

CEN/TC 267/WG 8 (MHD) « *Maintenance of EN 13480 series* » MHD questions of 2025 on EN 13480 series

MHD questions N°	Date of MHD questions	Clauses	Type of MHD questions	MHD answers Doc. N°	Subsequent actions
1-001-2025	2025-04-30	Table 5.1-1	Editorial correction	N 126	to CEN/TC 267/WG 1 next EN 13480-1:2024/prA1
2-001-2025	2024-12-06	B.2.2.6	Technical clarification	N 126	answer to the questioner
2-002-2025	2025-04-05	Annex B	Technical clarification	N 126	answer to the questioner
3-001-2025	2025-04-25	6.6.4	Editorial correction	N 126	answer to the questioner
3-002-2025	2025-07-09	8.4.3	Technical clarification	N 126	answer to the questioner
3-003-2025	2025-07-11	9.3.2	Technical clarification	N 126	answer to the questioner
3-004-2025	2025-08-21	8.3.3	Technical clarification	N 126	answer to the questioner
3-005-2025	2025-10-13	Annex O	Technical clarification	N 126	to CEN/TC 267/WG 3 next EN 13480-3:2024/prA2
3-006-2025	2025-10-22	9.3.3	Technical clarification	N 126	answer to the questioner
4-001-2025	2025-07-02	Annex B	Technical clarification	N 126	to CEN/TC 267/WG 4 for EN 13480-4:2024/prA1
5-001-2025	2025-05-01	7.3.5	Technical clarification	N 126	answer to the questioner
5-002-2025	2025-06-18	9.3.2.2	Technical clarification	N 126	answer to the questioner
5-003-2025	2025-08-03	9.3.2.1.2	Technical clarification	N 126	to CEN/TC 267/WG 5 next EN 13480-5:2024/prA2
5-004-2025	2025-07-21	8.1.3/9.3.1	Technical clarification	N 126	answer to the questioner
5-005-2025	2025-08-26	8.4.4.3	Technical clarification	N 126	to CEN/TC 267/WG 4 for EN 13480-5:2024/prA1
5-006-2025	2025-11-13	8.4.2	Technical clarification	N 126	answer to the questioner



European Committee for Standardization Comité Européen de Normalisation

CEN/TC 267/WG 8 N 126

Europaïsches Komitee für Normung

6-001-2025	2025-04-30	A.3.4	Technical clarification	N 126	to CEN/TC 267/WG 1 next EN 13480-6:2024/prA1
6-002-2025	2025-04-30	6.1	Technical clarification	N 126	answer to the questioner



Request reference number (to be filled by MHD): 1-001-2025 Date: 2025-04-30							
Please fulfil the	following						
Part: EN 13480-1	Issue: 2024-12	Page 11		clause e 5.1.1	National Standard Reference DIN		
Subject:							
Type of request:		nical clarificati	on		Editorial correction		
	☐ Tech	nical comment	t		Translation correction		
From:	From:						
Company:Caliqua A	4G			e-mail:ro	land.dietller@caliqua.ch		
Name:Roland Dietle	er			phone: +	41613663510		
Postal address:Bruderholzstarsse 31, CH-4053 Basel.							
X Manufacturer	User	Jser Other (please specify):					
Question/commen	<u>ıt</u> :						
There is no Figure	A.1, A.2, A.3 A.4 ir	า this norm an	also no	t in the CE	EN/TR 13480-7:2017		
Proposed answer(s	<u>)</u> : *						
Add this figure to th	ie CEN/TR 13480-	7:2017 (Diagr	amm 6 t	to 9 in the	PED)		
Answer from the	Answer from the MHD (to be filled by MHD): 2025-11-19						
No nessecity to repeat the content of the PED 2014/68/EU. The corresponding column of Table 5.1-1 will need to be withdrawn. This modification to be carried out within the frame of the next Draft Amendment EN 13480-1:2024/prA1. Action to be taken by CEN/TC 267/WG 1.							
To be sent to EN 13480 Maintenance Group secretariat:				andardizati	aintenance Group secretariat c/o UNM ion Office on behalf of AFNOR s La Défense Cedex – France		

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



Request reference number (to be filled by MHD): 2-001-2025 Date: 2024-12-06							
Please fulfil the following							
Part: EN 13480-2	Issue: 2024	Page 28	Subclause B.2.2.6		National Standard Reference		
Subject:							
Type of request:	uest: ⊠ Technical clarification				Editorial correction		
☐ Technical comment				☐ Translation correction			
From:							
Company: CO2Nex	t			e-mail: jan-willem.rensman@fluor.com			
Name: Jan-Willem	Rensman			phone: +31 23 543 2164			
Postal address: Taurusavenue 155, 2132 LS, Hoofddorp, the Netherlands							
☐ Manufacturer	⊠ User	Other (please s	specify):			



Question/comment:

Consider a liquefied CO2 terminal with an operating temperature window between -50 °C and +50 °C at a design pressure of 240 barg. The foreseen piping material for a 16" pipe is P355NL2 steel in the as-welded condition, impact tested for 27J at -50 °C with an allowable stress of approx. 204 MPa. Design, construction, and testing meet the requirements of EN 13480.

Consider a case of rapid depressurization during which CO2 temperatures can reach -78.5 °C by evaporative cooling, following the vapor-liquid/solid equilibrium of the CO2 phase diagram, as dictated by physics. Approximate low temperature pressure/temperature combinations of the CO2 phase diagram equilibrium are:

T (°C)	P (barg)
-50	5.8
-55	4.5
-60	3.0
-65	1.8
-70	0.9
-75	0.3
-78.5	0.0

The membrane stresses due to internal pressure during depressurization at temperatures below -50 °C are determined not to exceed 240/5.8 = 2.5% of the allowable stress. Membrane stresses due to external pressure are nonexistent. Membrane stresses due to dead weight will not exceed 10% of the allowable stress. Total membrane stress due to pressure and dead weight combined will not exceed 50 MPa.

Q1: Can EN 13480-2, Method 1, Table B.2-12, be utilized for establishing that at a membrane stress below 50 MPa, a temperature adjustment T_A of +40 °C is appropriate for P355NL2 in AW condition.

Proposed answer:

A1: Yes.

