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)-0x-01**			**Date: 2017-10-26**	
Please fulfil the following				
Part: EN 13445-all	Issue: 2014	Page Foreword	Subclause	National Standard Reference --
Subject:				
Type of request:	☐ Technical clarification		X Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company:UcoTek AB .....
Name:Ulf Malmström .....
Postal address:Irisdalsvägen 1, SE-14461 Rönninge ..
e-mail:ulf@ucotek.se .....
phone: +46707686690

☐ Manufacturer	☐ User	X Other (please specify): Consultant

Question/comment:

Part 10 is missing in the list of parts. This comment applies to parts.1, 3–6, and 8

Proposed answer(s): *

Add Part 10 to list

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

Accepted, to be updated in 2018 version

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.*

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)-0x-02**			**Date: 2017-10-26**	
Please fulfil the following				
Part: EN 13445-all	Issue: 2014	Page Foreword	Subclause	National Standard Reference --
Subject:				
Type of request:	☐ Technical clarification		X Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company:UcoTek AB .....
Name:Ulf Malmström .....
Postal address:Irisdalsvägen 1, SE-14461 Rönninge ..
e-mail:ulf@ucotek.se .....
phone: +46707686690

☐ Manufacturer	☐ User	X Other (please specify): Consultant

Question/comment:

Serbia is missing in the list of member countries. This comment applies to parts.1, 3–6, and 8

Proposed answer(s): *

Add Serbia to list

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

Accepted, to be updated in 2018 version

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.*

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)-02-05**			**Date: 2017-03-24**	
Please fulfil the following				
Part: EN 13445-2	Issue: 2014	Page 16	Subclause 5	National Standard Reference --
Subject: Materials used for non-pressure parts				
Type of request:	☒ Technical clarification		☐ Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company: VSK Pardubice s.r.o.
Name: Tereza Bílková
Postal address: Stará Obec 312
533 54 Pardubice-Rybitví
Czech Republic

e-mail:tereza.bilkova@vsk.cz
phone: +420 732 418 194

☒ Manufacturer	☐ User	☐ Other (please specify):

Question/comment:

In subclause 5 it is said, that for non-pressure parts you have to use materials with specified chemical composition and tensile properties.

In shell-and-tube heat exchangers baffles are used to provide desired flow pattern and support tubes. Baffles are placed in shell which is working under pressure. But baffles themselves are not subject to any pressure load.

Is it possible to use materials mentioned in subclause 5 for baffles? Or is it necessary to use materials corresponding to subclause 4?

Proposed answer(s): *

As baffles do not transmit any pressure load, materials for non-pressure parts mentioned in subclause 5 can be used.

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

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.*

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)-03-15**			**Date**: **2017-02-17**	
Please fulfil the following				
Part: EN 13445-3	Issue: 2014	Page	Subclause B1.4	National Standard Reference --
Subject:				
Type of request:	☐ Technical clarification		☒ Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company: EDF
Name: Jean-François GOETGHELUCK
Postal address: 2 rue Ampère
93206 Saint-Denis Cedex 01
FRANCE

e-mail: jean-francois.goetgheluck@edf.fr
phone:

☐ Manufacturer	☒ User	☐ Other (please specify):

Question/comment:

In subclause B 1.4, reference to B.5.1.2 is not appropriate.
Proposed answer(s): *
Replace reference to B.5.1.2 by reference to B.5.1.3

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

Correction accepted, only applicable to French version.

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.*

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)-03-16**			**Date: 2017-02-27**	
Please fulfil the following				
Part: EN 13445-3	Issue: 2014	Page 392	Subclause 16.12.3.2	National Standard Reference
Subject:				
Type of request:	☒ Technical clarification		☐ Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company: Finglow Ltd
Name: L T Billings B.Sc(Hons) ALCM MIoD MASME ..
Postal address: 34 Chambers Street, Hertford. SG14 1PL, UK

e-mail: research@finglow.co.uk].....
phone: +44 (0)1992 550 700 .....

