European Committee for Standardization

Comité Européen de Normalisation

Europaïsches Komitee für Normung

CEN/TC 267/WG 8

CEN/TC 267/WG 8 (MHD) « *Maintenance of EN 13480 series* »
Answers to MHD questions of 2023
on EN 13480-1-2-3-4-5-6 and -8:2017

MHD question N°	Date of MHD question	Clauses	Type of MHD question	MHD answers in doc. N°	Subsequent actions
3-001-2023	2023-02-14	6.1	Technical clarification	N 120	answer available
3-002-2023	2023-03-23	A.2.5.2	Editorial correction	N 120	to WG 3 for prA1
3-003-2023	2023-03-29	10.3.8	Technical clarification	N 120	answer available
3-004-2023	2023-04-11	Table N.2	Technical clarification	N 120	answer available
3-005-2023	2023-04-13	9.3.2	Technical comment	N 120	to WG 3 for prA1
3-006-2023	2023-06-01	12.2.7.4	Technical clarification	N 120	to WG 3 for prA1
3-007-2023	2023-06-20	12.2.10.1	Technical clarification	N 120	answer available
3-008-2023	2023-07-11	Tables N.1/N.2	Technical clarification	N 120	answer available
5-001-2023	2023-02-20	8.2.1/9.3.3	Technical clarification	N 120	answer available
6-001-2023	2023-09-18	5.1	Technical clarification	N 120	to WG 1 for prA1

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EN 13480 "Industrial piping and pipelines" Maintenance Group
Question form

Request reference number *(to be filled by MHD)*: **3-001-2023**	**Date**: **2023-02-14**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13480-3	2017		6.1	--

Subject: Formula for calculating the minimum thickness of a straight pipe

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

From :
Company: CERN
Name: David Tshilumba .....
Postal address: .....

e-mail: david.tshilumba@cern.ch .....
phone: +41 22 76 67389 .....

☐ Manufacturer ☒ User ☐ Other (please specify):

Question/comment: We do not understand why the factor 2 of the formula for calculating the minimum thickness of a straight thin pipe (equations 6.1-1 & 6.1-2 of EN 13480-3) applies only to the first term of the denominator. Would it be possible to share with us the development that led to these formulas 6.1-1 and 6.1-2?

6 Design of piping components under internal pressure

6.1 Straight pipes

The minimum required wall thickness for a straight pipe without allowances and tolerances, e, shall be calculated as follows:

— where $D_o/D_i \leq 1{,}7$:

$$e = \frac{p_c D_o}{2fz + p_c} \qquad (6.1\text{-}1)$$

or

$$e = \frac{p_c D_i}{2fz - p_c} \qquad (6.1\text{-}2)$$

Proposed answer(s): *

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

2023-11-21

Based on PED ANNEX I, part 7.1.2., which imposes limit on general membrane stress (denoted σ, and for cylindrical shell being equal to hoop stress from thin shell theory):
$z \cdot f \geq \sigma = P \cdot Dm/(2e)$
we can derive the correct formula (substituting $Dm = Di + e = Do - e$)
$e \geq P \cdot Dm/(2\,f \cdot z) = P \cdot Di/(2\,f \cdot z - P) = P \cdot Do/(2\,f \cdot z + P)$

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0068#d1e1066-202-1

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 e-mail: en13480@unm.fr

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

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EN 13480 "Industrial piping and pipelines" Maintenance Group Question form

Request reference number *(to be filled by MHD)*: **3-002-2023**			**Date**: **2023-03-23**	
Please fulfil the following				
Part: EN 13480-3/A3	Issue: 2020	Page 22	Subclause A.2.5.2	National Standard Reference DIN
Subject: Correction of equation A.2.4-3				
Type of request:	☐ Technical clarification		☒ Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :

Company: Andritz AG .....

Name: Schuchhofer Kurt .....

Postal address: Waagner-Biro-Platz 1, 8074 Raaba-Grambach/ Austria .....

e-mail: kurt.schuchhofer@andritz.com.....

phone: +43 316 501 584 .....