Q2: At a membrane stress below 50 MPa, is a metal temperature T_M of -80 °C thus justified during depressurization for an impact test temperature of T_R = -50 °C for P355NL2 in AW condition, according to the formula T_R = T_M + T_A (per EN 13480-2, section 3.1.3).

Proposed answer:

A2: Yes.

Answer from the MHD (to be filled by MHD): 2025-11-19

Q1: Yes, Table B.2-12 of EN 13480-2:2024, Annex B, can be used for methods 1 and 2

Q2: This question is out of the scope of the Maintenance Working Group which shall not offer any consulting services

To be sent to EN 13480 Maintenance Group secretariat:

EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France

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



Request reference number (to be filled by MHD): 2-002-2025 Date: 2025-04-05							
Please fulfil the following							
Part: EN 13480-2	Issue: 2024	Page *	Subclause		National Standard Reference BS		
Subject : Clarification on Brittle Fracture Requirements in EN 13480-2							
<u>Type of request</u> : ☐ Editorial correction				Editorial correction			
☐ Technical comment				☐ Translation correction			
From:							
Company: Hyundai	Engineering			e-mail: jkyoungwon@hec.co.kr			
Name: Kyoungwon	Jung			phone: +			
Postal address: Seoul, South Korea							
☐ Manufacturer	⊠ User	Other (pleases	specify):			
		I					



Question/comment:

I would like to gain a better understanding of the EN standard approach regarding brittle fracture requirements as specified in EN 13480-2. As I understand it, for the use of materials at low temperatures where brittle fracture is a concern, Annex B of EN 13480-2 provides the relevant rules and guidance.

Annex B - Requirements for prevention of brittle fracture at low temperatures

Method 1: Use According to Code Practice

Based on my understanding, materials can be selected using the design reference temperature (TR) values provided in Tables B.2-1 to B.2-11.

For example,

the pipe EN 10216-2 – P265GH (1.0425) – TC2 may be used down to a design temperature of -20°C without any additional brittle fracture assessment.

Q1. Is my understanding above correct?

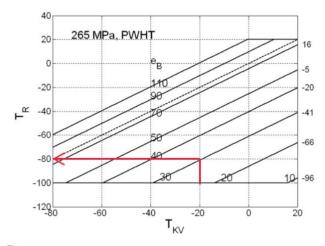
Method 2:

From my interpretation, Method 2 allows the use of materials based on a more detailed assessment. Below are two application scenarios for this method:

- * Given Condition 1
 - (1) Pipe: EN 10216-2 P265GH (1.0425) TC2, seamless (non-welded)
 - (2) Reference thickness (eB): 15 mm
 - (3) Design temperature: 46°C
 - (4) Minimum yield strength: 265 N/mm²
 - (5) Applicable curve: Figure B.2-1 (as per Table B.2.13)
 - (6) Required impact energy (KV) for full-size specimen (10 mm \times 10 mm): minimum 27 J
- **Q2**. Related to Given Condition1: If the impact test is performed at (TKV) 46°C and the test results exceed 27 J, is the pipe acceptable for use at the given design temperature of -46°C?
- * Given Condition 2
 - (1) Approach: Method 2
 - (2) Pipe: EN 10216-2 P265GH(1.0425) TC2, Non welded (Seamless)
 - (3) Reference thickness (eB): 30mm
 - (4) Material Impact test temperature: -20°C
 - (5) Impact test result: more than 27J
- **Q3.** With above given condition 2, the figure B.2-1 is applicable. According to the figure B.2-1, we can read TR value of -80°C at above given condition2. If the impact test had been conducted at -20 °C and test result was more than 27J, does it mean that the pipe can be used down to design temperature of -80°C according to figure B.2-1?







Key T_R design reference temperature T_{KV} material impact test temperature

Figure B.2-1 — METHOD 2: Design reference temperature and impact test temperature, post weld heat treated (PWHT) condition, for R₁ ≤ 265 N/mm² and KV≥ 27 J. Dashed line only to be used for KV = 40 J and for thickness from 75 mm up to and including 110 mm

Proposed answer(s): *

Q1: Yes, the material can be used down to the specified design reference temperature (T_R) listed in Tables B.2-2 to B.2-11, without requiring additional brittle fracture assessment.

Q2: Yes or No (I also expect CEN's guidance on the applicable section in EN 13480-2 for the assessment of material usage related to Condition 1).

Q3: Yes or No (I expect also CEN's guidance relevant to the corresponding case).

Answer from the MHD (to be filled by MHD): 2025-11-19

This question is out of the scope of the Maintenance Working Group which shall not offer any consulting services

To be sent to EN 13480 Maintenance Group secretariat:

EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France

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



Request reference number (to be filled by MHD): 3-001-2025 Date: 2025-04-05							
Please fulfil the	Please fulfil the following						
Part: EN 13480-3	Issue: 2024	Page 49		clause .6.4	National Standard Reference		
Subject:	Subject:						
Type of request:	☐ Technical clarification☐ Technical comment☐ Translation correction						
From: Company: CEA Name: Jorge MUÑOZ Postal address: CEA-Saclay, Gif-sur-Yvette e-mail: jorge-enrique.munoz-garcia@cea.fr phone: +							
Manufacturer	User Other (please specify):						
Question/comment: Tiny editorial correction concerning the edition year of 13445 standard, for the French edition only. Proposed answer(s): * 6.6.4 Brides non normalisées NOTE 2 L'algorithme donné dans l'EN 1591-1:2013 [4] ou l'EN 13445-3:202021 tient compte des charges générées sur les tronçons.							
Answer from the MHD (to be filled by MHD): 2025-11-19 Proposed answer by CEN/TC 267/WG 3 on 2025-09-22: Agreed, correction to the French version only on EN 13480-3:2024							
To be sent to EN 13480 Maintenance Group secretariat:			Sta	EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France			

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



Request reference number (to be filled by MHD): 3-002-2025 Date: 2025-07-09							
Please fulfil the following							
Part: EN 13480-3	Issue: 2017	Page 91			National Standard Reference		
Subject:							
Type of request:	Type of request: ☐ Technical clarification ☐ Editorial correction						
☐ Technical comment				☐ Translation correction			
From:							
Company:LM Engin	eering			e-mail:yhe@Imengineering.be			
Name:Yente Henry				phone:			
Postal address:Evolis 11 Kortrijk, Belgium							
☐ Manufacturer	⊠ User	Other (Other (please specify):				