☒ Manufacturer	☐ User	☐ Other (please specify):

Question/comment:

Torispherical end of Kloepper or Korbbogen type (as defined in 7.2) or elliptical end having an aspect ratio K ≤ 2 (where K as defined in equation (7.5-18)) and a thickness not less than that of a Korbbogen-type end of same diameter;

Does the *thickness not less than that of a Korboggen* apply to just the elliptical ends or to Kloepper, Korboggen and elliptical ends?

Proposed answer(s): *

Answer from Olavi Valtonen:
The requirement of minimum thickness applies only to elliptical ends.

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.*

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)-03-17** **Date: 2017-04-04**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-3	2014	170	11.5.4.1.1	--

Subject:

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

From :
Company: Výskumný ústav zváračský – Priemyselný inštitút SR
Name: Martin Čapičík
Postal address: Račianska 71, 832 59 Bratislava; Slovakia
e-mail: capicikm@vuz.sk
phone: +421 908 840 683

☐ Manufacturer ☒ User ☐ Other (please specify):

Question/comment: Formula for calculation β_{FL} (11.5-37) is wrong. The whole fraction should be multiplied by -1. See attached coeffcients.xlsx file -> chart_betaFL sheet and calculation sheet. Wrong formula:

$$\beta_{FL} = \frac{C_{18}\left(\frac{3+A}{6}\right) + C_{21}\left(\frac{21+11A}{84}\right) + C_{24}\left(\frac{3+2A}{210}\right) - \left(\frac{9+5A}{360}\right)}{\left[\frac{C}{3(1-\nu^2)}\right]^{1/4} \frac{(1+A)^3}{C}}$$

Proposed answer(s): Correct formula:

$$\beta_{FL} = -\frac{C_{18}\left(\frac{3+A}{6}\right) + C_{21}\left(\frac{21+11A}{84}\right) + C_{24}\left(\frac{3+2A}{210}\right) - \left(\frac{9+5A}{360}\right)}{\left[\frac{C}{3(1-\nu^2)}\right]^{1/4} \frac{(1+A)^3}{C}}$$

Answer from Olavi Valtonen:
Proposed answer is correct, "-" sign exists also in CODAP and ASME Code.

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.*

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)-03-18** **Date: 2017-06-13**

Please fulfil the following

Part:	Issue:	Page:	Subclause:	National Standard Reference
EN 13445-3	2014+A1:2015	104	9.5.2.4.3	--

Subject: Calculation of maximum length *lo* and average thickness *ea,m. (reinforcing rings)*

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

From :

Company: i-consulting .....

Name: Kouroutzidis Savvas.....

Postal address: Andrea Papandreou 146 str., 566 26, Thessaloniki, Greece

e-mail: kyriakos@i-consulting.gr, savvas@i-consulting.gr

phone: + 30 2310 619330 .....

☐ Manufacturer ☐ User ☒ Other (please specify): Industrial consultants

Question/comment:

Regarding the calculation of maximum length *lo* and average thickness *ea,m* for reinforcing rings, what is the proper way for the calculation, using equations (9.5-46), (9.5-47) and (9.5-48)? Since from equation (9.5-47) we get that *lo= lo,* we must calculate the above by solving equations (9.5-46) and (9.5-48) as a system or proceed with a different way?

Proposed answer(s): *

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

An iterative procedure must be used :
- 1 : choose a starting value for l0 (l0 = lr)
- 2 : calculate eam according to (9.5-48)
- 3 : calculate l0 according to (9.5-46)
- 4 : repeat steps 2 and 3 until convergence

