



**SLOVENSKI STANDARD**  
**SIST EN 13445-5:2009/A2:2011**  
**01-november-2011**

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**Neogrevane tlačne posode - 5. del: Pregled in preskušanje - Dopolnilo A2**

Unfired pressure vessels - Part 5 : Inspection and testing

Unbefeuerte Druckbehälter - Teil 5: Inspektion und Prüfung

Réipients sous pression non soumis à la flamme - Partie 5: Inspection et contrôle

**Ta slovenski standard je istoveten z: EN 13445-5:2009/A2:2011**

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**ICS:**

23.020.30	Tlačne posode, plinske jeklenke	Pressure vessels, gas cylinders
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13445-5:2009/A2**

July 2011

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English Version

## Unfired pressure vessels - Part 5: Inspection and testing

Réceptifs sous pression non soumis à la flamme - Partie  
5: Inspection et contrôles

Unbefeuerte Druckbehälter - Teil 5: Inspektion und Prüfung

This amendment A2 modifies the European Standard EN 13445-5:2009; it was approved by CEN on 8 July 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant 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.

This amendment 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.

CEN members are the national standards bodies of 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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## Foreword

This document (EN 13445-5:2009/A2:2011) has been prepared by Technical Committee CEN/TC 54 "Unfired pressure vessels", the secretariat of which is held by BSI.

This Amendment to the European Standard EN 13445-5:2009 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2012, and conflicting national standards shall be withdrawn at the latest by January 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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.

This document includes the text of the amendment itself. The corrected pages of EN 13445-5 will be delivered as issue 3 of the standard.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 13445-5:2009/A2:2011 (E)

## 1 Modification to Annex A

*Delete the existing Annex A and substitute the following.*

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## Annex A (normative)

### Inspection and testing of serially produced pressure vessels

#### A.1 Introduction

Inspection and testing of serially produced vessels manufactured according to this standard may have reduction according to this Annex A. The vessel shall be within the limitations of this Annex to be classified as serially produced and have model acceptance as defined in 3.10 according to this Annex.

This Annex describes the level of inspection and testing of serially produced pressure vessels in accordance with this standard to permit reduced levels of NDT during serial production. The inspection and testing plan has to be described in the documents that are part of model acceptance.

NOTE See Clause 3 of this Part 5 for terms and definitions which are specifically relevant to serially produced pressure vessels of this annex.

#### A.2 Limitations for vessels permitted to be classified as serially produced

Pressure vessels serially produced under the same technical documentation may be inspected and tested as described in A.7 providing all the following limitations can be satisfied.

- a) The design and construction of the vessels is limited to testing group 2b or 3b (Table 6.6.1-1) and material groups 1.1, 1.2 and 8.1 only.

NOTE A possible extension to other testing groups and materials can be envisaged later

- b) The shell thickness does not exceed 16 mm.
- c) All governing longitudinal welded joints and main circumferential welded joints are welded by a fully mechanised or an automatic welding process.
- d) The diameter of joggle joints shall not exceed 1600 mm.
- e) The number of vessels shall be ten or more in one batch.
- f) A quality plan or manufacturing plan (A.6) shall be available.

#### A.3 Limitations for model

The scope of pressure vessels built under the same technical documentation can be depending on size, pressure or pressure range, nozzle connections and material specifications.

Vessels are considered of the same model, if they comply with all the following:

- a) same working conditions and same types of support, for example saddle, ring, bracket, skirt, legs;
- b) manufactured by same manufacturer using the same processes;
- c) same geometrical form except for variation in nozzle position;

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- d) same material specification as indicated in the technical documents and the relevant welding procedure qualification;
- e) same weld materials/weld consumables as allowed by the welding procedure qualification;
- f) same length, diameter and wall thickness in the case of external pressure;
- g) variation in the length, except those affecting the size of inspection openings or design, are permitted;
- h) nozzle variations (location, orientation or number of nozzles) are acceptable if they do not affect the design;
- i) same arrangement of tube plate layout in heat exchangers;
- j) same classification group of fluid.

**A.4 Prototype test**

The inspections and tests shall be conducted on each prototype vessel representing a single model acceptance.

**A.5 Model acceptance**

Where the prototype vessel satisfies the explicit requirements of this standard, a model acceptance shall be issued. The model acceptance shall contain all necessary data for identification of the approved model, conclusions of the examination and a list of the relevant parts of the technical documentation.

All modification to the model acceptance shall be assessed to ensure that they do not affect compliance with this standard or prescribed conditions for use. The assessment shall be documented in an additional report traceable to the original model acceptance. The modification shall comply with model limitation requirements as described in A.3.

The information to be presented for different vessel parts in the model acceptance shall include the information as required by normative Annex B.

**A.6 Quality or manufacturing plan**

Before production commences, a detailed manufacturing or quality plan shall be prepared by the manufacturer. This plan shall indicate the inspection or sampling points and the frequency of testing. Provision shall be made within the plan for rejected or re-worked components to be re-inspected and an identifiable scrap area defined for rejected parts. The plan shall ensure the following:

- a) materials used in the manufacture of the vessels comply with the materials standards or specifications as specified;
- b) all variables in the manufacturing procedures that affect the integrity of the vessel are specified, monitored and controlled;
- c) testing and inspection of the vessel is done at least at the frequency given in this standard, using appropriate test methods;
- d) inspection functions within the manufacturer's organisation are clearly prescribed.