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**CEN/TC 267/WG 8 N 123**

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

## MHD questions of 2024 on EN 13480 series

| MHD questions N° | Date of MHD questions | Clauses | Type of MHD questions | MHD answers Doc. N° | Subsequent actions |
|---|---|---|---|---|---|
| 1-001-2024 | 2024-03-13 | Clause 7 | Technical clarification | N 123 | answer to questioner |
| 1-002-2024 | 2024-11-07 | Clause 17 | Technical comment | N 123 | to EN 13480-1:2024/prA1 |
| 2-001-2024 | 2024-10-25 | B.2.2.4 | Technical clarification | N 123 | answer to questioner |
| 3-001-2024 | 2023-12-15 | Annex Q | Technical clarification | N 123 | answer to questioner |
| 3-002-2024 | 2023-12-24 | - | Technical clarification | N 123 | answer to questioner |
| 3-003-2024 | 2024-02-22 | 13.11.6.3 | Technical clarification | N 123 | to EN 13480-3:2024/prA1 |
| 3-004-2024 | 2024-02-29 | 12.3 | Technical clarification | N 123 | answer to questioner |
| 3-005-2024 | 2024-03-19 | 8.3.6 | Technical clarification | N 123 | answer to questioner |
| 3-006-2024 | 2024-10-07 | 13.11.6.2 | Technical comment | N 123 | answer to questioner |
| 3-007-2024 | 2024-09-25 | Annex D | Technical comment | N 123 | answer to questioner |
| 3-008-2024 | 2024-11-11 | 12.2.10.1 | Technical clarification | N 123 | answer to questioner |
| 5-001-2024 | 2024-08-02 | 8.1.2 | Technical clarification | N 123 | answer to questioner |
| 5-002-2024 | 2024-08-29 | 8.1.2 | Technical clarification | N 123 | answer to questioner |
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# EN 13480 "Industrial piping and pipelines" Maintenance Group
# Question form

| **Request reference number** *(to be filled by MHD)*: **1-001-2024** | **Date: 2024-03-13** |
|---|---|

***Please fulfil the following***

| Part: | Issue: | Page | Subclause | National Standard Reference |
|---|---|---|---|---|
| EN 13480-1:2017 | A1:2019 | - | Clause 7 | -- |

**Subject:**

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


**From :**

Company: E+H Flowtec AG

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☐ Manufacturer ☒ User ☐ Other (please specify):

**Question/comment:**

Dear Ladies and gentlemen,
the following comment regarding EN 13480-1/A1:2019-07:

In PED 2014/68/EU, Article 2, section 5 is used the term “pressure accessories”
“Pressure accessories” are devices which have besides the pressure-bearing housings additionally an operational function.Typical examples for pressure accessories are valves, flowmeters, pressure regulators, measurement chambers, filters etc.

In EN 13480-1/A1:2019-07 was added the new section #7 which specifies the requirements for (pressure) “accessories”. As explained above, “pressure accessories” is a group of different piping equipment and each member of this group shall follow section #7.

Question: Why is used in the headline of subsection 7.1 the specific term “valve” and not the generic term “pressure accessories” as per PED 2014/68/EU, Article 2, section 5?

**Proposed answer(s): ***

For the headline of section 7 is used the generic term “Pressure equipment” (in compliance to EN 764-2:2012)
For the headline of subsection 7.1 is used the term “pressure accessories” (in compliance to PED 2014/68/EU, Article 2, section 5)

**Answer from the MHD** *(to be filled by MHD):* 2024-11-19

The proposed answer is not correct.

Pressure accessories are of many types, and many different codes may apply, even pressure vessel code sometimes. Thus, in the section 7, EN13480-1 A1 cannot adopt a generic position for all pressures accessories that are connected to a pipe network.

The headline of section 7 may be “accessories” or “pressure accessories”, that are totally equivalent in this context.

The headline of section 7.1 is limited to valves, for which generic rules may be defined (compatibility, interfaces…).

The headline of section 7.1 is not intended to be extended to all pressure accessories, as it cover only some specific type of pressures accessories.

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|---|---|
| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM<br>Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |

***** *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)*: **1-002-2024** **Date: 2024-11-07**

***Please fulfil the following***

| Part: | Issue: | Page | Subclause | National Standard Reference |
|---|---|---|---|---|
| EN 13480-1 | 2017 | 5 | 1 | DIN |

**Subject:**

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


**From :**
Company: SKI GmbH & Co.KG .....
Name: Julian Hartwig.....
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e-mail: hartwig@ski-ing.de .....
phone: +.....