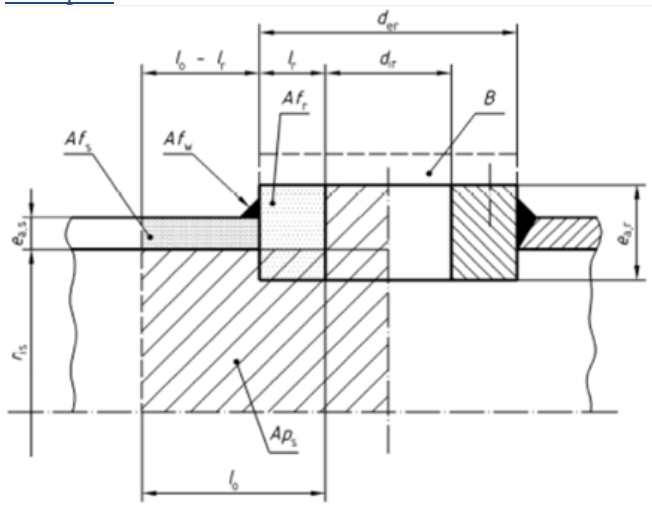
Example of this method given in Annex

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.*

Example :



$r_{is} := 1500 \cdot mm$

$e_{cs} := 15 \cdot mm$

$l_r := 45 \cdot mm$

$e_{ar} := 60 \cdot mm$

$l_0 := l_r$ $\quad l_0 = 45\,mm$

$e_{am} := e_{cs} + (e_r - e_{cs}) \cdot \frac{l_r}{l_0}$ $\quad e_{am} = 60\,mm$

$l_0 := \sqrt{(2 \cdot r_{is} + e_{am}) \cdot e_{am}}$ $\quad l_0 = 428.486\,mm$

$e_{am} := e_{cs} + (e_r - e_{cs}) \cdot \frac{l_r}{l_0}$ $\quad e_{am} = 19.7\,mm$

$l_0 := \sqrt{(2 \cdot r_{is} + e_{am}) \cdot e_{am}}$ $\quad l_0 = 244.063\,mm$

$e_{am} := e_{cs} + (e_r - e_{cs}) \cdot \frac{l_r}{l_0}$ $\quad e_{am} = 23.3\,mm$

$l_0 := \sqrt{(2 \cdot r_{is} + e_{am}) \cdot e_{am}}$ $\quad l_0 = 265.394\,mm$

$e_{am} := e_{cs} + (e_r - e_{cs}) \cdot \frac{l_r}{l_0}$ $\quad e_{am} = 22.6\,mm$

$l_0 := \sqrt{(2 \cdot r_{is} + e_{am}) \cdot e_{am}}$ $\quad l_0 = 261.539\,mm$

$e_{am} := e_{cs} + (e_r - e_{cs}) \cdot \frac{l_r}{l_0}$ $\quad e_{am} = 22.7\,mm$

$l_0 := \sqrt{(2 \cdot r_{is} + e_{am}) \cdot e_{am}}$ $\quad l_0 = 262.193\,mm$

$e_{am} := e_{cs} + (e_r - e_{cs}) \cdot \frac{l_r}{l_0}$ $\quad e_{am} = 22.7\,mm$

$l_0 := \sqrt{(2 \cdot r_{is} + e_{am}) \cdot e_{am}}$ $\quad l_0 = 262.081\,mm$

$e_{am} := e_{cs} + (e_r - e_{cs}) \cdot \frac{l_r}{l_0}$ $\quad e_{am} = 22.7\,mm$

$l_0 := \sqrt{(2 \cdot r_{is} + e_{am}) \cdot e_{am}}$ $\quad l_0 = 262.1\,mm$

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)-03-19**			**Date: 2017-06-20**	
Please fulfil the following				
Part: EN 13445-3	Issue: 2014+A16	Page 170	Subclause 11.5.4.1.2	National Standard Reference BS EN 13445-3 2014+A2:2016
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: Coefficient C16 is defined in equation 11.5-60. The second and third terms of this equation are identical. I was wondering if there is an error in this equation.

