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Neogrevane tlačne posode - 3. del: Konstruiranje

Unfired pressure vessels - Part 3: Design

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Unfired pressure vessels - Part 3: Design

Récipients non soumis à la flamme - Partie 3 : Conception

Unbefeuerte Druckbehälter - Teil 3: Konstruktion

This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 54.

This draft amendment A3, if approved, will modify the European Standard EN 13445-3:2002. If this draft becomes an amendment, 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.

This draft amendment was established by CEN 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 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

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Foreword

This document (EN 13445-3:2002/prA3:2004) has been prepared by Technical Committee CEN/TC 54 “Unfired pressure vessels”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

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).

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

Modify the heading of 6.2 as follows:

6.2 Steels (except castings), other than austenitic steels covered by 6.4 and 6.5, with a minimum rupture elongation, as given in the relevant technical specification, below 30 %

Introduce a new paragraph 6.3 as follows:

6.3 Alternative route for steels (except castings), other than austenitic steels covered by 6.4 and 6.5, with a minimum rupture elongation, as given in the relevant technical specification, below 30 %

Alternative route allows the use of higher nominal design stress if all of the following conditions are met:

a) Material requirements as specified in Part 2 for Design by Analysis – Direct Route.

b) Restriction in construction and welded joints as specified in Clause 5 and in Annex A of Part 3 for Design by Analysis – Direct Route.

c) All main seams accessible to non-destructive testing (NDT) during manufacture and also for in-service inspection.

d) Fatigue analysis according to Clause 17 or 18 in all cases.

e) Fabrication requirements as specified in Part 4 for Design by Analysis – Direct Route.

f) NDT as specified in Part 5 for Design by Analysis – Direct Route.

g) Appropriate in-service inspections are specified in the manufacturer's instructions.

NOTE Until sufficient in-house experience can be demonstrated, the involvement of an independent body, appropriately qualified, is recommended for the assessment of the design (calculations) and for assurance that all requirements are met in materials, fabrication and NDT.

6.3.1 Normal operating load cases

Copy 6.2.1 and in second indent replace 2,4 by 1,875.

6.3.2 Testing load cases

Copy 6.2.2

6.3 becomes 6.4 and so on

Change headings in 6.4

6.4 Austenitic steels (except castings) with a minimum rupture elongation, as given in the relevant technical specification for the material, greater than 30 % up to 35 %

6.4.1 Normal operating load cases

6.4.2 Testing load cases

Change headings and text in 6.5, as follows:

6.5 Austenitic steels (except castings) with a minimum rupture elongation, as given in the relevant technical specification for the material, greater than 35 %

6.5.1 Normal operating load cases

a) that derived from 6.4.1; or

6.5.2 Testing load cases

a) The value derived from 6.4.2; and

New Table 6-1

Table 6-1 — Maximum allowed values of the nominal design stress for pressure parts other than bolts

Steel designation	Normal operating load cases[a] [b]	Testing and exceptional load cases[c]
Steels (other than austenitic) as per 6.2 $A < 30\ \%$ [d]	$f_d = \min\left(\frac{R_{p0,2/t}}{1,5}; \frac{R_{m/20}}{2,4}\right)$	$f_{test} = \left(\frac{R_{p0,2/t_{test}}}{1,05}\right)$
Steels (other than austenitic) as per 6.3: Alternative route $A < 30\ \%$ [d]	$f_d = \min\left(\frac{R_{p0,2/t}}{1,5}; \frac{R_{m/20}}{1,875}\right)$	$f_{test} = \left(\frac{R_{p0,2/t_{test}}}{1,05}\right)$
Austenitic steels as per 6.4 $30\ \% < A \leq 35\ \%$ [d]	$f_d = \left(\frac{R_{p1,0/t}}{1,5}\right)$	$f_{test} = \left(\frac{R_{p1,0/t_{test}}}{1,05}\right)$
Austenitic steels as per 6.5 $A > 35\ \%$ [d]	$f_d = \max\left[\left(\frac{R_{p1,0/t}}{1,5}\right); \min\left(\frac{R_{p1,0/t}}{1,2}; \frac{R_{m/t}}{3}\right)\right]$	$f_{test} = \max\left[\left(\frac{R_{p1,0/t_{test}}}{1,05}\right); \left(\frac{R_{m/t\,test}}{2}\right)\right]$
Cast steels	$f_d = \min\left(\frac{R_{p0,2/t}}{1,9}; \frac{R_{m/20}}{3}\right)$	$f_{test} = \left(\frac{R_{p0,2/t_{test}}}{1,33}\right)$

[a] For testing group 4 the nominal design stress shall be multiplied by 0,9.

[b] Yield strength R_{eH} may be used in lieu of $R_{p0,2}$ if the latter is not available from the material standard.

[c] See 5.3.2 and 6.1.2