☐ Manufacturer ☐ User ☒ Other (please specify): Engineering office hydropower

**Question/comment:**

DE:
Warum wird die Verwendung der Norm für Triebwasserwege inkl. Druckrohre in Wasserkraftwerken ausgeschlossen? Die gängige Praxis ist die Auslegung und Bemessung der Druckrohre in Wasserkraftanlagen nach EN 13480. Es gibt unseres Wissens nach auch keine vergleichbare anwendbare Norm.

EN:
Why is the use of the standard for penstocks, including pressure pipes, in hydropower plants excluded? The common practice is to design and dimension pressure pipes in hydropower plants according to EN 13480. To our knowledge, there is also no comparable applicable standard.

Proposed answer(s): *

DE:
Der Ausschluss von Triebwasserwegen in Wasserkraftanlagen wird gestrichen.

EN:
The exclusion of penstocks in hydropower plants is removed.

**Answer from the MHD** *(to be filled by MHD)*: 2024-11-19

Technically EN 13480 series can be used for piping applications in hydropower plants with relevant additional requirements when needed. Currently the scope of EN 13480-1:2024 is based on PED 2014/68/EU, the applicability of the scope will be reviewed.
Further consideration of this question to be taken by CEN/TC 267/WG 1.

| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM<br>Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |
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# EN 13480 "Industrial piping and pipelines" Maintenance Group
# Question form

| **Request reference number** *(to be filled by MHD)*: **2-001-2024** | **Date: 2024-10-25** |
|---|---|

***Please fulfil the following***

| Part: | Issue: | Page | Subclause | National Standard Reference |
|---|---|---|---|---|
| EN 13480-2 | 2024 | 25-26 | B.2.2.4 | -- |

**Subject:**

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


**From :**
Company: Wood Italiana .....
Name: Massimo Aldo Marazzi .....
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☐ Manufacturer ☒ User ☐ Other (please specify):

**Question/comment:**

Clause B.2.2.4 specifies the requirements to prevent brittle fracture of bolt and nuts.

We ask for clarification about how to apply table B.2-9. The questions are in the example here below.

Example: As per project requirement, it is foreseen to use bolting material made of 1.7225 and to associate to bolting a Minimum Design Temperature equal to -85°C.

According to clause B.2.2.4, Table B.2-9 is applicable to such type of material and it indicates that at TM = - 40°C the material 1.7225 must achieve 40 J minimum as impact test energy (that is also aligned with EN 10269 Table 10).

The questions are: which is the impact test energy required at -85°C for 1.7225 in order to allow 1.7225 bolts' usage in compliance with EN-13480? Is impact test with 27 J at -100°C (as per EN 10269) enough to allow such material in pressure design calculation according to EN-13480?

On the contrary, from Table B2-9 it could be supposed that such material cannot be used for Minimum Design Temperature < -40°C (unless 40J will is achieved by dedicated impact test at temperature below -40°C, that means in the example to achieve 40J at -85°C).

Proposed answer(s): *

1.7225 material associated to Minimum Metal Temperature equal to -85°C is allowed to be used according to EN-13480, provided that impact test 40 J minimum is achieved at -40°C (according to Table B.2-9 and EN 10269 Table 10) and provided that impact test 27 J minimum is achieved at -100°C (according to EN 10269 Table 10). In order words, the material can be used at Minimum Design Temperature lower to "TM" value indicated by Table B.2-9, provided that it complies with the impact test values at temperature values indicated by EN 10269 Table 10.

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**Answer from the MHD** *(to be filled by MHD):* 2024-11-19

The question points at a problem between interpretation of EN 13480-2:2024 and the related material standard. Basically, the requirement given in EN 13480-2:2024 is mandatory, even if the material standard might allow interpretation. In the given case it means, according to Annex B, B.2.2.4, that second indent applies.

For the given problem it means that 40 J must be achieved in a qualified test at the lowest design temperature, here -85 °C.

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|---|---|
| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM<br>Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |

***** *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)*: **3-001-2024** | **Date: 2023-12-15** |
|---|---|

***Please fulfil the following***

| Part: | Issue: | Page | Subclause | National Standard Reference |
|---|---|---|---|---|
| EN 13480-3 | 2017 | 342 | Annex Q | -- |

**Subject:**

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


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

**Question/comment:**

The simplified pipe stress analysis method described in EN 13480-3 Annex Q specifies allowable support spacing and offers a method for elasticity check. The calculation of allowable support spacing is based on the limitation of deflections (3 mm for DN <= 50 and 5 mm for DN > 50) or stresses (40 MPa / 0,4 $f_h$). Whereas the elasticity check determines a required compensating length to ensure allowable material stress is not exceeded. Corresponding formulas/equations are provided to perform the analysis.