Proposed answer(s): *
None

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

You are right, these two terms are identical but the equation is correct, for instance 2xa= a + a

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.*

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)-03-20** **Date: 2017-07-30**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-	2014	115-116-117-118	9.6.3 and Figures 9.6-1 to 9.6-6	

Subject:

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

From :
Company: SANT'AMBROGIO Servizi Industriali SRL..
Name: Fernando Lidonnici.....
Postal address: piazza Carlo Donegani 8
20133 Milano (Italy) .....
e-mail: lidonnici@sant-ambrogio.it .....
phone: +39 02 70603113

☒ Manufacturer ☐ User ☐ Other (please specify):

Question/comment:

Reinforcement of adjacent openings (subclauses 9.6.3 and 9.6.4): formulae from 9.6-7 to 9.6-12 are referred to Figures 9.6-1 and 9.6-2, where both nozzles are inserted into the shell (SET-IN type). However the definition of dimension *a* given at the beginning of clause 9 is the following: "*Distance taken along the mid-thickness of the shell between the centre of an opening and the external edge of a set-in nozzle or ring; or, if no nozzle or ring is present or if the nozzle is set-on, a is the distance between the centre of the hole and its bore*". The same distinction between SET-IN and SET-ON nozzles applies also to the definitions of a_1, a_2, a_1', a_2', all of them derived from the definition of *a*. Considering these definitions, the formulae 9.6-8 and 9.6-12 (referred to adjacent openings on cylindrical shells) are wrong for nozzles welded on the outside of the shell (SET-ON type). Moreover, Figure 9.6-3 (which is referred to two SET-ON nozzles on a spherical shell) gives wrong values for a_1 and a_2, which are taken starting from the nozzle OD instead of the nozzle ID: this leads to an undervaluation of the area $A\mathrm{f}_{Ls}$ (reinforcing area on the shell) given by formula 9.6-7 in the case of SET-ON nozzles, and to a consequent overvaluation of the reinforcing areas $A\mathrm{fb}_1$ and $A\mathrm{fb}_2$. Although the total reinforcing area is the same for SET-IN and for SET-ON nozzles, formula 9.6-4 gives a different weight to the reinforcing area on the shell and to the reinforcing areas on the nozzles when the materials have different nominal design stresses (differences are particularly relevant in case of small nozzles fitted on shells with large thicknesses). Note that the reinforcing areas $A\mathrm{f}_{Ls}$, $A\mathrm{fb}_1$ and $A\mathrm{fb}_2$ are correctly represented and differentiated (by a different dashing) in all the figures 9.6-1 to 9.6-4. A similar problem exists in clause 9.6.4, where nozzles 1 of Figure 9.6-6 is SET-IN, while nozzle 2 is SET-ON: dimensions a_1 and a_1' are correctly represented for nozzle 1, but this is not true for the corresponding values of nozzle 2, where a_2 and a_2' should be limited by the nozzle ID, while dimension kL_{s02} should also start from the nozzle ID.

Proposed answer(s): *

On page 116 modify the sentence before formula 9.6-8 as follows:

a) in cases with $\phi = 0°$ (i.e. where the nozzles are of the set-in type and lie on the axis of the vessel)

after the formula add the following note:

(for set-on nozzles d_{eb} shall be replaced by d_{ib})

The same note shall be placed after formula 9.6-12.

The values of a_1, a_2 shall be corrected in Figures 9.6-3, while the values of a_2, a_2', kL_{s02} shall be corrected in Figure 9.6-6

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

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.*

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)-03-21** **Date: 2017-09-06**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-3	2014 (2017-7)	90	9.4.8	--

Subject:

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

From :
Company: Dovre Sertifisering AS.....
Name: Racime van den Berg.....
Postal address: Engelsminnegata 24.....
e-mail: racime@dovresertifisering.no.....
phone: +4790165743 .....

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

Question/comment:

The text in §9.4.8 is unclear. "…opening shall be either less than dib/6 or greater than the value ln given by: …"
This results in a large difference. Is this correct?
This means that the weld must be closer than dib/6 or must at more than the value given I formula 9.4-4.
Less than dib/6 means also that the weld always will lie inside the nozzle.
Eks. 2" sch 40 nozzle on a shell (Di=1500 e=35).
Dib/6 = 52,51 / 6 = 8,8mm
While the other results in:
Ln= min (100,17mm; 70,165mm).
Is this correct, please explain.