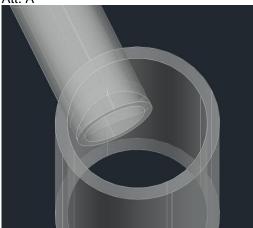


Question/comment:

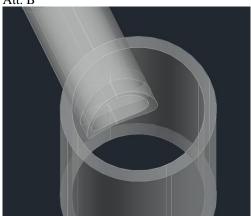
For set-through nozzles, in the longitudinal section for cylindrical and conical shells, a reinforcing length I'b is indicated (i.e. 8.4.3-1), and it is measured from the inside wall to the protruding edge. It is unclear however if this specific protrusion is required only at the longitudinal section (= branch pipe may be cut square, see attachment A) or if it has to persist along the intersection, as in attachment B. Since there's no clear normative explanation it has caused disagreements between fitters, designers and NoBo. Especially for lager di/Di ratios with a small I'b, the branch pipe's protruding edge intersects the internal shell wall when cut square, which means the reinforcement is only very local.

The lack of clarity is further complicated for non-radial branches in cylindrical shells (8.4.3 C refers to calculating the lateral section) and for oblique branches in spherical shells and dished ends, which also require calculation of the lateral section. 8.4.3-4 and 8.4.3-5 imply that the calculation had to be performed at 3 different points, as shown in attachment C, despite 8.4.3-5 showing a tapered protruding branch pipe that comes flush to the shell with no further explanation or calculation.

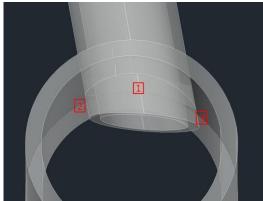




Att. B



Att.C



Proposed answer(s): *



Answer from the MHD (to be filled by MHD): 2025-11-19

Proposed answer by CEN/TC 267/WG 3 on 2025-09-22:

This aspect is already covered in EN 13480-3:2024, subclause 8.4.3 "Reinforced openings with $d_i/D_i < 0.8$ " (see Figure 8.4.3-4).

To be sent to EN 13480 Maintenance Group secretariat:

EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France

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



Request reference	e number (to be fi	lled by MHD):	3-003-20	<mark>025</mark>	<u>Date</u> : 2025-07-11			
Please fulfil the following								
Part: EN 13480-3	lssue: 2024	Page 105		clause 3.2	National Standard Reference			
Subject:								
Type of request:	☐ Tech	nical clarification	on		Editorial correction			
Technical clarifica	tion (and if neede	d Editorial corre	ection)					
From : Company: Worley Engineers								
	User							
Question/commer	Question/comment:							
1) Formula	a 9.3.2-3; where st	ands the symb	ol 'v' for	·?				
	a 9.3.2-3; is '(1-v²)' t the dividend wi		(When '\	√ value is	1, it creates a problem in the formula 9.3.2-3,			
Proposed answer(s): * 1) Is the correct description for 'v', "Weld efficiency"? if not for what els? 2) Must the '(1-v²)' become '(1-v/2)' like in formula 9.3.3-3?								
Answer from the	MHD (to be filled b	y MHD): <mark>2025</mark> -	-11-19					
Proposed answer by CEN/TC 267/WG 3 on 2025-09-22:								
1) This is Poisson's ratio (defined in Annex G of EN13480-3, in § G.2.5, and in Table 3.2.1 of EN13480-1).								
2) No subject; we won't divide by zero with steel.								
To be sent to EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France								

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



Request reference	e number (to be fil	led by MHD):	<mark>3-004-2</mark>	<mark>025</mark>	<u>Date</u> : 2025-08-21			
Please fulfil the following								
Part: EN 13480-3	Issue: 2017	Page 79		clause .3.3	National Standard Reference			
Subject: Weld of branch connection								
Type of request:	Type of request: Technical clarification Editorial correction							
	☐ Tech	nical commen	t		Translation correction			
From: Company: PRODEVAL								
☐ Manufacturer	⊠ User	1		pecify):				
Question/comment: Article 8.3.3 indicates that set-on or penetrating branch connection joined by sealing welds only shall not be considered as reinforcement and shall be calculated in accordance with 8.4.2. For reference, the French version says (I don't have the English edition): Les tubulures posées ou pénétrantes assemblées par soudure d'étanchéité uniquement ne doivent pas être considérées comme un renforcement et doivent être calculées conformément à 8.4.2. Article 8.4.2 provides an equation that must be satisfied so that a branch connection does not require reinforcement. 1) Does sealing welds mean all welds except full penetration welds? I.e. fillet weld or partial penetration weld 2) Does this article prohibit the use of partial penetration welding on branch connection that do not comply with the condition set out in Article 8.4.2? Proposed answer(s): * 1) Yes 2) Indicate that the reinforcement calculations in Article 8 are only valid for full penetration welds								
Answer from the M	Answer from the MHD (to be filled by MHD): 2025-11-19							
Proposed answer b								
1) No, fillet weld and partial penetration weld are acceptable where applicable in EN 13480 series and shall be designed accordingly.								
2) No.								
Note: A sealing we	ld is not a design e	element for a b	oranch c	onnection				



Request reference number (to be filled by MHD): 3-005-2025 Date: 2025-10-13							
Please fulfil the following							
Part: EN 13480-3	Issue: 2024	Page 310, 319	Subclause	National Standard Reference			
Subject:							
<u>Type of request</u> : ⊠ Technical clarification ⊠ Editorial correction							
☐ Technical comment ☐ Translation correction							
From:							
Company: K+S AG.			e-mail: n	e-mail: marcus.kolbe@k-plus-s.com			
Name: Marcus Kolb	e		phone: +	phone: +49 1525 6738049			
Postal address: B	ertha-von-Suttne	r-Straße 7					
34131 Kassel							
☐ Manufacturer	⊠ User	Other (please specify):				

Question/comment:

Technical Clarification/Correction:

Consistency Check Between Expressions for es, DIN EN 13480 -3: 2024-12, Page 310

Given Expressions and Relationships:

