



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

<b>Request reference number</b> (to be filled by MHD): (2014)-01-03		<b>Date:</b> 2017-12-27	
<b>Please fulfil the following</b>			
Part: EN 13445-1	Issue: 2014	Page 19	Subclause A.7.4.      National Standard Reference
<b>Subject:</b> Entity in charge of the final assessment			
<b>Type of request:</b>		<input checked="" type="checkbox"/> Technical clarification	<input type="checkbox"/> Editorial correction
		<input type="checkbox"/> Technical comment	<input type="checkbox"/> Translation correction
<b>From :</b>			
Company: EDF/CEIDRE		e-mail: francis.lascroux@edf.fr	
Name: Francis LASCROUX		phone: 33+ 1.43.69.75.97	
Postal address: 10, rue James Watt - Bât. C - 5ème étage			
93206 SAINT-DENIS			
<input type="checkbox"/> Manufacturer	<input checked="" type="checkbox"/> User	<input type="checkbox"/> Other (please specify):	
<b>Question/comment:</b>			
I have a question concerning the note in point A.7.4 of the standard EN 13445-1 (2014):			
<b>A.7.4 Final assessment</b>			
<i>EN 13445-5:2014, Clause 10 specifies how final assessment shall be performed. Detailed rules are given for the performance of the proof test, including the calculation of the test pressure.</i>			
<i>NOTE Depending upon the module selected for the assessment of the vessel, this assessment is carried out by the manufacturer only or by the manufacturer and the responsible notified body.</i>			
Why does this note only refer to the manufacturer or the manufacturer and the notified body for the final assessment?			
Referring to Annex III of Directive 2014/68/ EU, it is possible to establish the following summary table:			
<b>Category</b>	<b>Module</b>	<b>Entity in charge of the final assessment</b>	
I	A	Manufacturer	
II	A2	Manufacturer with monitoring of the notified body during unexpected visits	
II	D1	Manufacturer (with quality system monitoring by the notified body)	
II	E1	Manufacturer (with quality system monitoring by the notified body)	
III	D	Manufacturer (with quality system monitoring by the notified body)	
III	F	Notified body on samples taken during unexpected visits	
III	E	Manufacturer (with quality system monitoring by the notified body)	
III	C2	Notified body on samples taken during unexpected visits	
III	H	Manufacturer with monitoring of the notified body during unexpected visits	
III	H	Manufacturer (with quality system monitoring by the notified body)	
III	H	Notified body for one-off production of certain pressure equipment and on samples taken during unexpected visits	
IV	D	Manufacturer (with quality system monitoring by the notified body)	
IV	F	Notified body on samples taken during unexpected visits	
IV	F	Notified body	
IV	G	Notified body	
IV	H1	Manufacturer (with reinforced surveillance of the notified body during unexpected visits)	
IV	H1	Notified body on samples taken during unexpected visits	
Annex III of the PED confirms that there are 3 cases for the entity in charge of the final assessment depending on the selected module: Manufacturer, Manufacturer and Nobo, <u>Nobo</u> .			
<b>Proposed answer(s): *</b>			
According to Annex III of the PED, the note of point A.7.4 should be:			
<i>NOTE: Depending upon the module selected for the assessment of the vessel, this assessment is carried out only by the manufacturer or the responsible notified body, or by the manufacturer and the responsible notified body.</i>			



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

The comment is correct. The following modification will be done in EN 13445-1 edition 2019:  
NOTE Depending upon the module selected for the assessment of the vessel, this assessment is carried out by the manufacturer or by the responsible notified body (or user inspectorate) or by both of them.

**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](mailto:en13445@unm.fr)

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-02-07				<b>Date:</b> 2018-06-13	
<b>Please fulfil the following</b>					
Part: EN 13445-2	Issue: 2014/A2:2018	Page 4	Subclause 2	National Standard Reference --	
<b>Subject:</b>					
<b>Type of request:</b>					
<input type="checkbox"/> Technical clarification		<input checked="" type="checkbox"/> Editorial correction			
<input type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b>					
Company: Inspecta Tarkastus Oy .....			e-mail: juha.purje@inspecta.com .....		