Proposed answer(s): *

Remove the dib/6.

The distance between the centre line of a shell butt-weld (longitudinal or circumferential) and the centre of an opening shall be the value ln given by:

$$l_n = \min(0{,}5\,d_{eb} + 2e_{a,s}\ ;\ 0{,}5\,d_{eb} + 40) \qquad (9.4\text{-}4)$$

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

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.*

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)-03-22**			**Date: 2017-10-26**	
Please fulfil the following				
Part: EN 13445-3	Issue: 2014+A2:2016	Page 577	Subclause Table A.5 T19	National Standard Reference --
Subject: Tubes to tubesheet weld T19 “not allowed”				
Type of request:	☒ Technical clarification	☐ Editorial correction		
	☐ Technical comment	☐ Translation correction		

From :
Company : Bronswerk Heat Transfer BV
Name : Robert Jan van Hofwegen
Postal address : P.O. Box 92, 3860AB,
Nijkerk, The Netherlands

e-mail : Hofwegen@bronswerk.com
phone : +31-33 2472 596

☒ Manufacturer	☐ User	☐ Other (please specify):

Question/comment:

In table A.5 joint T19 is stated “not allowed”. Is there a route available to use this type of tube to tubesheet weld? For example, the following routes can be prescribed:

- with the use of (semi)automatic welding + with use of destructive testing (pull-out test) on a mock-up + 100% non-destructive testing (dye penetrant testing) on the equipment.
- with the use of specific testing groups.
- for equipment where only a small loading on the tubes is calculated (10% of the tube strength)

If there is an alternative route, can this route be incorporated in the next revision of the standard?

If not, can the committee provide background information why this weld is not allowed?

Proposed answer(s): *

Yes this joint may be used if the manufacturer is able to demonstrate that:

- the tube-to-tubesheet weld is as strong as the tube (with pull out test the required force before failure is higher than tube strength)
- a homogenous quality can be ensured by means of welding automation
- NDE as per EN 13445-5 table 6.6.2-1 is applied.

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

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.*

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)-03-23**			**Date: 201X-xx-xx**	
Please fulfil the following				
Part: EN 13445-3	Issue: 2014+A2	Page 291	Subclause 14.5.6.3.1	National Standard Reference --
Subject:				
Type of request:	☒ Technical clarification		☐ Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company: Lloyd's Register Nederland BV .....
Name: Theo Jobse .....
Postal address: K.P. vd Mandelelaan 41a
3062 MB Rotterdam, The Netherlands.....

e-mail: theo.jobse@lr.org .....
phone: +31 6 51 86 84 81 .....

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

Question/comment:

When a bellows is made of duplex material there is confusion which design rules should be followed.
Clause 14.5.6.3.2 of part 3, refers to "Austenitic steel and other similar materials" Does this also includes duplex?
Or are the design rules of clause 14.5.6.3.3 "Ferritic steel" (which leads to clause 18.10 or 18.11) applicable?

Proposed answer(s): *

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

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.*

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)-03-24** **Date: 201X-xx-xx**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-	2015		13.5.2.1	--

Subject:

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

From :
Company: choeller-Bleckmann Nitec GmbH
Name: Johann Brandstetter
Postal address: Hauptstrasse 2 | 2630 Ternitz | Austria
e-mail: J.Brandstetter@christof-group.com
phone: +43 (2630) 319 - 4146

☐ Manufacturer ☒ User ☐ Other (please specify):

Question/comment:

I have some questions regarding the design of the tubesheet acc. Chapter 13.5.2.1.

- Is there a lower limit for ea,p (remaining thickness)?
- Equation (13.5.2-1) is valid for a ratio of outside diameter / inside diameter >1,2. What should be done if the ratio is <1,2?
- If I have a selected thickness of 30mm – then eap=0,8x30=24mm. On the other hand I have to account a radius of 5mm on each side of the tubesheet.