If, instead of using the formulas proposed in Annex Q, a standard pipe stress analysis software, like CAESAR II and ROHR2, is used (considering relevant stress intensification and weld factors) to:
(i) specify support spacing by limiting deflections (3 mm / 5 mm) or stresses (40 MPa / 0,4 $f_h$) due to weights; and
(ii) ensure that stresses due to thermal expansion remain below material allowable stresses, will it be considered that the requirements of Annex Q are fulfilled?

Proposed answer(s): *

Since the simplified stress analysis method of Annex Q is based on the limitation of deflections and stresses, the abovementioned checks using a standard commercial pipe stress analysis software would suffice the requirements of this Annex.

**Answer from the MHD** *(to be filled by MHD)*: 2024-11-19

Fulfilling the acceptability criteria given in Clause 12 in a pipe stress analysis is the suggested procedure and is sufficient for the check using software of longitudinal stresses in piping systems.
Under certain conditions specified in Annex Q, the simplified method described in Annex Q and applicable without software support may be used instead.

| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |
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# EN 13480 "Industrial piping and pipelines" Maintenance Group Question form

| **Request reference number** *(to be filled by MHD)*: **3-002-2024** | **Date: 2023-12-24** |
|---|---|

***Please fulfil the following***

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

**Subject:** Piping design

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


**From :**
Company: Pressure Equipment Engineering LLC
Name: George Antaki
Postal address: Q920, Aiken, South Carolina, USA

e-mail: gaa1951@outlook.com
phone: Cell phone 803-979-1340 (USA)


☐ Manufacturer ☒ User ☐ Other (please specify):

**Question/comment:**

My name is George Antaki, I am past chairman of ASME B31 Mechanical Design Committee, and current chairman of ASME III Working Group Piping Design. I have recently read with much interest your standard EN 13480. Could you please guide me address to the right EN committee to obtain a response. Thank you.

**Question 1** – For manufacturer of specialty joints/fittings (typically catalog fittings, such as swaged-type instrument tubing joints, or clamped-like pipe fittings, etc.) B31.3 Section 304.7.2 requires the manufacturer to perform a proof test to nearly three times the rated pressure to prove that the joints/fittings are as strong as the matching pipe. In B31.3 this type of strength test is referred to as a proof test, it is a proof of pressure design. I do not see the equivalent requirement for the manufacturer to proof test their joints/fittings in EN 13480. (Instead, the hydrotest is referred to as a proof test in EN 13480). Is there in EN 13480 (or a referenced standard) a requirement for a specialty pipe joints/fittings manufacturer to proof test their joint/fitting to show that they are stronger than the matching pipe?

**Question 2** – In B31.3 Sections 301.2.2 and 322.6.3 we address over-pressure protection of piping systems by containing or relieving the excess pressure. Where in EN 13480 may I find the equivalent over-pressure protection requirement?

**Question 3** – In B31.3 Appendix A we provide the allowable stresses at temperature. Where in EN 13480 may I find a table of allowable stresses or a procedure to develop the allowable stresses at temperature?

Thank you in advance for any guidance you can provide to respond to these three questions

Proposed answer(s): * -

**Answer from the MHD** *(to be filled by MHD):* 2024-11-19

Question 1 – No.

Question 2 – § 4.2.3.3, § 4.2.4.3, § 4.2.5.2.1 and Annex A.2.5 of EN 13480-3:2024 deals with this topic. § 7.2 EN 13480-1:2024 also deals with the safety systems.

Question 3 – EN 13480-3:2024 does not directly provide the allowable stresses at temperature as ASME B31.3. But EN 13480-3:2024 gives the methods and the safety factors to use to calculate the allowable stresses with properties of material ($R_P$, $R_m$ …given by material standards) (see § 5 of EN 13480-3:2024).

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| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |

***** *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)*: **3-003-2024** **Date: 2024-02-22**

***Please fulfil the following***

| Part: | Issue: | Page | Subclause | National Standard Reference |
|---|---|---|---|---|
| EN 13480-3/A5<br>EN 13480-3 | 2017 (2022)<br>2024 | | 13.11.6.3 | -- |

**Subject:** Time-dependent nominal design stress of bolting in pipe supports

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


**From :**

Company: LISEGA SE
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☒ Manufacturer ☐ User ☐ Other (please specify):

**Question/comment:**

Chapter 13.11.6.3 defines:

*13.11.6.3 Time-dependent nominal design stress*

*Austenitic bolts shall not be used in the time-dependent design range. The design stress shall be in accordance with the following:*

Excluding austenitic bolts is technical not a good solution:

1. in many applications of austenitic pipes austenitic pipe attachments (clamps) are requested, these clamps need austenitic bolting (to have clamp and bolting with the same thermal behaviour).
2. EN 13480-2: “Metallic industrial piping — Part 2: Materials” table D.2.1 contains “materials for pressure purposes specified in harmonised standards”. This table contains 24 austenitic fastener materials.
   If these fastener materials are permissible materials for pressure purposes they can also be used for pipe supports.