☐ Manufacturer	☒ User	☐ Other (please specify):

Question/comment:

In my opinion the equation (A.2.4-3) of EN13480-3/A4 is not correct regarding the units.

Unfortunately, not all units of the various variables are defined exactly. But according to the units used in the rest of the code following units have probably to be used:
W…kg
h…mm
E…MPa (N/mm²)
I…mm⁴

But if these units are used the result (T) is not correct. To get a result unit of seconds (s) for T we need s² under the square root.

Following units are under the square root: [(kg mm³ mm²) / (N mm⁴)] which can be reduced to [(kg mm) / N].

But N has to be replaced by (kg m) / s² which is (kg 1000 mm) / s².

So we get [(kg mm s²) / (kg 1000 mm)] or reduced [s² / 1000].

Proposed answer(s): *

One possibility to modify the formula is to add 1000 to the denominator [(W h³) / (1000 E I)].

In general, a specification of the units of all needed variables would be desirable.

Answer from the MHD *(to be filled by MHD)*: 2023-11-23

The Formula is correct when the coherent units are used (e.g. SI units).

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EN 13480 "Industrial piping and pipelines" Maintenance Group Question form

Request reference number *(to be filled by MHD)*: **3-003-2023**			**Date**: **2023-03-29**	
Please fulfil the following				
Part: EN 13480-3	Issue: 2017	Page 129	Subclause 10.3.2.8	National Standard Reference --
Subject: Hydrogen Service requirements in EN code				
Type of request:	☒ Technical clarification		☐ Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company: Aibel AS, Asker Norway
Name: Arun Prasad Thirugnanam
Postal address: Hagaløkkveien 28, NO-1383 Asker

e-mail: arun.prasad.thirugnanam@aibel.com
phone: +

☐ Manufacturer	☒ User	☐ Other (please specify):

Question/comment:

For Hydrogen service, in ASME B31.12 code we have Material Performance factor to account for any adverse effect of Hydrogen service in loss of material properies of Carbon & Low Alloy Steel. Is there a similar requirement in EN 13480 code for Hydrogen Services.

Also in EN 13480 Section 10.3.2.8, it is mentioned, additional provisions (calculations) shall be applied for special operating conditions which includes Hydrogen service. Can you explain in detail what type of calculations or provisions needs to be considered.

Proposed answer(s): *

Provide safety factors for hydrogen and similar services based on pipe material to account loss of material properties. This can be considered in addtion to the errosion/corrosion allowances.

For special operating conditions, type of additional provisions which are mandatory as per the code requirement can be listed in detail.

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

2023-11-21

A specific part on "hydrogen application" for EN 13480 series is currently under development. This question will be forwarded to the relevant working group CEN/TC 267/WG 1 in charge of prEN 13480-11.

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 e-mail: en13480@unm.fr

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

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EN 13480 "Industrial piping and pipelines" Maintenance Group
Question form

Request reference number *(to be filled by MHD)*: **3-004-2023** **Date: 2023-04-11**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13480-3	EN 13480-3:2017/ A4:2021	7	Annex N, Table N.2 of EN 13480-3:2017/ A4:2021	--

Subject: Documentation of supports

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

From :
Company: AAEM LLC
Name: Natalya A. Barmina
Postal address: 43A Polyustrovsky Avenue, Saint-Petersburg, Russia, 195197
e-mail: info@aaemturbines.com
phone: +7 (812) 635 707 1

☒ Manufacturer ☐ User ☐ Other (please specify):

Question/comment: Annex N states: The pipe support manufacturer shall certify the compliance with EN 1090-2:2018. Conformity assessment and CE-marking according to EN 1090-1:2009+A1:2011 are not required.
Table N.2 requires the following documents: Manufacturers certificate of compliance with EN 1090-2:2018 and Manufacturers certificate of compliance with EN 13480-3:2017, Clause 13.
The questions are:

1) Who issues the Manufacturers certificate: Notified body or Manufacturer itself?
2) Should this certificate refer to the certification of Factory production control (EN 1090-1) or not, since the Conformity assessment according to EN 1090-1:2009+A1:2011 is not required?
3) Should the Manufacturer have both certificates of compliance with EN 1090-2:2018 and EN 13480-3:2017, Clause 13 or only one of them?