Therefore I get a thickness of e -2 x R = 30mm -2 x 5mm=20mm. I checked the hole tubesheet with 20mm and the thickness is adequate. So is it possible to use a thickness combination of 30mm at center and the thickness periphery with 20mm or do I have to follow always equation (13.5.2-1)

Proposed answer(s):

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

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

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)-05-15** **Date: 2017-01-18**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-5	2014	69/26	F.2/	

Subject: Type of welds for permanent attachment in case of creep and fatigue

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

From :
Company: CEGELEC CEM Nucléaire .....
Name: LIABEUF Yoann.....
Postal address : 110 rue Blaise Pascal ; 38330 MONTBONNOT SAINT MARTIN ; FRANCE .....
e-mail: yoann.liabeuf@cegelec.com.....
phone: +33(0)673982711 .....

☒ Manufacturer ☐ User ☐ Other (please specify):

Question/comment:

In the case of an under pressure vessel, submitted to creep and fatigue (our testing group is 1c). The standard EN13445-3 give clear requirements in annex A for the design of the under pressure welds.

Our question deals with the welds for permanent attachments on the vessel, (supports for example which are in temperature). The standard EN13445-5 in the table F.2-1, see extract below :

Permanent attachments [d]	21	With full penetration	RT or UT MT or PT	25 % g 100 %

asks to have a radiographic test for 25% of this welds.

What means the words “with full penetration” ? :

- Only the welds with full penetration have to be controlled by radiography or

- Every welds have to be done with full penetration

Then, this weld of type 21 is not detailed in the figure 6.6.2-3 (the vessel given in example have no supports)
Proposed answer(s):

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

Welds without full penetration is not yet covered by EN 13445-3. Table F.2-1 only deals with welds with full penetration. This item will be forwarded to WG53 and WG 59 convenors, if an amendment is needed onEN13445-3, then EN13445-5 will be aligned/modified according to.

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.*

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)-05-16** **Date: 2017-03-09**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-5	2014	24, 37 & 50	see comment	--

Subject:

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

From :
Company: Earland Engineering Ltd .....
Name: Simon Earland .....
Postal address: 29 West Street, Tavistock, PL19 8JY, UK
e-mail: simon@earland.co.uk.....
phone: +44 1822 610673 .....

☐ Manufacturer ☐ User ☒ Other (please specify): Design consultant

Question/comment:

1. Reference is made to Table 6.6.3-1 in EN 13445-5 Table 6.6.2-1 note j, in Table 10.2.3.3.1-1 and in Annex A clause A.7.2.1 a). Table 6.6.3-1 was deleted in amendment 4 to the 2009 edition but the references to this table still remain.

2. In EN 13445-5 Table 6.6.2-1 note k, reference is made to EN 13445-3:2014 clause 5.7.3.2. This clause does not exist. I think the correct reference should be to clause 5.7.4.2.

Proposed answer(s): *

Revise the references to Table 6.6.3-1 and clause 5.7.3.2.

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

1. Correct, issue already addressed in (2014)-05-13, to be updated in 2017 version.
2. Partially correct, the reference should be to clause 5.7.3, to be update in 2017 version

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.*

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)-05-17** **Date: 2017-06-12**

Please fulfil the following

Part: EN 13445-	Issue: 2014	Page	Subclause several	National Standard Reference

Subject: Normative references to update

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

From :
Company:Vinçotte .....
Name: Ben Verhagen .....
Postal address: Noordersingel 23 · 2140 Antwerpen · Belgium .....
e-mail: bverhagen@vincotte.be.....
phone: +32 3 221 87 37 .....