Proposed answer(s): *

Austenitic bolting should not be excluded for pipe supports (e.g. clamps) in the time-dependent design range. The chapter should be written as:

*13.11.6.3 Time-dependent nominal design stress*

*For use of austenitic bolts please refer to EN 13480-2:2014 (D.2-1) for guidance. The design stress shall be in accordance with the following:*

$$f_{B\,cr} = \min\left(S_{R\,200\,000\,h\,t}\,;\ 0{,}7\,R_{eH\,t}\ \text{or}\ 0{,}7\,R_{p0{,}1\,t}\right) \qquad (13.11.6.3\text{-}1)$$

**Answer from the MHD** *(to be filled by MHD)*: 2024-11-19

Agreed. The proposed modification has been considered and introduced into the draft amendment prA1 to the new edition EN 13480-3:2024 currently under development. For further discussion/study in CEN/TC 267/WG 3.

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|---|---|
| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM<br>Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France<br>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)*: **3-004-2024** | **Date: 2024-02-29** |
|---|---|

***Please fulfil the following***

| Part: | Issue: 1 | Page | Subclause | National Standard Reference |
|---|---|---|---|---|
| EN 13480-3 | 2017 A2/2020 | 6 | Modification to 12.3 | NEN EN 13480-3 |

**Subject:** Background (theory) on the formula on additional conditions for creep range

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


**From :**
Company: Zeton BV .....
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☒ Manufacturer ☐ User ☐ Other (please specify):

**Question/comment:**

**1.** Can the committee or a working group explain the theoretical, mechanical background of

a. formula 12.3.5-1 in general? Is there a paper, publication, or something else supporting a theory for this?

b. the part in 12.3.5-1 that allows for a two-third relieve due to relaxation?

Refer to the screenshot on the last page. This part on two-third relaxation has been in the EN 13480-3 since 2002, however shown below (next page) is the most reason amendment to this section, for ease of making the question up to date.

**2.** In amendment A2, an alternative formula for 12.3.5-1 is provided, i.e. eq. 12.3.5-2. This formula refers to sigma1 for sustained load. When the new formula for sigma1, eq. 12.3.2-2 from A2/2020, is plugged into 12.3.5-2, the following formula for gets:

$$\sigma_5 = \sqrt{\left[\frac{i_{QA}Q_{xA}}{A_c} + \frac{\sqrt{(0{,}75\ i_i\ M_{iA})^2 + (0{,}75\ i_o\ M_{oA})^2}}{Z_c}\right]^2 + \left[\frac{i_t M_{tA}}{Z_c}\right]^2} + \sqrt{\left[\frac{i_{QC}Q_{xC}}{3A} + \sqrt{(0{,}75\ i_i\ \frac{M_{iC}}{3Z})^2 + (0{,}75\ i_o\ \frac{M_{oC}}{3Z})^2}\right]^2 + \left[\frac{i_t M_{tC}}{3Z}\right]^2} \leq f_{CR}$$

Is that correct?

**3.** The pressure term, as shown in EN 13480-3 para 12.3.1, page 151, (snapshot below for reference) is not included in the above formula for sigma5 of question 2. However, upon review in the revised Clause for 12.3.5 in A2/2020, it speaks about *"…the stresses, σ5, due to calculation pressure, $p_c$, …"*. Is this correct, or is the term for calculation pressure $p_c$ missing?

NOTE The pressure term $\frac{p_c d_o}{4e_n}$ in the equations (12.3.2-1), (12.3.3-1), (12.3.4-1), (12.3.4-2) and (12.3.5-1) may be replaced by the alternative term $\frac{p_c d_i^2}{d_o^2 - d_i^2} + \frac{p_c}{2}$.

Proposed answer(s): *

**Answer from the MHD** *(to be filled by MHD):* 2024-11-19

**1)**

**a.** You can find similar rules and further explanation in CODETI DIV.1 ; ASME III DIV 1 Subsection NH; FDBR Richtline Berechnung von Kraftwerksrohrleitungen ...

