European Committee for Standardization
Comité Européen de Normalisation
Europaïsches Komitee für Normung

EN 13445 "Unfired pressure vessels" Maintenance Help Desk (MHD)

Question form

Request reference number *(to be filled by MHD):* **(2014)-01-06**			**Date: 201X-xx-xx**	
Please fulfil the following				
Part: EN 13445-	Issue: 2014	Page	Subclause Annexes A, B	National Standard Reference --
Subject:				
Type of request:	☐ Technical clarification ☐ Technical comment		X Editorial correction ☐ Translation correction	

From :
Company:UcoTek AB .....
Name: Ulf Malmström .....
Postal address: 1, Irisdalsvägen, SE-14461 Rönninge Sweden .....
e-mail:ulf@ucotek.se .....
phone: + 46 70 768 66 90 .....

☐ Manufacturer	☐ User	☐ Other (please specify):

Question/comment: Annual update of 13445-1 Annexes

Proposed answer(s): See new texts attached to the covering email.

Answer from the MHD *(to be filled by MHD):*
The texts attached will be in the new edition of EN 13445, with the following modifications: Date of EN 13445-10 will be 2019. All reference to Annex GA of EN 13445-3 is deleted. Reference to specific clauses or subclauses of EN 13445-2:2019 is modified to be in accordance with this new edition. Date of TR 13445 is corrected when needed

To be sent to EN 13445 Maintenance Help Desk secretariat:	EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: en13445@unm.fr

* *Please note that question with proposed answers will be dealt with as priority.*

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EN 13445 "Unfired pressure vessels" Maintenance Help Desk (MHD)

Question form

Request reference number *(to be filled by MHD):* **(2014)-0x-0x** **Date: 2018-10-25**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-	2014		B.2.3.1.	--

Subject:

Type of request: ☒ Technical clarification ☐ Editorial correction ☐ Technical comment ☐ Translation correction

From :

Company: Stahl- und Apparatebau Hans Leffer GmbH & Co. KG .....

Name: Uwe Hornung.....

Postal address: Pfaehlerstrasse 1
D- 66125 Saarbruecken .....

e-mail: info@leffer.de .....

phone: +49 (0) 6897 793-303.....

☒ Manufacturer ☐ User ☐ Other (please specify):

Question/comment:

Table B.2-12 is included in section B.2.2. Is the sentence ”The temperature adjustment given in Table B.2–12 applies also to method 2.” limited to the materials listed in B.2.2 for method 1? Or is this temperature adjustment applicable for all materials (strength classes) in B.2.3. for method 2?

Proposed answer(s): *

Table B.2.12 in EN 13445-2, Annex B is applicable to method 1 and method 2 in the same way and for all steels that apply in both methods. See chapter B.2.3.1, page 29, second paragraph (EN 13445-2014- issue 4).
The fact that Table B.2.12 is listed in chapter B.2.2.6 has historical reasons only, but is not to be understood that the applicability of the table is tied to steels given in method 1.

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Answer from the MHD *(to be filled by MHD):*

STATEMENT to Question of Mr. Hornung, Leffers, to the EN 13445 Helpdesk - related to EN 13445-2 Annex B
Question submitted 2018-10-25

On the applicability of Table B.2.12

Answer:

Table B.2.12 in EN 13445-2, Annex B is applicable to method 1 and method 2 in the same way and for all steels that apply in both methods. See chapter B.2.3.1, page 29, second paragraph (EN 13445-2014- issue 4).

The fact that Table B.2.12 is listed in chapter B.2.2.6 has historical reasons only, but is not to be understood that the applicability of the table is tied to steels given in method 1.