☐ Manufacturer ☐ User ☒ Other (please specify): Through NSB

Clause/ Subclause	Comments	Proposed change
2	EN ISO17635:2010, *Non-destructive testing of welds — General rules for metallic materials (ISO17635:2010)*	EN ISO17635:**2016**, *Non-destructive testing of welds — General rules for metallic materials (ISO17635:**2016**)*
6.6.3.3	Methods shall be selected according to EN ISO 17635:2010, Table 3.	Methods shall be selected according to **EN ISO 17635:2016**, Table 3.
6.6.3.3	Testing techniques shall be in accordance to **EN ISO 17635:2010, Tables A.5 (RT-F) and A.8 (UT).**	Testing techniques shall be in accordance to **EN ISO 17635:2016**, Tables A.5 (RT-F), A.6 **(RT-D), (RT-CR) or (DDA)**,A.7**(UT),**A.8 **(TOFD)** and A.9**(PAUT).**
6.6.3.4	The testing techniques shall be as specified in EN ISO 17635:2010.	The testing techniques shall be as specified in **EN ISO 17635:2010.**
6.6.3.5	The surface condition necessary for performing all NDT shall be in accordance with the standard for the corresponding testing technique as stated in EN ISO 17635:2010,	The surface condition necessary for performing all NDT shall be in accordance with the standard for the corresponding testing technique as stated in **EN ISO 17635:2016**,
6.6.4	testing techniques and acceptance levels shall be selected according to EN ISO 17635:2010, Annex A.	testing techniques and acceptance levels shall be selected according to **EN ISO 17635:2016,Annex B**
6.6.7	In support of NDT activities written test reports shall be prepared in accordance with the standards referred to in EN ISO 17635:2010.	In support of NDT activities written test reports shall be prepared in accordance with the standards referred to in **EN ISO 17635:2016.**

Answer from the MHD *(to be filled by MHD):*
Accepted, to be update in 2017 version

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.*

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)-05-18**			**Date: 201x-xx-xx**	
Please fulfil the following				
Part: EN 13445-5	Issue: 2014	Page 19	Subclause	National Standard Reference CODAP 2015 – GA5.4.2
Subject:				
Type of request:	☐ Technical clarification		☐ Editorial correction	
	☒ Technical comment		☐ Translation correction	

From :
Company: Réservoirs X. Pauchard .....
Name: F. BENGLER.....
Postal address: 1 Bd X. Pauchard – 71400 Autun - F
e-mail: f.bengler@xpauchard.fayat.com.....
phone: +33 385865333 .....

☒ Manufacturer	☐ User	☐ Other (please specify):

Question/comment: Do the thickness limits given in Table 6.6.1-1 (EN13445-5) apply to all components of pressure equipment (eg a flange plate)?

Proposed answer(s): The requirement on the nominal thickness values of the main pressure parts is not applicable to the pipe flanges but remains applicable to the body flanges.

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

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.*

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)-06-04** **Date: 2017-05-31**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-6	2014	22	7.1.4	

Subject:

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

From :
Company: VDMA .....
Name: Frank Wohnsland .....
Postal address: : Lyoner Straße 18, D-60528 Frankfurt
Germany .....
e-mail: frank.wohnsland@vdma.org .....
phone: +49 69 6603-1399 .....

☐ Manufacturer ☐ User ☒ Other (please specify): Manufacturers' Association

Question/comment:

The question comes from a manufacturer of filters that are designed according to EN 13445-6.

Clause 7.1.4 “Surface imperfections” states the following:
“A maximum of five imperfections in a square 100 mm x 100 mm facing inwards or outwards shall be accepted. None of these shall cover an area larger than 100 mm², and the total area of the imperfections shall not exceed 200 mm².”

The manufacturer’s problem is the following:

On the surface of the cast iron there are – due to the form sand being used – frequently very small (sometimes tiny) surface defects/”holes” recognizable by visual examination. It would be of advantage to have a definition from what size on such defects need to be considered as “imperfections” in the sense of 7.1.4. Otherwise people at inspection before shipping at the foundry and people at inspection upon delivery at the customer’s site are in permanent discussion whether the cast material complies with EN 13445-6.

Proposed answer(s): *

Add the following sentence to 7.1.4:

“Surface defects up to a maximum width of 1,5 mm and up to a maximum depth of 1 mm need not be considered as surface imperfections in the sense of 7.1.4 – provided that the specified minimum wall thickness is everywhere maintained.”

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

See attached answer from WG58 convenor bellow.