Proposed answer(s): *

1) Manufacturers certificates of compliance with EN 1090-2:2018 and with EN 13480-3:2017, Clause 13 are issued by the Notified body.
2) The Manufacturer certificate of compliance with EN 1090-2:2018 shall not refer to the FPC system and EN 1090-1.
3) The Manufacturer shall have only one certificate of compliance, either with EN 1090-2:2018 (in case the supports are designed and executed following Eurocode) or EN 13480-3:2017, Clause 13 (in case the supports are designed and executed following EN 13480-3, Clause 13).

Answer from the MHD *(to be filled by MHD)*: 2023-11-21

Question 1) The manufacturer issues the certificate.
Question 2) Only "Manufacturers certificate of compliance with EN 1090-2:2018" is needed.
Question 3) Refer to Annex N, Tables N.1 and N.2 for the requirements regarding certification.

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

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Request reference number *(to be filled by MHD)*: **3-005-2023**			**Date**: **2023-04-13**	
Please fulfil the following				
Part: EN 13480-3/A5	Issue: 2023	Page 13	Subclause 14 (9.3.2)	National Standard Reference --
Subject: missing definition				
Type of request:	☒ Technical clarification ☒ Technical comment		☐ Editorial correction ☐ Translation correction	

From :
Company: Bilfinger Engineering & Technologies GmbH
Name: Jochen Weber.....
Postal address: Europaallee 1, 46047 Oberhausen .....
e-mail: jochen.weber@bilfinger.com
dr.jochen.weber@arcor.de
phone: + ...

☒ Manufacturer ☐ User ☐ Other (please specify):

Question/comment:

1. **How is the new symbol Δr linked to the out of roundness (ovality) u – see EN 13480-4, 7.4.1?**
2. **Does Δr have a sign or is it an absolute value?**

Proposed answer(s): *

1. $$\Delta r = \frac{1}{100} \cdot u[\%] \cdot \frac{D_o}{4}$$

2. **Δr is an absolute value.**

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

2023-11-21

Agreement on proposed answers indicated above.
Correction to be inserted in 9.3.2 into the next Amendment of EN 13480-3 under study in CEN/TC 267/WG 3.

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 e-mail: en13480@unm.fr

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

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EN 13480 "Industrial piping and pipelines" Maintenance Group Question form

Request reference number *(to be filled by MHD)*: **3-006-2023** **Date**: **2023-06-01**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13480-3	2017 :A5	1	12.2.7.4	--

Subject:

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

From :
Company: Fluor UK Ltd .....
Name: Duncan Finch .....
Postal address: 140 Pinehurst Road, Farnborough, Hampshire GU14 7BF, UK
e-mail:duncan.finch@Fluor.com.....
phone: +44 (0)1252 293531.....

☐ Manufacturer ■ User ☐ Other (please specify):

Question/comment:

Based upon the paragraph 12.2.7.4, does this infer that the use of ASME B31J to calculate SIF's and Flexibility Factors can be acceptable within the EN13480-3 code for stress analysis purposes for assessment of stresses and confirming the adequacy of the piping components subject to various loads?.

12.2.7.4 Flexibility and stress factors

In the absence of more directly applicable data, the flexibility factors and stress intensification factors shown in Annex H, shall be used in flexibility calculations.

NOTE The stress intensification factors in Annex H have been developed from fatigue tests of representative piping components and assemblies manufactured from ductile ferrous materials. The allowable displacement stress range is based on tests of carbon and austenitic stainless steels.