Name: Juha Purje .....			phone: +358 50 52 51 180 .....		
Postal address PO Box 7, 00441 Helsinki, Finland....					
<input type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input checked="" type="checkbox"/> Other (please specify): Notified Body no 0424			
<b>Question/comment:</b>					
The modification to Clause 2, Normative references adds standard EN 764-4:2002 to the list of normative references.					
This is wrong because					
<ol style="list-style-type: none"> <li>1. Standard EN 764-4:2002 has been replaced by EN 764-4:2014 that is also a harmonised standard.</li> <li>2. Unlike EN 764-4:2014 the original EN 764-4:2002 doesn't say anything specific on particular material appraisal (PMA) and the note of EN 764-2:2002 clause 4.3 is wrong, the notified body doesn't perform the particular material appraisal.</li> <li>3. When the draft EN 13445-2:2014/prA6:2017 was distributed for comments in November 2017 the reference to EN 764-4 was undated.</li> </ol>					
<b>Proposed answer(s): *</b>					
The proper reference is EN 764-4:2014, Pressure equipment.- Part 4: Establishment of technical delivery conditions for metallic materials					
<b>Answer from the MHD</b> (to be filled by MHD):					
You are right, this correction is done in EN 13445-2 Issue 5 published 2018-08.					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-20				<b>Date:</b> 2017-07-30	
<b>Please fulfil the following</b>					
Part: EN 13445-	Issue: 2014	Page 115-116- 117-118	Subclause 9.6.3 and Figures 9.6-1 to 9.6-6	National Standard Reference	
<b>Subject:</b>					
<b>Type of request:</b>					
<input type="checkbox"/> Technical clarification		<input type="checkbox"/> Technical comment		<input type="checkbox"/> Editorial correction	
				<input type="checkbox"/> Translation correction	
<b>From :</b>			e-mail: lidonnici@sant-ambrogio.it .....		
Company: SANT'AMBROGIO Servizi Industriali SRL..			phone: +39 02 70603113		
Name: Fernando Lidonnici.....					
Postal address: piazza Carlo Donegani 8 20133 Milano (Italy) .....					
<input checked="" type="checkbox"/> Manufacturer		<input type="checkbox"/> User		<input type="checkbox"/> Other (please specify):	
<b>Question/comment:</b>					
<p>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 <math>a</math> 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, <math>a</math> 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 <math>a_1</math>, <math>a_2</math>, <math>a_1'</math>, <math>a_2'</math>, all of them derived from the definition of <math>a</math>. 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 <math>a_1</math> and <math>a_2</math>, which are taken starting from the nozzle OD instead of the nozzle ID: this leads to an undervaluation of the area <math>A_{f_{L_s}}</math> (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 <math>A_{fb_1}</math> and <math>A_{fb_2}</math>. 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 <math>A_{f_{L_s}}</math>, <math>A_{fb_1}</math> and <math>A_{fb_2}</math> 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 <math>a_1</math> and <math>a_1'</math> are correctly represented for nozzle 1, but this is not true for the corresponding values of nozzle 2, where <math>a_2</math> and <math>a_2'</math> should be limited by the nozzle ID, while dimension <math>kL_{s02}</math> should also start from the nozzle ID.</p>					
<b>Proposed answer(s): *</b>					
On page 116 modify the sentence before formula 9.6-8 as follows:					
a) in cases with $\phi = 0^\circ$ (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					
<b>Answer from the MHD</b> (to be filled by MHD):					
CEN/TC 54/WG 53 proposed to amend this subclause to take into account this proposed answer, a draft amendment is under process.					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-21				<b>Date:</b> 2017-09-06	
<b>Please fulfil the following</b>					
Part: EN 13445-3	Issue: 2014 (2017-7)	Page 90	Subclause 9.4.8	National Standard Reference --	
<b>Subject:</b>					
<b>Type of request:</b>					
<input checked="" type="checkbox"/> Technical clarification		<input type="checkbox"/> Editorial correction			
<input type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b>					
Company: Dovre Sertifisering AS .....			e-mail: racime@dovresertifisering.no .....		