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.*

The text is very clear and liberal for foundry and purchaser of the casting(s): as long as imperfections are kept within these limits, casting conform EN-13445-6 Clause 7.1.4.
Here is the difference between a “defect” and an “imperfection”.
A-defect can never be described to be allowed in a standard, an imperfection is described exactly in the current version of the standard (and this clause is never changed during 15 years of standard use).
The submitted proposal is the other way round ,confusing defect with imperfection.
However, a standard is a tool describing a minimumlevel to be attained by a manufacturer.
it may also be agreed in the purchase order that narrower limits for certain contracts may be included.
These narrower limits (mutual agreed between parties concerned) can never be a cause to change the standard; especially castings , casting method, used sand, metallurgical aspects, moulding technique, all have influence on a casting, its function and its appearance.
Some common troubles may be listed as follows:

POSSIBLE CAST IRON DEFECTS WHICH SHOULD BE REJECTED					
This Table is a result mainly starting of poor design.The designer should therefore be in close contact with a quality minded foundry					
Minimum criteria values are given in standards for all imperfections leading to defects					
MAKE SURE YOU DISCUSS THIS FIRST WITH THE FOUNDRY METHOD AND QC INSPECTOR!					
DEFECT	**DESCRIPTION**	**PROBLEM CREATED**			
segregation	non-uniform elements distribution in metal	non-uniform strength and hardness, non-uniform mechanical characteristics			
inclusions	non-metallic particles	act as stress raisers			
surface discontiuity	openings or pores in the surface by poor mould design and/or poor cooling	crack initiation			
sand inclusions	inadequate mold preparation	poor mechanical properties main stress directions and fatigue failure			
porosities	inadequate molding preparation, or core making, or melting or a combination of all factors	machining problems, fatigue problems			
hot tears	poor design	fatigue problems			
shrinkage cavities	poor mold design	fatigue failure			

Therefore there is no reason in changing this Clause 7.1.4 of EN-13445-6:2014 Issue 3 but recommend the parties concerned to have a purchase order discussion and agreement FIRST.

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)-08-01** **Date: 2017-03-09**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13445-8	2014	17, 18 & 21	see comment	--

Subject:

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

From :
Company: Earland Engineering Ltd .....
Name: Simon Earland .....
Postal address: 29 West Street, Tavistock, PL19 8JY, UK
e-mail: simon@earland.co.uk.....
phone: +44 1822 610673 .....

☐ Manufacturer ☐ User ☒ Other (please specify): Design consultant

Question/comment:

1. In EN 13445-8 Table 8.2-1 reference is made to Table 6.6.2-1 of EN 13445-5:2014, but in clause 8.3 it states that “Table 6.6.2-1 of EN 13445-5:2014 shall be replaced by Table 8.3-1”.

2. In EN 13445-8 clause 8.3 it states that “The requirements in 6.6.2 of EN 13445-5:2014 shall apply with the following modification:” and that “NOTE 2 shall be replaced by:”, followed by a list of points a) to e), but there does not appear to be a NOTE 2 in EN 13445-5:2014 clause 6.6.2.

3. In EN 13445-8 clause 8.4.1 it states that “The requirements in Table 6.6.3-1 of EN 13445-5:2014 shall be replaced by Table 8.4-1”, but Table 6.6.3-1 was deleted in amendment 4 to the 2009 edition of EN 13445-5.

Proposed answer(s): *

1. In EN 13445-8 Table 8.2-1 change the reference from “Table 6.6.2-1 of EN 13445-5:2014” to “Table 8.3-1”.
2. In EN 13445-8 clause 8.3 clarify what is replaced by the list a) to e).
3. In EN 13445-8 clause 8.4.1 clarify which part or parts of clause 6.6.3 are to be replaced by Table 8.4-1.

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

1.correction to be made in 2017 version

2.reference to NOTE2 and following will be deleted, update to be made in 2017 version

3. no requirements anymore in 6.6.3-1 of EN 13445-5:2014, this sentence will be deleted and update to be made in 2017 version

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.*