1. First expression for e_s:

$$e_s = \frac{1}{c} \cdot \frac{p_c \cdot D_m}{2 \cdot f \cdot z} \cdot \sin(\varphi_b)^{-\frac{2}{3}}$$

(O.3.2-2), DIN EN 13480 -3: 2024-12, Page 310

2. Second expression for e_s:

$$e_s = \frac{1}{c} \cdot \frac{p_c \cdot D_i}{2 \cdot f \cdot z - p_c} \cdot \sin(\varphi_b)^{-\frac{2}{3}}$$

(O.3.2 -1), DIN EN 13480 -3: 2024-12, Page 310

3. Geometric relationships:

$$D_m = \frac{D_o + D_i}{2}$$
 and $D_o = D_i + 2 \cdot e_s$

Step 1: Substitute D_m in the first Expression:

From $D_o = D_i + 2 \cdot e_s$ compute D_m

$$D_m = \frac{D_i + 2 \cdot e_s + D_i}{2} = D_i + e_s \tag{1}$$

Substitute (1) into the first expression:

$$e_s = \frac{1}{C} \cdot \frac{p_c \cdot (D_i + e_s)}{2 \cdot f \cdot z} \sin(\varphi_b)^{-\frac{2}{3}}$$

Step 2: Reformulate the First Expression

$$e_{s} c 2 f z \sin(\varphi_{b})^{\frac{3}{2}} = p_{c} (D_{i} + e_{s})$$

Multiply both sides by $2f \cdot z \cdot c \cdot \sin(\varphi_b)^{\frac{3}{2}}$, expand and rearrange the terms:

$$e_s = \frac{p_c \cdot D_i}{2 \cdot f \cdot z \cdot \sin(\varphi_b)^{-\frac{2}{3}} - p_c}$$

Step 3: Compare with the Second Expression (O.3.2 -1), DIN EN 13480 -3: 2024-12, Page 310

The second expression is:

$$e_{s} = \frac{1}{c} \frac{p_{c} \cdot D_{i}}{2 \cdot f \cdot z - p_{c}} \cdot \sin(\varphi_{b})^{-\frac{3}{2}} = \frac{p_{c} \cdot D_{i}}{c \cdot (2 \cdot f \cdot z - p_{c}) \cdot \sin(\varphi_{b})^{\frac{3}{2}}}$$

The first Expression for
$$e_s$$
 is:
$$e_s = \frac{p_c \cdot D_i}{c \cdot 2 \cdot f \cdot z \cdot \sin(\varphi_b)^{\frac{3}{2}} - p_c}$$

For consistency, the denominators of both expressions for e_s must be equivalent:

2.
$$f \cdot z c \sin(\varphi_b)^{\frac{3}{2}} - p_c = c (2 \cdot f \cdot z - p_c) \cdot \sin(\varphi_b)^{\frac{3}{2}}$$

Expand the right-hand side and substitude into the equation:

2
$$f \cdot z c \sin(\varphi_b)^{\frac{3}{2}} - p_c = 2 f \cdot z c \sin(\varphi_b)^{\frac{3}{2}} - c p_c \cdot \sin(\varphi_b)^{\frac{3}{2}}$$

Conclusion:

The two expressions for e_s are not consistent, thus:

the Equations O.3.2-2, O.3.2-3 and O.3.2-1 do not deliver the same result for p_c by given Values for e_s and e_b

Example:

mm	N/mm²	Dm/es	21
Di 200	f 156,7	eb/es	0,5
di 100	=235,05/1,5		
Do 220		dm/Dm	0,5
do 110			
mm			
Dm 210			
dm 105			

	mm	c = min [(Ax2 + Bx + C); 1]	5 [Dm/es	\boldsymbol{A}	В	C	
e as	10	c = 0,618392		20	1,5686	-1,8785	1,1708	
e ab	5			21	1,5792	-1,8980	1,1726	
				40	1,7802	-2,2684	1,2067	

In Table O.3.2-1 there are no given Values for Dm/es = 21. It is not clear how it should be dealt with in such cases.

The Standard m u s t be clear whether it should be used the next given Value (in this case this would be the Value for Dm/es = 20) or the Values for A, B and C interpolated to match Dm/es = 21.

The same problem is, when e_b/e_s does not match the given ranges in picture 0.3.2-1 to 0 3.2-6 (0,2; 0,5; 0,8; 1,0; 1,2; 1,5)

For instance, when e_b/e_s is 0,35 , which Value should be used? 0,2 or 0,5? A Standard m u s t be clear in such cases or provide the means to calculate the Values within.

In this example

$$f(x) = f_0 + rac{f_1 - f_0}{x_1 - x_0} \left(x - x_0
ight) = f_0 rac{x_1 - x}{x_1 - x_0} + f_1 rac{x - x_0}{x_1 - x_0} \, .$$

for linear Interpolation has been used to calculate the Values A, B and C for Dm/es = 21 in between the given Values for 20 and 40.

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$$e_{s} = \frac{1}{c} \frac{p_{c} \cdot D i}{2 \cdot f \cdot z - p_{c}} \cdot \sin(\varphi_{b})^{-\frac{3}{2}}$$

$$e_{b} = \frac{1}{c} \frac{p_{c} \cdot d i}{2 \cdot f \cdot z - p_{c}} \cdot \sin(\varphi_{b})^{-\frac{3}{2}}$$

$$p_{c} = \frac{2 \cdot f \cdot z}{D_{i}}$$

$$e_{b} = \frac{1}{c} \frac{p_{c} \cdot d i}{2 \cdot f \cdot z - p_{c}} \cdot \sin(\varphi_{b})^{-\frac{3}{2}}$$

$$p_{c} = \frac{2 \cdot f \cdot z}{d_{i}}$$

$$e_{b} \cdot c \cdot \sin(\varphi_{b})^{\frac{3}{2}} + 1$$

$$e_{b} \cdot c \cdot \sin(\varphi_{b})^{\frac{3}{2}}$$

$$p_{c} = 9,399579$$

$$p_{c} = 9,399579$$

The Calculation-formula which contains Di and di deliver the same result.