Name: Racime van den Berg .....			phone: +4790165743 .....		
Postal address: Engelsminnegata 24 .....					
<input type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input checked="" type="checkbox"/> Other (please specify): Notified Body			
<b>Question/comment:</b>					
<p>The text in §9.4.8 is unclear. "...opening shall be either less than <math>dib/6</math> or greater than the value <math>l_n</math> given by: ..."</p> <p>This results in a large difference. Is this correct?</p> <p>This means that the weld must be closer than <math>dib/6</math> or must at more than the value given I formula 9.4-4.</p> <p>Less than <math>dib/6</math> means also that the weld always will lie inside the nozzle.</p> <p>Eks. 2" sch 40 nozzle on a shell (<math>D_i=1500</math> <math>e=35</math>).</p> <p><math>Dib/6 = 52,51 / 6 = 8,8\text{mm}</math></p> <p>While the other results in:</p> <p><math>l_n = \min(100,17\text{mm}; 70,165\text{mm})</math>.</p> <p>Is this correct, please explain.</p> <p><u>Proposed answer(s):</u> *</p> <p>Remove the <math>dib/6</math>.</p> <p>The distance between the centre line of a shell butt-weld (longitudinal or circumferential) and the centre of an opening shall be the value <math>l_n</math> given by:</p> $l_n = \min(0,5 deb + 2e_{a,s}; 0,5 deb + 40)$ <p style="text-align: center;">(9.4-4)</p>					
<b>Answer from the MHD</b> (to be filled by MHD):					
The standard is correct. The intention is to have a weld crossing a nozzle close to its centre and not to its periphery.					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-22				<b>Date:</b> 2017-10-26	
<b>Please fulfil the following</b>					
Part: EN 13445-3	Issue: 2014+A2:2016	Page 577	Subclause Table A.5 T19	National Standard Reference --	
<b>Subject:</b> Tubes to tubesheet weld T19 "not allowed"					
<b>Type of request:</b>					
<input checked="" type="checkbox"/> Technical clarification		<input type="checkbox"/> Editorial correction			
<input type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b>			e-mail : Hofwegen@bronswerk.com		
Company : Bronswerk Heat Transfer BV			phone : +31-33 2472 596		
Name : Robert Jan van Hofwegen					
Postal address : P.O. Box 92, 3860AB, Nijkerk, The Netherlands					
<input checked="" type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input type="checkbox"/> Other (please specify):			
<b>Question/comment:</b>					
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:					
<ul style="list-style-type: none"> <li>• 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.</li> <li>• with the use of specific testing groups.</li> <li>• for equipment where only a small loading on the tubes is calculated (10% of the tube strength)</li> </ul>					
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?					
<b>Proposed answer(s): *</b>					
Yes this joint may be used if the manufacturer is able to demonstrate that:					
<ul style="list-style-type: none"> <li>• 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)</li> <li>• a homogenous quality can be ensured by means of welding automation</li> <li>• NDE as per EN 13445-5 table 6.6.2-1 is applied.</li> </ul>					
<b>Answer from the MHD</b> (to be filled by MHD):					
The proposed answer is acceptable. Acc. to PED you can deviate from harmonized standard, if you demonstrate the adequate safety.					
In a new proposal, the the wording has been changed to "Generally, not allowed".					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-23				<b>Date:</b> 201X-xx-xx	
<b>Please fulfil the following</b>					
Part: EN 13445-3	Issue: 2014+A2	Page 291	Subclause 14.5.6.3.1	National Standard Reference --	
<b>Subject:</b>					
<b>Type of request:</b>					
<input checked="" type="checkbox"/> Technical clarification		<input type="checkbox"/> Editorial correction			
<input type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b>					
Company: Lloyd's Register Nederland BV .....			e-mail: theo.jobse@lr.org .....		