**b.** The factor 3 in the denominator of the equation 12.3.5-2 indicates that only 1/3 of the secondary membrane stresses are taken into account for the creep stress verification:

$$\sigma_5 = \sigma_1 + \frac{i_{QC} Q_{xC}}{3A} + \frac{0{,}75\ i\ M_C}{3\ Z} \leq f_{CR}$$

Hence there is an assumption that 1-1/3=2/3 of the secondary stresses will be relieved by relaxation and do not contribute to creep failure.

**2)** Yes

**3)** No. The pressure effect is taken into account in QxA in equation (12.3.2-1)

$$Q_{xA} = \max\left( \left|Q_{xS}\right|, \left| \frac{p_c \pi d_i^{\,2}}{4} + Q_{xS} \right| \right)$$

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| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |

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

## 6 Modification to 12.3, "*Flexibility analysis*"

*The revised Clause 12.3.1 shall read as follows:*

**"12.3.1 General**

The following determination and limitation of stresses shall be used to ensure the safe operation of the piping.







The Formulae (12.3.2-1) and (12.3.3-1) deal with the longitudinal stresses due to design and operating loadings, and the Formulae (12.3.4-1) and (12.3.4-2) with the stress range due to such loadings that gives rise to deformation of the total system.

In Formula (12.3.5-1), one-third of the stress resulting from thermal expansion and alternating loadings are taken into consideration with respect to the material behaviour in the creep rupture stress range, assuming that two-thirds will be relieved by relaxation.

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

| **Request reference number** *(to be filled by MHD):* 3-005-2024 | | | | **Date:** 2024-03-19 |
|---|---|---|---|---|
| ***Please fulfil the following*** | | | | |
| Part:<br>EN 13480-3 | Issue:<br>2017 | Page<br>82 | Subclause<br>8.3.6 | National Standard Reference<br>-- |
| **Subject:** Limits of use for reinforcing pads | | | | |
| **Type of request:** | ☒ Technical clarification | | ☐ Editorial correction | |
| | ☒ Technical comment | | ☐ Translation correction | |


**From :**
Company: ILF Consulting Engineers Austria GMBH ....
Name: Nikola Drazenovic.....
Postal address: Würtzlerstrasse 3/7, 1030 Vienna .....
e-mail: Nikola.drazenovic@ilf.com.....
phone: +4366764066789.....


| ☐ Manufacturer | ☒ User | ☐ Other (please specify): |
|---|---|---|

**Question/comment:**

As per subclause 8.3.6 reinforcement of openings by reinforcing pads is limited by the diameter ratio di/Di and the figure given in the subclause.

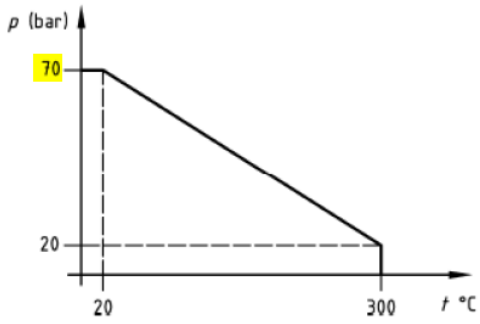


**Figure 8.3.6-1 — Pressure and temperature limits for reinforcing pads**

We received an inquiry from our client to design and install a reinforced branch connections on a DN950/DN1050 lines respectively. The design pressure for both lines is 77barg (with 85°C design temperature).

From Figure 8.3.6.-1 it can be clearly seen that for design pressure p > 70bar (I assume barg) reinforcing pad shall not be used.

1. Does this mean that acc. to EN 13480-3 it is forbidden to use reinforcing pads for branch connections with design pressures above 70 barg?

2. Maybe “forbidden” is a too strong words for this case, but I believe that in that case the design of the RF pad can not be treated as designed per EN 13480-3 if it is used for this kind of cases, right?

3. Anyhow, I would like to know the background of this figure and the limitations it is representing for the design of RF pads, i.e. how was it established (the backing theory), maybe a reference to a literature or a standard covering this issue?

4. Compared to ASME B31.3/ 31.4/ 31.8, as far as I know, there are no limitations like this from EN 13480-3, can you please comment on this?

Proposed answer(s): *

It is forbidden to use RF pad for p > 70barg, design of the RF pad not acc. to EN 13480.

**Answer from the MHD** *(to be filled by MHD):* 2024-11-19

See MHD answers attached to this question 3-005-2024

| | |
|---|---|
| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |

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

## CEN/TC 267/WG 8 answer (2024-11-19) to MHD Question 3-005-2024

**1.** Does this mean that acc. to EN 13480-3 it is forbidden to use reinforcing pads for branch connections with design pressures above 70 barg?

Yes, according to the Design by Formula (Clause 8). It is possible by Design by Analysis (Subclause 4.6).