$$e_{s} = \frac{1}{c} \frac{p_{c} \cdot D_{m}}{2 \cdot f} \cdot \sin(\varphi_{b})^{-\frac{3}{2}} \qquad e_{b} = \frac{1}{c} \frac{p_{c} \cdot d_{m}}{2 \cdot f} \cdot \sin(\varphi_{b})^{-\frac{3}{2}}$$

$$p_{c} = \frac{2 \cdot c \cdot e_{s} \cdot f \cdot z \cdot \sin(\varphi_{b})^{\frac{3}{2}}}{D_{m}} \qquad p_{c} = \frac{2 \cdot c \cdot e_{b} \cdot f \cdot z \cdot \sin(\varphi_{b})^{\frac{3}{2}}}{d_{m}}$$

$$p_{c} = 9,228771 \qquad p_{c} = 9,228771$$

The Calculation-formula which contains D_m and d_m deliver the same result, but different from the results for D_i and d_i .

$$e_{s} = \frac{1}{c} \frac{p_{c} \cdot D \cdot o}{2 \cdot f \cdot z + p_{c}} \cdot \sin (\varphi_{b})^{-\frac{3}{2}}$$

$$e_{b} = \frac{1}{c} \frac{p_{c} \cdot d_{m}}{2 \cdot f} \cdot \sin (\varphi_{b})^{-\frac{3}{2}}$$

$$p_{c} = \frac{2 \cdot f \cdot z}{\frac{D_{o}}{e_{s} \cdot c} \cdot \sin (\varphi_{b})^{\frac{3}{2}}} - 1$$

$$p_{c} = \frac{2 \cdot c \cdot e_{b} \cdot f \cdot z \cdot \sin (\varphi_{b})^{\frac{3}{2}}}{d_{m}}$$

$$p_{c} = 9,06406169$$

$$p_{c} = 8,5684342$$

The results for p_c which contain D_0 and d_0 do not match at all. Neither among each other nor with the results listed above.

The result for p_c should be the range $p_c = 8,1$ N/mm² calculated with formula 8.4.3-1, for attached nozzle

$$\begin{aligned} p_c \cdot A_p &\leq \left(f_b - \frac{p_c}{2}\right) \cdot A_{fb} + \left(f_s - \frac{p_c}{2}\right) \cdot A_{fs} \\ p_c &= \frac{f_b \cdot A_{fb} + f_s \cdot A_{fs}}{A_p + \frac{1}{2}\left(A_{fb} + A_{fs}\right)} \end{aligned} \qquad A_p = \left(l_s + e_{ab} + \frac{d_i}{2}\right) \cdot \left(l_b + e_{as} + \frac{D_i}{2}\right) - \left(l_s + e_{ab}\right) \cdot \left(l_b + e_{as}\right) \\ A_{fb} &= l_b \cdot e_{ab} \quad A_{fs} = \left(l_s + e_{ab}\right) \cdot e_{as} \end{aligned}$$

The result $p_c = 8.1 \text{ N/mm}^2$ has been checked with the result from the Book "Walter Wagner, Festigkeitsberechnungen im Apparatebau" ISBN:978-3-8343-3527-2, which uses a similar approach. The values for e_b , e_s , f and the Diameters have been adopted.



Proposed answer(s): *

- 1. Suspend Amendment O until errors are solved!
- 2. Clarify how missing values for e_b/e_s; D_m/e_s must be calculated, or which values must be used, in case the needed value for e_b/e_s and D_m/e_s is missing.

Answer from the MHD (to be filled by MHD): 2025-11-19

CEN/TC 267/WG 3 answer on 2025-11-18

- 1. Annex O is linked to ESR 2.2.3 of the PED (see Table ZA.1 of EN 13480-3:2024), no suspension of this Annex. This topic will be further studied and clarified by experts of CEN/TC 267/WG 3. Subject to be considered for the subsequent draft amendment prA2. In the meantime take the most conservative result of the possibilities given in any situation.
- 2. This topic will be further studied and clarified by experts of CEN/TC 267/WG 3. Subject to be considered for the subsequent draft amendment prA2.

To be sent to EN 13480 Maintenance Group secretariat:

EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France

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



Request reference number (to be filled by MHD): 3-006-2025 Date: 2025-10-22									
Please fulfil the following									
Part: EN 13480-3		Issue: 2024	Page 105	-		National Standard Reference			
Subject: The de	Subject: The definition of k and pr are missing; Values for Δr								
Type of reques	:	⊠ Tech	nical clarificat	ion		Editorial correction			
		☐ Tech	nical commen	ıt		Translation correction			
From:									
Company: TÜV	NOF	RD Systems Gmb	oH & Co. KG		e-mail: h	ankoenig@tuev-nord.de			
Name: Hans-Jü	gen	König			phone: +	49 201 825 2560			
Postal address:	Αm	TUEV 1, 45307 I	Essen, Germa	ny.					
☐ Manufacture		⊠ User	Other ((please s	specify):				
Question/comr	ent	<u>t</u> :							
a) The	lefir	nition of k is miss	ing for formula	ı (9.3.3-2	2) and (9.3	3.3-4)			
b) The	orm	ula for pr is miss	ing. pr is listed	d in sym	bol list Ta	ble 9.2.1-1			
c) How	to ge	et values for Δr ?	subclause 9.3.2	c)3					
Proposed answ	r(s)	. *							
a) k = 1	,5 a	ccording in EN 1	3480+3: Issue	2017. 5	Subclause	9.3.2 d)			
b) prad	cor	ding in EN 13480	+3: Issue 201	7. Subcl	ause 9.3.2	2 c) +d) incl. Table 9.3.2-1			
,			*			tolerance of d (inside diameter)]/2			
Toler	nce	values for exampl	e according to t	able 7 an	d 8 of EN	10216-2:2013+A1:2019			



Answer from the MHD (to be filled by MHD): 2025-11-19

CEN/TC 267/WG 3 answer on 2025-11-18

- a) yes $\mathbf{k} = \mathbf{ky} = 1.5$ (\mathbf{k} will be changed to \mathbf{ky} in the current Draft amendment EN 13480-3:2024/prA1).
- b) pr has been removed from subclause 9.3. It is still used in subclause 9.5.
- c) Δr is the maximum deviation from mean radius (in mm) and this will be clarified in the upcoming Draft amendment EN 13480-3:2024/prA1 for CEN Enquiry, as indicated here after:

In 9.3.2, the first sentence of indent c) shall read as follows:

"c) Determine the onset of plastic deformation using the given external pressure and the radius tolerance $\frac{\Delta r}{R_{\text{mean}}}$ of the manufacturing specification (e.g. $\frac{\Delta r}{R_{\text{mean}}} = \frac{u}{2}$ using the out-of-roundness as specified

in EN 13480-4:2024, Equation (7.4.1-1)):"

And in the whole Clause 9, $R_{\rm m}$ shall be replaced by $R_{\rm mean}$ everywhere it is specified.