Name: Theo Jobse .....			phone: +31 6 51 86 84 81 .....		
Postal address: K.P. vd Mandelelaan 41a 3062 MB Rotterdam, The Netherlands .....					
<input type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input checked="" type="checkbox"/> Other (please specify): NOBO			
<b>Question/comment:</b>					
<p>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?</p> <p>Proposed answer(s): *</p>					
<b>Answer from the MHD</b> (to be filled by MHD):					
<p>Rules for ferritic steels shall be used for bellows mad from duplex steels. Fatigue rules of EN 13445-3 for austenitic bellows are based on tests for as formed austenitic bellows. The "as formed" means hydraulic expansion or equivalent heavy forming method. So single ply convolutions welded at outside crest and inside root are not "as formed" in the meaning of standard.</p>					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-24				<b>Date:</b> 201X-xx-xx	
<b>Please fulfil the following</b>					
Part: EN 13445-	Issue: 2015	Page	Subclause 13.5.2.1	National Standard Reference --	
<b>Subject:</b>					
<b>Type of request:</b>					
<input type="checkbox"/> Technical clarification		<input type="checkbox"/> Editorial correction			
<input checked="" type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b>					
Company: choeller-Bleckmann Nitec GmbH			e-mail: J.Brandstetter@christof-group.com		
Name: Johann Brandstetter			phone: +43 (2630) 319 - 4146		
Postal address: Hauptstrasse 2   2630 Ternitz   Austria					
<input type="checkbox"/> Manufacturer	<input checked="" type="checkbox"/> User	<input type="checkbox"/> Other (please specify):			
<b>Question/comment:</b>					
I have some questions regarding the design of the tubesheet acc. Chapter 13.5.2.1.					
<ul style="list-style-type: none"> <li>• <u>Is there a lower limit for <math>e_{a,p}</math> (remaining thickness)?</u></li> <li>• Equation (13.5.2-1) is valid for a ratio of outside diameter / inside diameter <math>&gt;1,2</math>. What should be done if the ratio is <math>&lt;1,2</math>?</li> <li>• If I have a selected thickness of 30mm – then <math>e_{a,p}=0,8 \times 30=24</math>mm. On the other hand I have to account a radius of 5mm on each side of the tubesheet. Therefore I get a thickness of <math>e - 2 \times R = 30\text{mm} - 2 \times 5\text{mm}=20</math>mm. 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)</li> </ul>					
Proposed answer(s):					
<b>Answer from the MHD</b> (to be filled by MHD):					
Equation (13.5.2-1) is valid only if the ratio outside/inside shell diameter is greater than 1,2, that is for very high shell thicknesses and consequently for high pressures. This limitation is not required when the a.m. ratio is lower than 1,2. The standard should be completed in the future with specific requirements also for this case. Meanwhile, it is reasonable to assume that if the minimum calculated tubesheet thickness in the center (where the holes are present) is verified also at the periphery (where no holes are present) the minimum thickness at the periphery is certainly acceptable.					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		





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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-25				<b>Date:</b> 2017-11-13	
<b>Please fulfil the following</b>					
Part: EN 13445-3	Issue: 2014	Page 52	Subclause 8.5.1	National Standard Reference --	
<b>Subject:</b> tolerance of circularity					
<b>Type of request:</b>					
<input checked="" type="checkbox"/> Technical clarification		<input type="checkbox"/> Editorial correction			
<input type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b>					
Company: FIVES NORDON .....			e-mail:patrick.forterre@fivesgroup.com .....		
Name: FORTERRE Patrick .....			phone: +33 (0)3 83 39 55 41 .....		
Postal address 78 avenue du XXème coprs 54000 NANCY FRANCE:.....					