**2.** Maybe "forbidden" is a too strong words for this case, but I believe that in that case the design of the RF pad can not be treated as designed per EN 13480-3 if it is used for this kind of cases, right?

Yes

**3.** Anyhow, I would like to know the background of this figure and the limitations it is representing for the design of RF pads, i.e. how was it established (the backing theory), maybe a reference to a literature or a standard covering this issue?

The figure comes from good engineering practice to avoid stress concentration between reinforcement pad and the main pressure bearing wall.
Evidence in support of this can be found in document, such as TRD 303 and EN 13445:2021.

**4.** Compared to ASME B31.3/ 31.4/ 31.8, as far as I know, there are no limitations like this from EN 13480-3, can you please comment on this?

This question is out of the scope of the Maintenance Help desk on EN 13480 series.

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

**Request reference number** *(to be filled by MHD)*: **3-006-2024** **Date: 07/10/2024**

***Please fulfil the following***

| Part: | Issue: | Page | Subclause | National Standard Reference |
|---|---|---|---|---|
| EN 13480-3 | 2024 | 181-182 | | -- |

**Subject:**

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


**From :**
Company: ACE
Name: Julien CROCI
Postal address: 7 rue des Claires
50460 CHERBOURG-EN-COTENTIN

e-mail: julien.croci@altradendel.com
phone: +33 233 088 165


☒ Manufacturer ☐ User ☐ Other (please specify):

**Question/comment:** In Table 13.11.6.2-2, the permissible tension stress values are lower than the permissible shear stress values.

Proposed answer(s): Probably an inversion of the admissible values in the first 2 rows of this table (please compare with Table 13.11.6-1 of EN 13480-3:2017).

**Answer from the MHD** *(to be filled by MHD)*: 2024-11-19

This remark is correct and concerns only the French edition of EN 13480-3:2024 (English and German editions are not impacted), which needs to be corrected as follows, see extract from the English edition below:

**Table 13.11.6.2-2 — Allowable stress in bolted connections to the main structure**

| Stress | | Normal operating loads | Occasional loads | Faulted condition loads | Application range |
|---|---|---|---|---|---|
| Tension stress | $\frac{\sigma_{B,per}}{R_{mBt}}$ | 0,436 | 0,523 | 0,654 | |
| Shear stress (per shear area) | $\frac{\tau_{B,per}}{R_{mBt}}$ | 0,242 | 0,290 | 0,363 | |

| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |
|---|---|

***** *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)*: **3-007-2027** | | | **Date**: **2024-09-25** | |
| ***Please fulfil the following*** | | | | |
| Part:<br>EN 13480-3 | Issue:<br>2012 | Page<br>Annex D | Subclause<br>D.5.4.1 a/ | National Standard Reference<br>-- |
| **Subject**: **Annex D - Flanges** | | | | |
| **Type of request**: | ☒ Technical clarification | | ☐ Editorial correction | |
| | ☐ Technical comment | | ☐ Translation correction | |
| **From :**<br>Company: HEXAGON .....<br>Name: Thuy PHAM .....<br>Postal address: ..... | | | e-mail: thuy.pham@hexagon.com<br>phone: +..... | |
| ☐ Manufacturer | ☐ User | ☒ Other (please specify): Sofware (Pipestress) | | |

**Question/comment:**

Concerning the longitudinal hub stresses with the Taylor Forge method according to Annex D EN13480.

EN13480-3 v2012 §D.5.4.1 a) indicates the calculation with the following equation D5-29:

$$\sigma_H = \frac{\varphi M}{\lambda g_1^2}$$

In operating conditions, M is given by D5-27 as below:

$$M = M_{op} \frac{C_F}{B}$$

(Mop is the total moment acting upon flange for operating condition and B is the inside diameter of flange).

I would like to ask a question about this formula D5-27, which uses directly the inside diameter B and not an equivalent inside diameter B1 (as in ASME III-A, RCC-M ZV and Codeti §C6).
Indeed, there are many similarities in the Taylor Forge calculations EN13480 with other standards/codes (Codeti, ASME III, RCC-M). Nevertheless, we have a difference with the value of inside diameter B1 or B.