Prof. Dr. Peter Langenberg
IWT-Aachen
Convener CEN TC 54/WG 52 Materials
2018-11-09

To be sent to EN 13445 Maintenance Help Desk secretariat:	EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: en13445@unm.fr

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EN 13445 "Unfired pressure vessels" Maintenance Help Desk (MHD)

Question form

Request reference number *(to be filled by MHD):* **(2014)-03-35**			**Date: 2018-10-10**	
Please fulfil the following				
Part: EN 13445-	Issue: 2014	Page	Subclause 19, Annex C	National Standard Reference --
Subject: Vessel subjected to creep loads and seismic loading				
Type of request:	**Technical clarification**	☐ Editorial correction		
	☐ Technical comment	☐ Translation correction		

From :
Company:CETIM .....
Name:SIMONET .....
Postal address :Senlis, 60300, France

e-mail:yves.simonet@cetim.fr
phone: +33 3 44 67 32 09

☐ Manufacturer	☐ **User**	☐ Other (please specify):

Question/comment: does seismic loading need to be included into one of the "creep load cases" defined in clause 19.2 ?

(Annex C.8 Creep assessment criteria uses design stress obtained according to clause 19)

Proposed answer(s): *No. earthquake loading *must be verify using* time-independent properties calculated according to Annex S. Only gross plastic deformation and buckling must be checked.

Answer from the MHD *(to be filled by MHD):*

The proposed answer is wrong, because seismic loads can occur during any part of the life of the vessel. Therefore it is conservative to consider nominal design stresses in the creep range for loading conditions including seismic loads, assuming that such loads will occur when the life of the vessel is close to the end

To be sent to EN 13445 Maintenance Help Desk secretariat:	EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: en13445@unm.fr

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EN 13445 "Unfired pressure vessels" Maintenance Help Desk (MHD)

Question form

Request reference number *(to be filled by MHD):* **(2014)-03-36** **Date: 2018-11-12**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-3	2014	312	14.9.2.2.1	EN 13445-3:2014 Issue 5

Subject: NDT convolutions

Type of request: ☒ Technical clarification ☐ Editorial correction ☐ Technical comment ☐ Translation correction

From :
Company: Kiwa Inspecta AB .....
Name: Pasi Nieminen .....
Postal address: P.O.Box 30100 SE-10425 Stockholm
e-mail: pasi.nieminen@kiwa.com .....
phone: +46 10 479 3044 .....

☐ Manufacturer ☐ User ☒ Other (please specify): Notified Body

Question/comment:

EN 13445-3 clause 14.9.2.2.1 state that:
"*Circumferential weld joints of convolutions shall be subjected to 100 % non-destructive examination in accordance with requirements of EN 13445-5:2014*"

Question:
How shall the reference to EN 13445-5 be interpreted since clause 6 of EN 13445-5 don't cover circumferential weld joints of convolutions?

Proposed answer(s): *
With the help of table 8.4.4.4.2-1 as seen in EN 14917:2009+A1:2012 it's determined that requirement 100 % non-destructive examination is interpreted as 100% VT + 100% RT or UT + 100% MT or PT

Answer from the MHD *(to be filled by MHD):*

In 13445-5 prA2 table 6.6.2.1 has been modified with the inclusion of an additional line 2d "Circumferential joints in bellows crest or root area" which specifies the extent of 100% NDT requirement of EN 13445-3 clause 14.2.2.1 for the various testing groups. The last version of the draft takes already into consideration the comments of the Public Enquiry.

To be sent to EN 13445 Maintenance Help Desk secretariat:

EN 13445 MHD secretariat c/o UNM
Standardization Office on behalf of AFNOR
F 92038 Paris La Défense Cedex – France
e-mail: en13445@unm.fr

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EN 13445 "Unfired pressure vessels" Maintenance Help Desk (MHD)

Question form

Request reference number *(to be filled by MHD):* **(2014)-03-37** **Date: 2019-01-22**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-3	2014	32	7.5.3.1	--

Subject:

Type of request: ☒ Technical clarification ☐ Editorial correction ☐ Technical comment ☐ Translation correction