<input checked="" type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input type="checkbox"/> Other (please specify):			
<b>Question/comment:</b>					
<p>We fabricate a "classical" pressure vessel according to EN13445 edition 2014. We are the manufacturer in sense of PED. This equipment is submitted to positive internal pressure and to vacuum. We have stated on our drawing a tolerance of circularity 0,5% R according to §8.5.1.1 and we have performed calculation according to 8.5.2 for the external pressure load. Everything is OK (sufficient thicknesses to withstand to internal and external pressure). After fabrication, we don't meet the tolerance of circularity 0,5%R. But we have excess thickness in the design and we apply the §8.5.1.2 to relax the tolerance. After using the §8.5.1.2, we get a new tolerance greater than the real measured circularity. So, for us, our equipment is in compliance with the standard EN13445.</p> <p>Nevertheless, our notify body request to check §8.5.1.2 <u>and in the same time</u> to check the criteria of §8.5.1.3 (+ annexes F and E). For us, it's not necessary. We have sufficient excess thickness to have a greater tolerance of circularity of 0,5%R according to §8.5.1.2. And we don't use §8.5.1.3. For us, the application of §8.5.1.3 is only applicable if we have not sufficient excess thickness on the equipment.</p> <p>Please could you give us your position concerning this topic: if §8.5.1.2 is validated, is it necessary to check §8.5.1.3?</p> <p><b>Proposed answer(s):</b> no.</p>					
<b>Answer from the MHD</b> (to be filled by MHD):					
<p>The answer is correct, however the interpretation of the standard is doubtful. For clarity the following sentence will be added on page 52 at the end of par.8.5.1.3. "Application of Annex F is not required when circularity tolerance complies with equation 8.5.1-1" to be updated in version 2018</p>					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-26				<b>Date:</b> 2017-11-14	
<b>Please fulfil the following</b>					
Part: EN 13445-3 :2014	Issue: 4 (2017-07)	Page 447	Subclause 17.6.1.1	National Standard Reference --	
<b>Subject:</b> error in reference					
<b>Type of request:</b>					
<input type="checkbox"/> Technical clarification		<input checked="" type="checkbox"/> Editorial correction			
<input type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b> Company: SIS Name: Pierre Carpentier Postal address: .....			e-mail: pierre.carpentier@sis.se phone: +.....		
<input type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input checked="" type="checkbox"/> Other (please specify): Standardization			
<b>Question/comment:</b>					
Replace " — $P_{max}$ is the maximum permissible pressure of the component or vessel part under consideration as defined in Clause 4, except for dished ends where a specific definition of $P_{max}$ applies (see NOTE 2 of Table 17-1);"					
Proposed answer(s): by					
" — $P_{max}$ is the maximum permissible pressure of the component or vessel part under consideration as defined in Clause 4, except for dished ends where a specific definition of $P_{max}$ applies (see NOTE 7 of Table 17-1);"					
<b>Answer from the MHD</b> (to be filled by MHD):					
The proposed answer is correct and will be updated in 2018 version					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-31				<b>Date:</b> 2018-05-18	
<b>Please fulfil the following</b>					
Part: EN 13445-3	Issue: 2014	Page	Subclause 11	National Standard Reference --	
<b>Subject:</b>					
<b>Type of request:</b>					
<input checked="" type="checkbox"/> Technical clarification		<input type="checkbox"/> Editorial correction			
<input type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b>					
Company: LORENZO SAMA' .....			e-mail: lor.sama1@gmail.com .....		
Name: .....			phone: +393493202666 .....		
Postal address: VIA SQUARANTO 26 37141 VERONA ITALY .....					