For piping components or attachments (such as valves, strainers, anchor, rings or bands) not covered in Annex H, suitable stress intensification factors may be assumed by comparison of their significant geometry with that of the component shown.

Proposed answer(s): *

Yes- This is acceptable or No – It is not.

Answer from the MHD *(to be filled by MHD)*: 2023-11-21
The subject is currently under discussion in CEN/TC 267/WG 3 for the next Amendment(s) of EN 13480-3.
The SIFs from ASME B31J can be used ONLY if combined with the corresponding sectional moduli and flexibility factors. Mixing of these parameters between codes is definitely not allowed.

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 e-mail: en13480@unm.fr

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EN 13480 "Industrial piping and pipelines" Maintenance Group
Question form

Request reference number *(to be filled by MHD)*: **3-007-2023**			**Date**: **2023-06-20**	
Please fulfil the following				
Part: EN 13480-3	Issue: 2017	Page 149	Subclause 12.2.10.1	National Standard Reference --
Subject: Formal analysis → satisfactory service record				
Type of request:	☒ Technical clarification		☐ Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company: Evonik Operation GmbH .....
Name: Sebastian Kotzur.....
Postal address: Paul-Baumann-Str. 1, 45772 Marl .....
e-mail: Sebastian.kotzur@evonik.com.....
phone: +.....

☒ Manufacturer	☐ User	☐ Other (please specify):

Question/comment:

In clause 12.2.10.1 „Formal analysis not required" it is stated that a formal analysis of adequate flexibility shall not be required if the piping system duplicates or replaces without significant change a system operating with a satisfactory service record. Since we, as manufacturer as well as operator of chemical plants, often have to deal with the renewal of existing piping systems, we would like to know what this satisfactory service record must look like so that it can be used as a substitute for a formal analysis and what are the boundary conditions for this?

Proposed answer(s): *

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

2023-11-21

The clause 12.2.10.1 does not specify any particular documentation requirements to prove that an existing piping system has a satisfactory service record. The satisfactory service record cannot substitute the formal analysis in terms of PED requirements.

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EN 13480 "Industrial piping and pipelines" Maintenance Group
Question form

Request reference number *(to be filled by MHD)*: **3-008-2023** **Date: 2023-07-11**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13480-3/A4	2021	5 and 6	Tables N1 N2	--

Subject:

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

From :
Company: Hilti AG
Name: Giovanni Riello
Postal address: Felkircher Strasse 100
9494 Schaan,
Liechtenstein

e-mail: Giovanni.riello@hilti.com.....
phone: +.....

☐ Manufacturer ☐ User ☒ Other (please specify): Pipe Support Manufacturer

Question/comment: According to table N.1 the manufacturer must issue a certificate of compliance with EN 13480-3:2017, Clause 13.

According to table N.2 of EN 13480-3:2017/A4:2021 the manufacturer must issue a certificate of compliance with EN 13480-3:2017, Clause 13 and a Manufacturer's certificate of compliance with EN 1090-2:2018.

Is the "Manufacturer" mentioned in tables N.1 and N.2 of EN 13480-3:2017/A4:2021 and responsible for issuing the certificate of compliance with EN 13480-3:2017, Clause 13
and for issuing the certificate of compliance with EN 1090-2:2018 the "pipe support manufacturer" according to the definition in section 13.1.3.12; 13480-3:2017/A4:2021 or is it the "manufacturer" according to the definition in section 3.1.4; EN 13480-1:2017?

