002, *Unfired pressure vessels — Part 3: Design.*

EN 13445-4:2002, *Unfired pressure vessels — Part 4: Fabrication.*

prEN ISO 5817:2002, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections (ISO/DIS 5817:2002).*

EN ISO 6520-1:1998, *Welding and allied processes - Classification of geometric imperfections in metallic materials — Part 1: Fusion welding (ISO 6520-1:1998).*

3 Terms and definitions

For the purposes of this European Standard the following terms and definitions apply.

3.1 design review

procedure by which a manufacturer ascertains and attests that the design meets the requirements of this standard

3.2 design approval

procedure by which a responsible authority ascertains and attests that the design meets the requirements of this standard

3.3 testing group

grouping which determines the appropriate level of non-destructive testing (NDT) on a welded joint

NOTE There are four testing groups.

3.4 inspection

survey activity which assesses the compliance of the pressure vessel to the technical specification

NOTE It is a major activity, undertaken mainly by the manufacturer during design, manufacture and testing of equipment. It can be complemented by inspection by other parties. Inspection includes the assessment of testing activities.

3.5 testing

procedure used to attest vessel compliance with the technical requirements of this standard by one or more tests

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