<input type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input checked="" type="checkbox"/> Other (please specify): DESIGNER			
<b>Question/comment:</b>					
<p><b>In a flanged joint with Oring sealing (see attached picture) I would like to have confirmation that, if EN 13445 Ed. 2014 Issue 3, Part 3, Clause 11 wants to be used, calculation shall be performed using additional requirements as per clause 11.10 "full face flange with metal to metal contact".</b></p> <p><b>Considering them, as per attached calculations in formulas appears Hr reaction that could void calculation made without them (see attached calculations in 2 cases).</b></p> <p><u>Proposed answer(s):</u> *</p> <p>For flange with O-ring sealing it is necessary to refer to clause 11.10 to provide calculations</p>					
<b>Answer from the MHD</b> (to be filled by MHD):					
The proposed answer is right. By more stiff flanges (thickness calculated without metal contact outside the bolt circle) the calculated bolt load may be smaller, but the standard is not dealing with that case. If in a joint using o-ring gasket, there is not metal contact outside of bolt circle, the method for narrow faced flanges shall be used.					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-31				<b>Date:</b> 2018-07-11	
<b>Please fulfil the following</b>					
Part: EN 13445-3	Issue: 2014	Page 115	Subclause 9.6.1	National Standard Reference --	
<b>Subject:</b>					
<b>Type of request:</b>					
<input type="checkbox"/> Technical clarification		<input checked="" type="checkbox"/> Editorial correction			
<input checked="" type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b>					
Company: Modine CIS Italy s.r.l. ....			e-mail: <a href="mailto:alessandro.filippo@modine.com">alessandro.filippo@modine.com</a> .....		
Name: Alessandro Filippo.....			phone: +39 0432 772001 .....		
Postal address: Via G. Locatelli 22 33050 Pocenia (UD) Italy.....					
<input checked="" type="checkbox"/> Manufacturer		<input type="checkbox"/> User		<input type="checkbox"/> Other (please specify):	
<b>Question/comment:</b>					
Accordinging clause 9.6.1 no ligament between nozzles shall be smaller than: $\max(3e_{a,s}; 0.2 \sqrt{(2r_b + e_{a,s})e_{a,s}})$					
The first term of equation 9.6-1 is based on analysis thickness $e_{a,s}$ , that depends on nominal thickness ( $e_{a,s} = e_n - \delta_e - c$ ), therefore on the adopted thickness. Adopted nominal thickness $e_n$ , and so analysis thickness $e_a$ , can be much greater than the minimum thickness required for the reinforcement of the openings, for example selecting a standard schedule pipe size even for low pressures. So the ligament has to be increased as a mere consequence of the selection of a thicker shell, for the same pressure.					
The ligament should be instead function of the assumed thickness $e_{c,s}$ (assumed thickness between the minimum required shell thickness $e$ and the shell analysis thickness $e_{a,s}$ ).					
<b>Proposed answer(s): *</b>					
No ligament between nozzles shall be smaller than:					
$\max(3e_{c,s}; 0.2 \sqrt{(2r_b + e_{c,s})e_{c,s}})$					
<b>Answer from the MHD</b> (to be filled by MHD):					
Yes, MHD working group agrees, and ask WG 53 to confirm this proposal					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-33		<b>Date:</b> 2018-09-11	
<b>Please fulfil the following</b>			
Part: EN 13445-	Issue: 4 2017 07	Page 162 Fig. 11-5-3	Subclause 11.4.1  National Standard Reference --
<b>Subject:</b>			
<b>Type of request:</b>			
<input type="checkbox"/> Technical clarification		<input type="checkbox"/> Editorial correction	
<input checked="" type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction	
<b>From :</b>			
Company: Cubotex Srl .....		e-mail: leonardo@presciuttini.it .....	
Name: Leonardo Presciuttini .....		phone: +39 338 2277124 .....	
Postal address: via Bergamo 11 20010 Pregnana Milanese .....			
<input checked="" type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input type="checkbox"/> Other (please specify):	
<b>Question/comment:</b> for slip-on flanges calculated with the integral method the parameter $g_0$ is defined on the figure referenced in the title. This definition appears inadequate for assessing the bending stress in the shell in a section immediately over the upper weld hub-shell.			