To be sent to EN 13480 Maintenance Group secretariat:

EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France

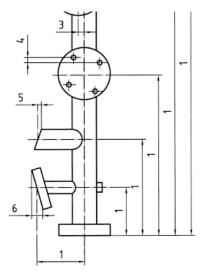
^{*} Please note that question with proposed answers will be dealt with as priority.



Request reference number (to be filled by MHD): 4-001-2025 Date: 2025-07-02										
Please fulfil the following										
Part: EN 13480-4	Issue: 2017	Page 42+43	Subclause Annex B	National Standard Reference						
Subject: Pipe Flange Rotation Tolerance										
Type of request:	Type of request: ☐ Editorial correction									
☐ Technical comment ☐ Translation correction										
From:										
Company: Equans			e-mail: cl	e-mail: claire.glanville@equans.com						
Name: Claire Glanv	ville		phone: +	phone: +						
Postal address: Equinox North, Great Park Road, Bradley Stoke, Bristol, BS32 4QL										
☐ Manufacturer ☐ User ☐ User ☐ User ☐ User ☐ User ☐ User ☐ ☐ User ☐ ☐ User ☐ ☐ User ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐										

Question/comment:

The flange in the schematic for piping spools has 4 bolt holes. For a flange with >4 bolt holes the standard does not state explicitly which bolt holes the rotational tolerance measurement applies.



Key

Dimension No 1: face-to-face dimensions; centre-to-face dimensions; location of attachments; centre-to-centre dimensions.

Dimension No 2: out-of-roundness of bends.

Dimension No 3: lateral translation of branches or connections.

Dimension No 4: rotation of flanges, from the indicated position, measured as shown.

Dimension No 5: bevels on butt weld or plain ends – state diameter to which bevel applies.

Out-of-alignment of flanges from the indicated position, measured across the full gasket face diameter.

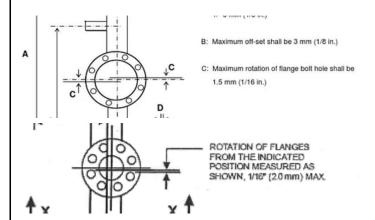
Figure B.1 — Dimensional details of spools

The tolerance is strictest when applied to the bolt holes closest to the centreline. Please confirm if this is where the tolerance applies or if it applies to the top two bolt holes only?

Proposed answer(s): *

The tolerance should be applied to the two bolt holes closest to the centreline.

This aligns the EN13480-4 standard with ASME B31.3 and PFI ES-3 Standards where the tolerance is specified at the centreline.



The schematic will be updated to show a flange with >4 bolt holes so there is no ambiguity.



Answer from the MHD (to be filled by MHD): 2025-11-19

Yes, the tolerance should be applied to the two bolt holes closest to the centreline. The Annex B of EN 13480-4:2025 will be revised based on Figure 8.3.1-1. This modification needs to be carried out through the on-going Draft Amendment EN 13480-4:2024/prA1 under CEN Enquiry.

To be sent to EN 13480 Maintenance Group secretariat:

EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France

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



Request reference number (to be filled by MHD): 5-001-2025 Date: 2025-05-01										
Please fulfil the following										
Part: EN 13480-5	Issue: 2017	Page 13	Subclause 7.3.5	National Standard Reference						
Subject: Inspection	of built up pipe end	S								
Type of request:	<u> </u>	nical clarification	n 🗆	Editorial correction Translation correction						
From: Company: Kiwa Sweden AB Name: Adam Sobota Postal address:			phone: -	e-mail: adam.sobota@kiwa.comphone: +46702327138						
☐ Manufacturer	User		ease specify): dy 0409							
technical reason for and none of them h	What does "Built up pipe ends mean"? Can you give an example? Is a cap a built up pipe end? And what is the technical reason for 100% NDT. I have asked Kiwa's Lead Design Review Engineer and several manufacturers and none of them have been able to give a good answer. Proposed answer(s): *									
Answer from the M			1-19							
Pipe ends may have to be built up by welding in some cases. The most common being that the pipe cannot be fitted with a root gap in accordance with the welding procedure. When the root gap is too large this may be rectified by adding weld metal to the end of the pipe, building a sufficient thick layer of weld to obtain a weld preparation and root gap to suit the welding procedure. Occasionally the end of a pipe may be built up by adding a corrosion resisting alloy, either to simplify the welding of carbon or clad pipe to a corrosion resisting pipe. This weld may, or may not, then be heat treated as required by the base material. This is more common on equipment nozzles when joining to corrosion resisting piping. Such welds shall be inspected in accordance with 7.3.5.										
To be sent to EN 13480 Maintenance Group secretariat c/o UNM secretariat: EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France										

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



Request reference number (to be filled by MHD): 5-002-2025 Date: 2025-06-18									
Please fulfil the following									
Part: EN 13480-5	lssue: 2024	Page -	3		Subclause 9.3.2.2		National Standard Reference		
Subject: Inspection of built up pipe ends									
Type of request:	⊠Tech	nical clarificati	on		Editorial correction				
	☐ Tech	nical commen	t		Translation correction				
From: Company: Standards Norway Name: Ståle Prehn-Sletten					spr@standard.no 47 408 62 614				
Manufacturer	User	— `	☐ Other (please specify): Standardization Body						

Question/comment:

I have received a question regarding EN 13480-5 Clause 9.3.2.2 from one of our Norwegian Mirror Committee members. Could you please fromward this to the relevant WG? Question below.

Unclear definition of PS and what it relates to.