Proposed answer(s): *It is the "manufacturer" according to the definition in section 3.1.4; EN 13480-1:2017

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

2023-11-21
The manufacturer mentioned in Tables N.1 and N.2 is the "pipe support manufacturer".
It is not the "manufacturer" as defined in 3.1.4 of EN 13480-1:2017, refer to the relevant definition in EN 13480-3:2017/A2:2020, which is:

13.1.3.13
pipe support manufacturer
producer of the pipe support components (e.g. hangers, clamps, threaded parts), responsible for the design of these components (often the designer and the manufacturer of the pipe support components are one and the same)

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EN 13480 "Industrial piping and pipelines" Maintenance Group
Question form

Request reference number *(to be filled by MHD)*: **5-001-2023**			**Date**: **2023-02-20**	
Please fulfil the following				
Part: EN 13480-5	Issue: 2017	Page 15 & 25	Subclause 8.2.1 & 9.3.3	National Standard Reference --
Subject:				
Type of request:	☒ Technical clarification		☒ Editorial correction	
	☐ Technical comment		☐ Translation correction	

From :
Company: Energie Consult Holland B.V.
Name: Renzo Bergman
Postal address: Hertzstraat 14 - 6716 BT – Ede – The Netherlands
e-mail: r.bergman@energieconsult.nl
phone: +31 6 12 72 58 23

☐ Manufacturer	☐ User	☒ Other (please specify): EU-CAB

Question/comment:

In §8.2.1 and §9.3.3 refers to Table 9.3.3-1 in case of a pneumatic pressure test.

Title of this table is: “Table 9.3.3-1 — Extent of NDT in case of pneumatic pressure test according to 9.3.3”

In our opinion this table is only valid for a pneumatic pressure test at PT=1,1*PS.

Proposed answer(s): *

Change the title of this table to: “Table 9.3.3-1 — Extent of NDT in case of pneumatic pressure test ***at 1,1*PS*** according to 9.3.3”

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

2023-11-21

Yes, Table 9.3.3-1 applies to pneumatic pressure test at 1,1*PS.

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EN 13480 "Industrial piping and pipelines" Maintenance Group
Question form

Request reference number *(to be filled by MHD)*: **6-001-2023** **Date**: **2023-09-18**

Please fulfil the following

Part:	Issue:	Page	Subclause	National Standard Reference
EN 13480-6	2017		5.1	--

Subject:

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

From :
Company: Austrian Standards International ASI
Name: Javier Emilio Valencia
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Austrian Standards International
Heinestraße 38, 1020 Wien | Vienna, Austria

e-mail: j.valencia@austrian-standards.at
phone: +43 1 213 00-515

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

Question/comment:

See attached appendix

Proposed answer(s): *

See attached appendix

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

2023-11-21

Your remark will be taken into account in the next amendment of EN 13480-6, for clause 5.1.
The improvement of the sentence should be: "The minimum wall thickness of the pipe is given in Table 1."

EN 13480 Maintenance Group secretariat c/o UNM
Standardization Office on behalf of AFNOR
F 92038 Paris La Défense Cedex – France
e-mail: en13480@unm.fr

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

5.1 Minimum wall thickness for buried piping

Unless the pressure design calculations lead to a greater thickness, the wall thickness of the pipe shall not be lower than the value given in Table 1.

I reproduce this message in the German language for your further use in case.

Begin
„bei der Anwendung der EN 13480-6 ist uns ein Teilsatz aufgefallen, der aus unserer Sicht so keinen Sinn ergibt und hinsichtlich der Mindestwanddicken verwirrend ist.

5.1 Mindest-Wanddicke für erdgedeckte Rohrleitungen

Die Wanddicke des Rohres darf den in Tabelle 1 angegebenen Wert nicht unterschreiten, außer Berechnungen zur Druckauslegung eine größere Wanddicke ergeben.

Tabelle 1 — Mindestwanddicke für erdgedeckte Rohrleitungen

Nennweite (DN)	Mindest-Wanddicke mm
DN ≤ 80	3,2
80 < DN ≤ 150	4,7
150 < DN ≤ 450	6,35
450 < DN ≤ 600	7,9
600 < DN ≤ 950	9,5
950 < DN	1 % DN

Wir regen eine Überprüfung dieses Absatzes an.“
End.

Have a nice week 😊
Javier

Mit freundlichen Grüßen

Dipl.-Ing. Javier Emilio Valencia
Committee Manager
Standards Development

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