



SLOVENSKI STANDARD
SIST EN 13445-6:2002/A3:2009
01-april-2009

BYc[fYj UbYhU bYdcgcXY!* "XY. NU hYj YnU_cbgffi jfUbY]b'dfc]nj cXb'c'hU b] dcgcX]b'hU b] XYcj `dcgcXY]n'bcXi `UfbY`]h]bY

Unfired pressure vessels - Part 6: Requirements for the design and fabrication of pressure vessels and pressure parts constructed from spheroidal graphite cast iron

Unbefeuerte Druckbehälter - Teil 6: Anforderungen an die Konstruktion und Herstellung von Druckbehältern und Druckbehälterteilen aus Gusseisen mit Kugelgraphit

Réipients sous pression non soumis a la flamme - Partie 6: Exigences pour la conception et la fabrication des réipients sous pression et des parties sous pression moulés en fonte a graphite sphéroïdal

Ta slovenski standard je istoveten z: EN 13445-6:2002/A3:2008

ICS:

23.020.30 V|æ } ^Á [• [å^É] |ã • \ ^ Pressure vessels, gas
Ø\ | ^ } \ ^ cylinders

SIST EN 13445-6:2002/A3:2009 en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13445-6:2002/A3:2009

<https://standards.iteh.ai/catalog/standards/sist/08e62cba-e743-40d6-8ca7-4bbc86205d61/sist-en-13445-6-2002-a3-2009>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13445-6:2002/A3

November 2008

ICS 23.020.30

English Version

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

Réceptifs sous pression non soumis à la flamme - Partie
6: Exigences pour la conception et la fabrication des
réceptifs sous pression et des parties sous pression
moulés en fonte à graphite sphéroïdal

Unbefeuerte Druckbehälter - Teil 6: Anforderungen an die
Konstruktion und Herstellung von Druckbehältern und
Druckbehälterteilen aus Gusseisen mit Kugelgraphit

This amendment A3 modifies the European Standard EN 13445-6:2002; it was approved by CEN on 9 August 2008.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword.....	3
2 Normative references	4
3 Terms, definitions, units and symbols	5
4 Service conditions	5
5 Requirements	5
5.1 Materials	5
5.2 Design	6
6 Material testing.....	6
7 Testing and final assessment.....	7
Annex D (normative) Assessment of fatigue life.....	8
D.5 General.....	8
D.6 Simplified fatigue assessment	8
D.7 Detailed fatigue assessment	13
Annex H (normative) Experimental cyclic pressure testing procedure.....	14
H.4 Allowable number of cycles.....	14
Bibliography	16

[SIST EN 13445-6:2002/A3:2009](https://standards.iteh.ai/catalog/standards/sist/08e62cba-e743-40d6-8ca7-4bbc86205d61/sist-en-13445-6-2002-a3-2009)
<https://standards.iteh.ai/catalog/standards/sist/08e62cba-e743-40d6-8ca7-4bbc86205d61/sist-en-13445-6-2002-a3-2009>

Foreword

This document (EN 13445-6:2002/A3:2008) 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 13445-6:2002 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.

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 EC Directive(s).

For relationship with EC 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 13445-6 will be delivered as issue 33 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, 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.

[SIST EN 13445-6:2002/A3:2009](https://standards.iteh.ai/catalog/standards/sist/08e62cba-e743-40d6-8ca7-4bbc86205d61/sist-en-13445-6-2002-a3-2009)

<https://standards.iteh.ai/catalog/standards/sist/08e62cba-e743-40d6-8ca7-4bbc86205d61/sist-en-13445-6-2002-a3-2009>

EN 13445-6:2002/A3:2008 (E)**2 Normative references**

Update the following normative references:

EN 764-5:2002, *Pressure equipment — Part 5: Compliance and Inspection Documentation of Materials*

EN 1563:1997, *Founding — Spheroidal graphite cast irons* (and Amendments A1:2002, A2:2005)

EN 12680-3:2003, *Founding — Ultrasonic examination — Part 3: Spheroidal graphite cast iron castings*

EN 12681:2003, *Founding — Radiographic examination*

EN 13835:2002, *Founding - Austenitic cast irons* (and Amendment A1:2006)

Delete the normative reference for ISO 8062 and replace with the following:

EN ISO 8062-1:2007, *Geometrical product specifications (GPS) - Dimensional and geometrical tolerances for moulded parts - Part 1: Vocabulary* (ISO 8062-1:2007)

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)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 13445-6:2002/A3:2009](https://standards.iteh.ai/catalog/standards/sist/08e62cba-e743-40d6-8ca7-4bbc86205d61/sist-en-13445-6-2002-a3-2009)

<https://standards.iteh.ai/catalog/standards/sist/08e62cba-e743-40d6-8ca7-4bbc86205d61/sist-en-13445-6-2002-a3-2009>

3 Terms, definitions, units and symbols

Replace the following symbols in Table 3.3.1:

Table 3.3-1 – Symbols

c	Corrosion allowance	mm
f	Nominal design stress	N/mm ²
TS_{\min}, TS_{\max}	Minimum / maximum allowable temperature	°C
C_T	Temperature factor	dimensionless
C_Q	Testing factor	dimensionless
n	Factor depending on shape of shell	dimensionless
S	Safety factor	dimensionless
γ_R	Partial safety factor	dimensionless
δ	Casting tolerance	mm
ε	Extra thickness due to casting process	mm
ν	Poisson's ratio	dimensionless

4 Service conditions

Delete the word "concentration" from the first paragraph of 4.1, from Table 4.1-1 and from NOTE 2 of Table 4.1-1:

5 Requirements

5.1 Materials

Replace the bullet points below Table 5.1-2:

- mean value from 3 tests 12 J for $e_{act} \leq 60$ mm;
- 10 J for $60 \text{ mm} \leq e_{act} \leq 200$ mm;
- individual value 9 J for $e_{act} \leq 60$ mm and 7 J for $60 \text{ mm} \leq e_{act} \leq 200$ mm.

EN 13445-6:2002/A3:2008 (E)**5.2 Design**

Correct in the first paragraph of 5.2.2.1.5 "5.2.3" in "5.2.2.1.6".

Replace equation 5.2-1:

$$e_a = e_{act} \cdot \left(\frac{S \cdot PS \cdot R_{m(3)}}{P_{b,act} \cdot R_{p0,2} \cdot C_Q \cdot C_T \cdot C_e} \right)^{1/n} \quad (5-1)$$

Renumber Equation (5.2-2) as (5-2).

Renumber Equations (5.2-4) and (5.2-5) as (5-3) and (5-4).

Replace clause 5.2.2.1.8:

5.2.2.1.8 Simplified fatigue assessment (SFA)

A simplified fatigue assessment will return a value of maximum allowable number of equivalent pressure fluctuations under service conditions. The assessment shall be performed according to Annex D. A maximum stress factor of 3 is pre-supposed, unless for construction details as limited in Table D.1A where equal or lower values than 3 may be used.

NOTE This Table D.1A may also be used for other metallic castings than spheroidal graphite cast iron (e.g. cast steel, cast aluminium and so on).

Replace equation 5.2-1:

$$e_a = e_{act} \cdot \left(\frac{S \cdot PS \cdot R_{m(3)}}{P_{b,act} \cdot R_{p0,2} \cdot C_Q \cdot C_T \cdot C_e} \right)^{1/n}$$

Replace the third paragraph of 5.2.2.1.10:

Cyclic loading shall be in accordance with EN 13445-3:2002, Clause 5.3.

Replace in Table 5.2-1 "Safety factor SF" by "Safety factor S"

Replace equation 5.2-11:

$$f = R_{p0,2/T} \cdot C_Q \cdot C_e$$

Replace equation 5.2-12:

$$S = 3,5$$

6 Material testing

Change the reference in clause 6.5 from "EN 764-5:1999" to "EN 764-5:2002".

7 Testing and final assessment

Change the reference in the second sentence of clause 7.1.7 from "Table 4 of EN 1369:1996" to "Table 3 of EN 1369:1996"

Change the reference in the second sentence of clause 7.1.12 from "ISO 8062" to "EN ISO 8062-3"

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 13445-6:2002/A3:2009](https://standards.iteh.ai/catalog/standards/sist/08e62cba-e743-40d6-8ca7-4bbc86205d61/sist-en-13445-6-2002-a3-2009)

<https://standards.iteh.ai/catalog/standards/sist/08e62cba-e743-40d6-8ca7-4bbc86205d61/sist-en-13445-6-2002-a3-2009>