9.3.2.2.1

The test pressure shall be not less than the greater of the two values determined by the following:

$$P_{\rm t} = 1,25 \cdot PS \cdot \frac{f_{\rm test}}{f}$$
 (9.3.2-1)

or

$$P_{\rm t} = 1.43 \cdot PS \ (9.3.2-2)$$

where

f	is the nominal design stress for design conditions at design temperature, in MPa (N/mm 2) (but limited to time-independent values, see paragraph before NOTE 1);					
f_{test}	is the nominal design stress for design conditions at test temperature, in MPa (N/mm²);					
PS	is the maximum allowable pressure, in bar;					
P_{t}	is the test pressure, in bar.					

Are there any further works where the definition of PS is discussed (preparatory works or similar)?

The reason I ask is that among several of our suppliers and customers, conflicting claims are emerging:

- 1. PS must mean the maximum pressure allowed by the safety valve, e.g., 8 bar in a PN16 piping system.
- 2. PS must mean the design pressure in the system, i.e., 16 bar in a PN16 piping system.
- 3. PS must mean the pressure class of the component in the piping system with the highest pressure rating, regardless of the pipe's pressure class. For example, a component approved up to 25 bar in a 16 bar piping system.

As you can see, there are at least three different scenarios that could be argued for as the meaning of PS, and all would result in different test pressures (PT), respectively PT = 8 bar x 1.43, PT = 16 bar x 1.43, or PT = 25 bar x 1.43.

Proposed answer(s): *

Answer from the MHD (to be filled by MHD): 2025-11-19

PS follows the definition of the PED and refers to the safety valves. EN 13480-1 refers to EN 764-1. PS is defined in EN 764-1, 3.2.87.

The PN of the standard flange is a different value. The piping may have different (higher) pressures at certain places of the routing (e.g. PS plus pressure produced by liquid weight at the bottom of a vertical routed piping).



Request reference number (to be filled by MHD): 5-003-2025 Date: 2025-08-03									
Please fulfil the following									
Part: EN 13480-5	Issue: 2024	Page 20	Subclaus 9.3.2.1.2		National Standard Reference				
Subject: clarification/more information on requirement									
Type of request:	Type of request: ☐ Editorial correction								
	☐ Technical comment ☐ Translation correction								
From: Company: LRQA e-mail: Chandrakant Ghude phone: +971-588246704 phone: +971-5882467									
☐ Manufacturer	User	⊠ Other (olease specif Working o	•	f of user as TPI				
Question/commen	<u>t</u> :								
					sed for examination during pressure				
testing, except that	joints and tubes p	reviously teste	ed in accorda	ice with	this standard can be insulated				
or covered. A prime	er for corrosion p	protection sha	all be permit	ed, pro	ovided, it does not prevent the clear				
examination of the	e joint under test								
No requirement for	limitation of coatir	ng thickness st	ated anywhe	e.					
Proposed answer(s	<u>)</u> : *								
1.0 Weld joints can 2.0 Complete length	•				answer 1.				
Answer from the M	IHD (to be filled b	y MHD): <mark>2025</mark> -	-11-19						
Q1 : In EN 13480-5 there is no requirement regarding corrosion protection thickness allowed prior to testing and final inspection. Q2 : Yes, complete length of pipe can be top coated except weld which as per answer Q1.									
Technical question study in a next subs			ean working (roups C	CEN/TC 267/WG 4 and WG 5 for further				
To be sent to EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France									



Request reference number (to be filled by MHD): 5-004-2025 Date: 2025-07-21									
Please fulfil the following									
Part: EN 13480-5	Issue: 2017	Page 15&20	Subclause 8.1.3 & 9.3.1		National Standard Reference				
<u>Subject</u> : NDT penalties on proof tested sections of piping lines.									
Type of request:	⊠ Tech	nical clarificati	on		Editorial correction				
☐ Technical comment ☐ Translation correction									
From:									
Company: Entrepos	se Contracting			e-mail: sebastien.vicens@entrepose.com					
Name: Sébastien V	ICENS			phone: +33 6 33 74 36 37					
Postal address: Bâtiment Java – 1973, boulevard de la Défense – CS 10268 – 92757 Nanterre Cedex									
Manufacturer									
Question/comment:									

According to EN 13480-5, clause 8.1.3(e), if any of the two additional welds examined reveal unacceptable imperfections, all welds in the batch represented by the sample inspection shall be examined. On our project, sections of piping lines are progressively constructed and proof tested.

If, during subsequent construction on a different part of the same line within the same batch (same welder and WPS on the same line number), a defect is found that triggers clause 8.1.3(e), does this require re-examination (100% NDT) of previously accepted and proof-tested piping lines?

Context:

- The piping lines are long and constructed in stages, meaning there can be months between one section of a line being finalized and another being built.
- Each part of a piping line is proof tested as construction progresses.
- Clause 9.3.1 of EN 13480-5 states that all piping shall be subjected to a proof test to demonstrate the integrity of the finished product.
- Clause 8.1.3(e) does not explicitly address whether previously accepted and proof-tested sections of piping lines are exempt from further NDT if another section in the same batch triggers full inspection.

We seek confirmation that once a section of a piping line has been proof tested and accepted, it is considered as a final product and not subject to further NDT even if clause 8.1.3(e) is triggered later in the project on a different section of the line.

Proposed answer(s): *

Once a part of a line has been accepted and proof tested, it is considered finalized. Subsequent NDT findings on other parts of lines do not retroactively affect the acceptance status of previously tested and accepted line sections.

Answer from the MHD (to be filled by MHD): 2025-11-19

CEN/TC 267/WG 5 answer on 2025-11-18

The sample size is established by the manufacturer. It determines the number of re-examinations of all welds within this sample in the event of unacceptable defects as per section 8.1.3 e) of EN 13480-5. A sample may include welds that have already been pressure tested.