From :
Company: TU Wien
Name: Benjamin Kerschbaum
Postal address: Getreidemarkt 9/E307, 1060 Wien, Austria

e-mail: Benjamin.kerschbaum@tuwien.ac.at
phone: +436769397408

☐ Manufacturer ☐ User ☒ Other (please specify): University

Question/comment:

When calculating a torisphericalhead in “Klöpperform” ($R_i=D_i$, $r_i=0,1*D_i$) with D_i=2000mm, made from X2CrNi18-9 (yields from DIN EN 10028-7), a load of 200°C and 12bar (f=120MPa and $R_{p0,2/T}$=118MPa) the results are: e_s=10,025mm e_y=16,15mm

Since $e_y>0,005D_i$ (=10mm, Annotation 3) e_b has not to be calculated?
But when calculating e_b anyway the result is: e_b=17,953 which is greater than e_y. (β calculated by 7.5.3.5)

What is the correct result following EN 13445-3?

Proposed answer(s): *

Annotation 3 means that the calculation of e_b can have any result and $e_a=max(e_s ; e_y)$.

Or

e_b has to be calculated since it’s greater than e_y ,therefore Annotation 3 is misleading.

Answer from the MHD *(to be filled by MHD):*

The text is sufficiently clear: when ey >005Di the calculation of eb provided by Note 3 has simply not to be made.

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EN 13445 MHD secretariat c/o UNM
Standardization Office on behalf of AFNOR
F 92038 Paris La Défense Cedex – France
e-mail: en13445@unm.fr

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Question form

Request reference number *(to be filled by MHD):* **(2014)-03-38**			**Date: 2019-02-12**	
Please fulfil the following				
Part: EN 13445-3	Issue: 2014	Page -	Subclause -	National Standard Reference BS EN 13445-2 2014
Subject:				
Type of request:	x☐ Technical clarification		☐ Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company:.....
Name: Dipak Chandiramani.....
Postal address: Mumbai, India .....
e-mail: dipak.chandiramani@outlook.com.....
phone: +918879004809 .....

☒ Manufacturer	☐ User	x☐ Other (please specify): Consultant

Question/comment: Refer Clause 9 – Openings in shells. Figure 9.4.3 Reinforcing pads. While calculating Afp, is it required to exclude the area of the vent hole?

Proposed answer(s): *

Yes

Answer from the MHD *(to be filled by MHD):*

No, provided the area of the vent hole is negligible if compared to the area of the reinforcing plate

To be sent to EN 13445 Maintenance Help Desk secretariat:	EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: en13445@unm.fr

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EN 13445 "Unfired pressure vessels" Maintenance Help Desk (MHD)

Question form

Request reference number *(to be filled by MHD):* **(2014)-03-39** **Date: 2019-04-03**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-3	2014	206	13.4	--

Subject:

Type of request: ☐ Technical clarification ☐ Editorial correction ☒ Technical comment ☐ Translation correction

From :
Company : EDF
Name: Yoann GRAND BROCHIER
Postal address: 2 rue Ampère 93200 Saint-Denis, FRANCE
e-mail: Yoann.grand-brochier@edf.fr
phone: +33 1 43 69 80 36

☐ Manufacturer ☒ User ☐ Other (please specify):

Question/comment:

1/ Unlike section 13.5 « Fixed tubesheet heat exchangers » (see subsection 13.5.6) and section 13.6 « Floating tubesheet heat exchangers » (see subsection 13.6.6), there is no clause in section 13.4 « U-tube tubesheet heat exchangers » that adresses computation of stress in the tube-to-tubesheet joint as well as in tubes themselves.

2/ Besides section 13.9 does not address buckling in U-tube heat exchangers.
We note that the Euler analysis performed in section 13.9 only depends on shell side and tube side pressure and tube geometry, and it is independent from the geometry of the tubesheet and therefore we believe that this section can be applied to U-tube heat exchangers as well (risk of buckling in case shell side pressure is large compared to tube-side pressure and spacing between baffles is large).