RCC-M 2022

**Z V 343 MOMENT MAXIMAL AGISSANT DANS LA BRIDE**

Le moment de flexion maximale MO agissant dans la bride est égal à :

MO = MD + MD' + MT + MT' + MG

M' = max (MO . $C_O$ ; MA . $C_O$) (13)

**Z V 360 DETERMINATION DE LA VALEUR DES CONTRAINTES**

Pour tous les types de brides présentés dans cette annexe, les contraintes sont données par les relations suivantes :

$$SH' = \frac{M'}{L \cdot (g_1)^2 \cdot B_1} + \frac{PB}{4 g_0} \quad (14)$$

$$SH'' = \frac{\lambda M'}{L \cdot (g_1)^2 \cdot B_1} + \frac{PB}{4 g_0} \quad (15)$$

- si $B \geq 20\, g_1$ : $B_1 = B$
- si $B < 20\, g_1$ : $B_1 = B + g_1$ si $\lambda \leq 1$
  $B_1 = B + g_0$ si $\lambda > 1$

## Codeti 2012 §C6.3.7.6

*f)* La contrainte maximale méridienne de flexion dans la collerette est donnée par la formule :

$$\sigma_H = \frac{\varphi}{\lambda g_1^2} \frac{M}{B_1} C_F \qquad \text{(C6.3.7.6}f\text{)}$$

dans laquelle :

- lorsque $B \geq 20\, g_1$ : $B_1 = B$
- lorsque $B < 20\, g_1$ et $\varphi = 1$ : $B_1 = B + g_1$
- lorsque $B < 20\, g_1$ et $\varphi > 1$ : $B_1 = B + g_0$

## ASME III-A 2021 §XI

### XI-3240 CALCULATION OF FLANGE STRESSES

The stresses in the flange shall be determined for both the Design Conditions and gasket seating, whichever controls, in accordance with the equations in (a) or (b).

*(a)* For integral type flanges and all hub type flanges Longitudinal hub stress

$$S_H = f M_0 / L g_1^2 B \qquad (6)$$

### XI-3130 NOMENCLATURE (21)

The nomenclature defined below and shown in Figure XI-3120-1 is used in the equations for the design of flanges.

$B$ = inside diameter of flange (when $B$ is less than $20g_1$ it will be optional for the designer to substitute $B_1$ for $B$ in the equation for longitudinal stress $S_H$)

$B_1$ = $B + g_1$, for loose type hub flanges and also for integral type flanges that have calculated values $h/h_0$ and $g_1/g_0$ which would indicate an $f$ value of less than 1.0, although the minimum value of $f$ permitted is 1.0
= $B + g_0$, for integral type flanges when $f \geq 1$

These 3 references calculate the longitudinal stresses by using B1 instead of B (depending on configuration).

The longitudinal stresses according to EN13480 seem to be more conservative than ASME III, Codeti and RCC-M ZV, because B1 ≥ B.

1/ Are there any particular reasons for this requirement of EN13480 on longitudinal stresses, which seems more conservative than those of other references?

2/ For a calculation in EN13480, is it 'relevant to replace B by B1, as well as the other codes (Codeti, RCC-M, ASME III-A) in the longitudinal stress formulas?

3/ From a regulatory perspective, it seems that this strategy would not be compliant for an EN13480 calculation. But are the risks of damage covered by EN13480 guaranteed by this strategy (replace B with B1), in comparison to the proposals of other codes?

Proposed answer(s): *

**Answer from the MHD** *(to be filled by MHD):* 2024-11-19
1/ No
2/ No
3/ Not applicable. B1 does not exist in EN 13480-3:2024.

| | |
|---|---|
| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France<br>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)*: **3-008-2024** **Date: 2024-11-11**

***Please fulfil the following***

| Part: | Issue: | Page | Subclause | National Standard Reference |
|---|---|---|---|---|
| EN 13480-3 | 2017 | 149 | 12.2.10.1 | DIN EN 13480-3: 2017-12 |

**Subject:**
**12.2.10.1 Formal analysis not required**
No formal analysis of adequate flexibility shall be required for a piping system which meets one of the following criteria:
- duplicates or replaces without significant change a system operating with a satisfactory service record,

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


**From :**
Company:..... private
Name: .....Peter Fecke
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e-mail: .....c-p.fecke@gmx.de
phone: +.....49 15157110019


☒ Manufacturer ☐ User ☐ Other (please specify):

**Question/comment:**

How can the sentence (dash) be interpreted, or how do I prove it.

- duplicates or replaces without significant change a system operating with a satisfactory service record;

**Proposed answer(s): ***

A satisfactory operational proof is established if the following conditions are met:

- It was constructed according to DIN EN 13480 (not according to AD 2000-MB or similar).
- There is a declaration of conformity / manufacturer's declaration according to the Pressure Equipment Directive, and operating instructions are available.
- The flexibility analysis according to DIN EN 13480-3 Subclause 12.3 is available.
- It complies with the state of the art.