Request reference number (to be filled by MHD): 5-005-2024 Date: 2025-08-26									
Please fulfil the following									
Part: EN 13480-5	Issue: 2017	Page 18		clause 4.4.3	National Standard Reference				
Subject: Volumetri	Subject: Volumetric NDT methods – PAUT on thin wall thicknesses.								
Type of request:	⊠ Tech	nical clarification	n		Editorial correction				
	☐ Tech	nical comment			Translation correction				
From: Company: Entrepose Contracting Name: Sébastien VICENS Postal address: Bâtiment Java – 1973, boulevard de la Défense – CS 10268 – 92757 Nanterre Cedex				e-mail: sebastien.vicens@entrepose.com phone: +33 6 33 74 36 37					
Manufacturer	User	Other (p	lease s	specify):					
Question/comment: According to EN 13480-5 clause 8.4.4.3, methods of volumetric NDT shall be selected according to EN ISO 17635:2016, Table 3. EN ISO 17635:2016 does not include a reference to ISO 20601 for phased array examination of wall thicknesses between 3.2 and 8.0 mm. As per ISO 17635:2016, phased array examination can only be performed in accordance with ISO 13588, meaning from 6mm onwards. This limitation significantly reduces the scope of PA examination that can be carried out on industrial plants. ISO 17635:2025 includes a new table (A.10) referencing ISO 20601. Proposed answer(s): * Clause 8.4.4.3 will be updated to in the next revision to refer to ISO 17635: 2025 and allow the use of both Tables A.9 and A.10.									
Answer from the MHD (to be filled by MHD): 2025-11-19 Proposal of answer from CEN/TC 267/WG 5 Convenor is to revise subclause 8.4.4.3 "Volumetric testing" of EN 13480-5:2024 within the frame of the current drafting of the draft amendment prA1 (WI 00267098), as follows: "Testing techniques shall be in accordance to EN ISO 17635:2025, Tables A.5 (RT-F), A.6 (RT-D), (RT-CR) or (DDA), A.7 (UT), A.8 (TOFD) and A.9 and A.10 (both PA-UT)." To be sent to EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR F 92038 Paris La Défense Cedex – France									

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



Request reference number (to be filled by MHD): 5-006-2025 Date: 2025-11-13								
Please fulfil the following								
Part: EN 13480-5	Issue: 2024	Page	Page Subo		National Standard Reference 			
Subject: application	n of annex B of EN I	SO 5817:2023	3 or not	t to be cor	mpliant with §8.4.2 EN13480-5:2024			
Type of request:	⊠ Technic	cal clarificatio	n		Editorial correction			
	☐ Technic	cal comment			Translation correction			
From: Company: FIVES NORDON Name: Patrick FORTERRE Postal address: FRANCE				e-mail: patrick.forterre@fivesgroup.com phone:				
☐ Manufacturer	⊠ User	Other (pl	lease s	specify):				
Question/comment: According to §8.4.2 EN13480-5:2024, for piping in fatigue conditions, the quality level according to EN ISO 5817:2023 is B for surface imperfections and imperfections in joint geometry. When we have to perform a calculation for fatigue because piping is subjected to fatigue, is the informative annex B of the EN ISO 5817:2023 mandatory to be taken into account? In the table 8.4.2.1 of EN13480-5, it goes from quality level C to B because of fatigue but there is no information concerning annex B EN ISO 5817:2023. If this annex B is applicable, what do you have to use: B90 or B125? Proposed answer(s):								
Answer from the MHD (to be filled by MHD): 2025-11-19 CEN/TC 267/WG 5 answer on 2025-11-18								
secretariat: Standardiza					aintenance Group secretariat c/o UNM ion Office on behalf of AFNOR is La Défense Cedex – France			

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



Request reference number (to be filled by MHD): 6-001-2025 Date: 2025-04-30										
Please fulfil the	Please fulfil the following									
Part: EN 13480- 6 :2024	Issue: 2024	Page 28-30	-		National Standard Reference					
Subject:										
Type of request:	st:									
	Tech	nical comment			Translation correction					
From:										
Company: Linden E	Ingineering GmbH			_	erd.nobleaux@linde.com					
Name: Nobleaux, G				phone: +	49351 250 3220					
_	Postal address: Bodenbacher Str. 80, 01277 Dresden, Germany									
Manufacturer	⊠ User	Other (p	lease s	specify):						
In Chapter A.3.4 "D stresses is describe	Question/comment: In Chapter A.3.4 "Determination of the moments acting upon the piping" the determination of the moments and stresses is described. Unfortunately, the description is incomplete or incomprehensible to the user. Can you									
please create a sar	nple calculation in	which the calc	ulation	steps are	shown in full?					
Proposed answer(s	Proposed answer(s): *									
Answer from the M	MHD (to be filled b	y MHD): <mark>2025</mark> -	11-19							
This question is out of the scope of the Maintenance Working Group. Nevertheless, the Annex A of EN 13480-6:2024 will be revised within the frame of the next Draft Amendment EN 13480-6:2024/prA1. Action will be carried out by the European working group CEN/TC 267/WG 1 (supported by WG 3).										
To be sent to EN 13480 Maintenance Group secretariat:				N 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR 92038 Paris La Défense Cedex – France						

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



Request reference number (to be filled by MHD): 6-002-2025 Date: 2025-04-30									
Please fulfil the following									
Part: EN 13480-6	Issue: 2024-12	Page 7		clause 6.1	National Standard Reference DIN				
Subject:	Subject:								
Type of request:	xTechnic	al clarification	1	□ Ed	ditorial correction				
	☐ Techi	nical comment	t		Translation correction				
From: Company:Caliqua AG									
X Manufacturer	User	Other (please s	specify):					
Question/commen	<u>t</u> :	•							
unterschreiten, auß	er wenn die Berec e must not be less	hnungen zur [Druckau	ıslegung e	in Tabelle 1 angegebenen Wert nicht ine größere Wanddicke ergeben.(The wall le 1, unless the pressure design calculations				
Proposed answer(s): *								
Correct: The wall thickness of the pipe must not be less than the value specified in Table 1, unless the pressure design calculations result in a smaller wall thickness.									
Answer from the N	//HD (to be filled by	/ MHD): <mark>2025</mark> -	-11-19						
No, the minimum wall thickness shall comply with Table 1 of 6.1 "Minimum wall thickness for buried piping" of EN 13480-6:2024, and also with the pressure design calculation.									
To be sent to EN 13480 Maintenance Group secretariat:				andardizat	aintenance Group secretariat c/o UNM ion Office on behalf of AFNOR s La Défense Cedex – France				

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