Proposed answer(s): *

1/ We suggest, similarly to sections 13.5 and 13.6, to add a subsection in 13.4 that will be identical to sections 13.5.6 and 13.6.6, with only one slight difference :

$$\sigma_{t,\theta} - \sigma_{t,i} - \frac{1}{x_t - x_S}[(1 - x_t)P_t - (1 - x_S)P_S]$$

2/ This implies that section 13.9 is also applicable for U-tube heat exchangers. Therefore we suggest to modify subsection 13.9.1 as follows :
« This clause provides rules to determine the maximum permissible longitudinal compressive stress in the tubes ~~of exchangers with a pair of tubesheets joined by a bundle of straight tubes~~ to cover […] »

Answer from the MHD *(to be filled by MHD):*

In U-tube heat exchangers the tubes give no support to the tubesheets, therefore the stresses in the tubes themselves are the same stresses existing in cylindrical shells because of the internal and external pressures. It is therefore clear, even if this is not specified in Clause 13, that this verification has always to be made. However it is true that the standard does not provide the verification of the tube-to-tubesheet joints in U-tube exchangers. Although the stresses in tube-to-tubesheet joints in U-tube exchangers are certainly lower than in other heat exchanger types, since they are caused by pressure only, an update of Clause 13 is necessary in order to give rules for the verification of these joints. WG 53 will propose the opening of a new work item on this subject.

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EN 13445 "Unfired pressure vessels" Maintenance Help Desk (MHD)

Question form

Request reference number *(to be filled by MHD):* **(2014)-03-40** **Date: 2019-04-26**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-3	2014	683	G.8.5.3	--

Subject: Subscript error in formulas (G.8-22) and (G.8-23)

Type of request: ☐ Technical clarification ☐ Editorial correction ☒ Technical comment ☐ Translation correction

From :
Company: CRYOSTAR SAS .....
Name: Sébastien Krebs.....
Postal address: 2 rue de l'Industrie
68220 Hésingue FRANCE.....
e-mail: sebastien.krebs@cryostar.com .....
phone: +33 3 89 70 43 16 .....

☒ Manufacturer ☐ User ☐ Other (please specify):

Question/comment: From the formula logic and the symbols definition in G.3.3, it seems that there is a typing error in formulas (G.8-22) and (G.8-23) which might need to be changed from:

$$F_{Gi,min} = \{ F_{G0,min} \cdot Y_{G0} - [F_{Qi} \cdot Y_{Qi} + (F_{Ri} \cdot Y_{Qi} - F_{R0} \cdot Y_{R0}) + \Delta U_i]\}/Y_{Gi} \quad \text{(G.8-22)}$$

$$F_{Gi,max} = \{ F_{G0,max} \cdot Y_{G0} - [F_{Qi} \cdot Y_{Qi} + (F_{Ri} \cdot Y_{Qi} - F_{R0} \cdot Y_{R0}) + \Delta U_i]\}/Y_{Gi} \quad \text{(G.8-23)}$$

Proposed answer(s): *to:

$$F_{Gi,min} = \{ F_{G0,min} \cdot Y_{G0} - [F_{Qi} \cdot Y_{Qi} + (F_{Ri} \cdot Y_{Ri} - F_{R0} \cdot Y_{R0}) + \Delta U_i]\}/Y_{Gi} \quad \text{(G.8-22)}$$

$$F_{Gi,max} = \{ F_{G0,max} \cdot Y_{G0} - [F_{Qi} \cdot Y_{Qi} + (F_{Ri} \cdot Y_{Ri} - F_{R0} \cdot Y_{R0}) + \Delta U_i]\}/Y_{Gi} \quad \text{(G.8-23)}$$

Answer from the MHD *(to be filled by MHD):*

The answer is correct. We suggest to consider this as an editorial comment in order to avoid the opening of a new Work Item for this simple correction.

To be sent to EN 13445 Maintenance Help Desk secretariat:

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F 92038 Paris La Défense Cedex – France
e-mail: en13445@unm.fr

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