**Answer from the MHD** *(to be filled by MHD)*: 2024-11-19

No to the proposed answer(s). For reminder, see also attached MHD answer to **3-007-2023**.

| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM<br>Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |
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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:<br>EN 13480-3 | Issue:<br>2017 | Page<br>149 | Subclause<br>12.2.10.1 | National Standard Reference<br>-- |
| **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.

| | |
|---|---|
| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM<br>Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France<br>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)*: **5-001-2024** | | | **Date: 2024-08-02** | |
| ***Please fulfil the following*** | | | | |
| Part:<br>EN 13480-5 | Issue:<br>2017 | Page<br>14 | Subclause<br>8.1.2 | National Standard Reference<br>TS |
| **Subject:** | | | | |
| **Type of request:** | ☒ Technical clarification | | ☐ Editorial correction | |
| | ☐ Technical comment | | ☐ Translation correction | |


**From :**
Company:Çimtaş Pipe Fabrication and Trading Ltd. Co.
Name: Hüseyin Sarı
Postal address:Ata Sb. Müge Cad. No: 17, 16600, Gemlik, Bursa/Türkiye

e-mail: hsari@cimtaspipe.com
phone: +902245248600 / 2400


| | | |
|---|---|---|
| ☒ Manufacturer | ☐ User | ☐ Other (please specify): |

**Question/comment:**

It is stated in Clause 8.1.2 that “a batch of welds is a quantity of welds, welded by one welder or welding operator, in accordance with a specific welding procedure specification”.

Circumstances may give rise to an event that a welder / welding operator may only perform a specific welding process for different welding procedure specifications (“WPS”) that may involve either solely such process or a combination of this process and different processes. How shall batches be assigned for such cases?

To illustrate, say two different joints: Joint-1 and Joint-2 to which WPS-1 and WPS-2 are assigned respectively are to be welded. In addition, WPS-1 requires 121 + 131, WPS-2 requires 121 +141 and Welder-1 is to solely perform 121 of all two joints. May a single batch govern the requirement of 8.1.2 for Welder-1?

Proposed answer(s): *

In such cases, we are in the opinion that batches shall be based on welding process instead of WPS.

To clarify based on the illustration above, provided that batch size is adequate, same batch may be assigned for Welder-1 regarding all two joints.

**Answer from the MHD** *(to be filled by MHD)*: 2024-11-19

Subclause 8.1.2 is not addressing the batch of welds based on welding processes only. Nevertheless, provided the other welded processes (131, 141) are not being used and agreement was taken by all the involved parties and the batch can be based on the welding process (121) as long as all parameters of these processes are identical.

| | |
|---|---|
| **To be sent to EN 13480 Maintenance Group secretariat:** | EN 13480 Maintenance Group secretariat c/o UNM<br>Standardization Office on behalf of AFNOR<br>F 92038 Paris La Défense Cedex – France |

***** *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)*: **5-002-2024** **Date: 2024-08-29**

***Please fulfil the following***

| Part: | Issue: | Page | Subclause | National Standard Reference |
|---|---|---|---|---|
| EN 13480-5 | 2017 | 14 | 8.1.2 | TS |

**Subject:**

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


**From :**
Company: Çimtaş Pipe Fabrication and Trading Ltd. Co.
Name: Hüseyin Sarı
Postal address:Ata Sb. Müge Cad. No: 17, 16600, Gemlik, Bursa/Türkiye

e-mail: hsari@cimtaspipe.com
phone: +902245248600 / 2400


☒ Manufacturer ☐ User ☐ Other (please specify):

**Question/comment:**

It is stated in Clause 8.1.2 that “a batch of welds is a quantity of welds, welded by one welder or welding operator, in accordance with a specific welding procedure specification”.

By considering the batch size and radiographic test assignment of welds in accordance with metallurgy, PED Category, size etc. within the project/pipe class/line service etc. , is it allowable to assign welds into the same batch as long as the related welding process are identical as stipulated in ISO 4063?

Proposed answer(s): *

We are in the opinion that such assignment, instead of assigning based on WPS (each specific welding procedure specification), is adequate to ensure representativeness of welds in this regard as shown in below table.

**Example**

| Specific WPS No | Welder ID | Welding Process (As per ISO 4063) | Code | Batch No (As per EN13480, item 8.1.2) |
|---|---|---|---|---|
| XYZ-123E | WAB | TIG Welding | 141 | Same Batch |
| XYZ-124E | WAB | TIG Welding | 141 | Same Batch |
| XYZ-125E | WAB | TIG Welding | 141 | Same Batch |

**Answer from the MHD** *(to be filled by MHD)*: 2024-11-19

See answer to MHD question 5-001-2024.

**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.*