Proposed answer(s): *			
ASME VIII div.1 App.2 defines $g_0$ as equal to $t_n$ for slip-on without hub calculated as integral. It seems not giving a unique definition in case of hubbed flanges. The implementation of Compress (TM by Codeware) is to take $g_0$ as the small end of the hub when calculating the geometric parameters of the flange, and to take $g_0 = t_n$ when calculating the stresses.			
FEM calculations by ourselves proved that the calculation performed according to EN-13445 (with $g_0$ always in agreement with Fig. 11-5-3) is unsafe, and that the calculation according to Compress is fair			
<b>Answer from the MHD</b> (to be filled by MHD):			
Proposed answer is not in acc. with clause 11.5 of the standard:			
"NOTE 1 In the integral method account is taken of support from the shell and stresses in the shell are calculated, but in the loose method the flange is assumed to get no support from the shell and shell stresses are ignored."			
For more comprehensive calculation of stresses in shell, Annex G of standard, FEA or EN 1591-1 may be used.			
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>		EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>	

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-34				<b>Date:</b> 201X-09-11					
<b>Please fulfil the following</b>									
Part: EN 13445-	Issue: 2014 + A2 2016	Page 25-28	Subclause 6	National Standard Reference --					
<b>Subject:</b>									
<b>Type of request:</b>									
<input type="checkbox"/> Technical clarification		<input type="checkbox"/> Editorial correction							
<input checked="" type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction							
<b>From :</b>									
Company: Baker Hughes (Masoneilan products).....			e-mail: francois.mallet@bhge.com .....						
Name: François Mallet.....			phone: +332 33 59 57 84 .....						
Postal address: 3 rue Saint Pierre 14110 Condé sur Noireau .....									
<input checked="" type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input type="checkbox"/> Other (please specify):							
<b>Question/comment:</b>									
<p>In the case of a cast steel, the nominal design stress is always equal to: <math>f_d = \min (R_{p0.2t} / 1.9 ; R_{m/20} / 3)</math> where <math>R_{p0.2}</math> is used whatever kind of steel it is. In other product forms (bar, forging...), there is a difference between the yield strength used for austenitic steel (<math>R_{p1.0}</math>) and steel other than austenitic (<math>R_{p0.2}</math>).</p> <p><u>Proposed answer(s):</u> *</p> <p>In my opinion, there should be a difference for the case of an austenitic cast steel, as it is done for other product forms. As another example, the CODAP construction code and the Pressure Equipment Directive define <math>R_{p1.0}</math> as the yield strength to consider for austenitic steel, instead of <math>R_{p0.2}</math>.</p> <p>More precisely, I suggest this definition:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Austenitic cast steel:</td> <td><math>f_d = \min (R_{p1.0t} / 1.9 ; R_{m/20} / 3)</math></td> </tr> <tr> <td>Cast steel other than austenitic:</td> <td><math>f_d = \min (R_{p0.2t} / 1.9 ; R_{m/20} / 3)</math></td> </tr> </table>						Austenitic cast steel:	$f_d = \min (R_{p1.0t} / 1.9 ; R_{m/20} / 3)$	Cast steel other than austenitic:	$f_d = \min (R_{p0.2t} / 1.9 ; R_{m/20} / 3)$
Austenitic cast steel:	$f_d = \min (R_{p1.0t} / 1.9 ; R_{m/20} / 3)$								
Cast steel other than austenitic:	$f_d = \min (R_{p0.2t} / 1.9 ; R_{m/20} / 3)$								
<b>Answer from the MHD</b> (to be filled by MHD):									
<p>The proposed answer is reasonable, considering that in the EN standard provided by part 2 (EN 10213) for austenitic steel qualities both values (<math>R_{p1.0}</math> and <math>R_{p0.2}</math>) are present. WG53 is of the opinion that subclause 6 should be modified as in the proposal.</p>									
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>						

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-35				<b>Date:</b> 2018-10-10	
<b>Please fulfil the following</b>					
Part: EN 13445-	Issue: 2014	Page	Subclause 19, Annex C	National Standard Reference --	
<b>Subject:</b> Vessel subjected to creep loads and seismic loading					
<b>Type of request:</b>					
<input type="checkbox"/> Technical comment		<input checked="" type="checkbox"/> <b>Technical clarification</b>		<input type="checkbox"/> Editorial correction	
				<input type="checkbox"/> Translation correction	
<b>From :</b>					
Company: CETIM .....			e-mail: yves.simonet@cetim.fr		
Name: SIMONET .....			phone: +33 3 44 67 32 09		
Postal address : Senlis, 60300, France					
<input type="checkbox"/> Manufacturer		<input checked="" type="checkbox"/> <b>User</b>		<input type="checkbox"/> Other (please specify):	
<b>Question/comment:</b> 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)					
<b>Proposed answer(s):</b> *No. earthquake loading <i>must be verify using</i> time-independent properties calculated according to Annex S. Only gross plastic deformation and buckling must be checked.					
<b>Answer from the MHD</b> (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					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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



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

<b>Request reference number</b> (to be filled by MHD): (2014)-03-36				<b>Date:</b> 2018-11-12	
<b>Please fulfil the following</b>					
Part: EN 13445-3	Issue: 2014	Page 312	Subclause  14.9.2.2.1	National Standard Reference EN 13445-3:2014  Issue 5	
<b>Subject:</b> NDT convolutions					
<b>Type of request:</b>					
<input checked="" type="checkbox"/> Technical clarification		<input type="checkbox"/> Editorial correction			
<input type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b>					
Company: Kiwa Inspecta AB .....			e-mail: pasi.nieminen@kiwa.com .....		
Name: Pasi Nieminen .....			phone: +46 10 479 3044 .....		
Postal address: P.O.Box 30100 SE-10425 Stockholm					
<input type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input checked="" type="checkbox"/> Other (please specify): Notified Body			
<b>Question/comment:</b>					
<p>EN 13445-3 clause 14.9.2.2.1 state that:  <i>"Circumferential weld joints of convolutions shall be subjected to 100 % non-destructive examination in accordance with requirements of EN 13445-5:2014"</i></p> <p><b>Question:</b>            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?</p> <p><b>Proposed answer(s): *</b>            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</p>					
<b>Answer from the MHD</b> (to be filled by MHD):					
<p>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.</p>					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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





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

<b>Request reference number</b> (to be filled by MHD): (2014)-06-05				<b>Date:</b> 2017-11-14	
<b>Please fulfil the following</b>					
Part: EN 13445- 6:2014	Issue: 4 (2017-07)	Page 31	Subclause D.5.3	National Standard Reference --	
<b>Subject:</b> error in reference					
<b>Type of request:</b>					
<input type="checkbox"/> Technical clarification		<input checked="" type="checkbox"/> Editorial correction			
<input type="checkbox"/> Technical comment		<input type="checkbox"/> Translation correction			
<b>From :</b> Company: SIS Name: Pierre Carpentier Postal address: .....			e-mail: pierre.carpentier@sis.se phone: +.....		
<input type="checkbox"/> Manufacturer	<input type="checkbox"/> User	<input checked="" type="checkbox"/> Other (please specify): Standardization			
<b>Question/comment:</b>					
<u>Proposed answer(s):</u> Delete the first sentence "Any cast notch radius should be at least 1,5 times the adjacent minimum wall thickness in order to reduce the New D.5.4 and D.5.5."					
<b>Answer from the MHD</b> (to be filled by MHD):					
Proposed answer is correct, will be updated in 2018 version					
<b>To be sent to EN 13445 Maintenance Help Desk secretariat:</b>			EN 13445 MHD secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France e-mail: <a href="mailto:en13445@unm.fr">en13445@unm.fr</a>		

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