SLOVENSKI STANDARD
SIST EN 13480-2:2018/A1:2018

01-december-2018

Kovinski industrijski cevovodi - 2. del: Materiali - Dopolnilo A1

Metallic industrial piping - Part 2: Materials

Metallische industrielle Rohrleitungen - Teil 2: Werkstoffe

Tuyauteries industrielles métalliques - Partie 2: Matériaux

Ta slovenski standard je istoveten z: **EN 13480-2:2017/A1:2018**

ICS:

23.040.10	Železne in jeklene cevi	Iron and steel pipes
77.140.75	Jeklene cevi in cevni profili za posebne namene	Steel pipes and tubes for specific use

SIST EN 13480-2:2018/A1:2018 **en,fr,de**

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English Version

Metallic industrial piping - Part 2: Materials

Tuyauteries industrielles métalliques - Partie 2 : Matériaux

Metallische industrielle Rohrleitungen - Teil 2: Werkstoffe

This amendment A1 modifies the European Standard EN 13480-2:2017; it was approved by CEN on 4 June 2018.

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This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 13480-2:2017/A1:2018) has been prepared by Technical Committee CEN/TC 267 “Industrial piping and pipelines”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2019, and conflicting national standards shall be withdrawn at the latest by April 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of EN 13480-2:2017.

This document includes the text of the amendment itself. The amended/corrected pages of EN 13480-2:2017 will be published as Issue 2 of the European Standard.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Modifications to Clause 2, Normative references

After EN 1092-1:2007, add the following new references:

"EN 1515-4:2009, *Flanges and their joints — Bolting — Part 4: Selection of bolting for equipment subject to the Pressure Equipment Directive 97/23/EC*

EN 1591-1:2013, *Flanges and their joints — Design rules for gasketed circular flange connections — Part 1: Calculation*

EN 1591-2:2008, *Flanges and their joints — Design rules for gasketed circular flange connections — Part 2: Gasket parameters*

CEN/TS 1591-3:2007, *Flanges and their joints — Design rules for gasketed circular flange connections — Part 3: Calculation method for metal to metal contact type flanged joint*

EN 1591-4:2013, *Flanges and their joints — Part 4: Qualification of personnel competency in the assembly of the bolted connections of critical service pressurized systems*

CEN/TR 1591-5:2012, *Flanges and their joints — Design rules for gasketed circular flange connections — Part 5: Calculation method for full face gasketed joints".*

Delete the following reference:

"EN 10028-7:2007, *Flat products made of steels for pressure purposes — Part 7: Stainless steels".*

Replace:

"EN 10269:1999+A1:2006, *Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties"*

with:

"EN 10269:2013, *Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties".*

Replace:

"EN ISO 898-1:2009, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread (ISO 898-1:2009)"*

with:

"EN ISO 898-1:2013, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes - Coarse thread and fine pitch thread (ISO 898-1:2013)".*

After EN 12074:1999, add the following new references:

"EN 13445-2:2014, *Unfired pressure vessels — Part 2: Materials*

EN 13445-3:2014, *Unfired pressure vessels — Part 3: Design".*

Delete:

"EN 20898-2:1993, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values — Coarse thread"*

and add the following new reference after EN ISO 898-1:2013:

"EN ISO 898-2:2012, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 2: Nuts with specified property classes — Coarse thread and fine pitch thread (ISO 898-2:2012)".*

After EN ISO 2566-2:1999, add the following new reference:

"EN ISO 3269:2000, *Fasteners — Acceptance inspection (ISO 3269:2000)".*

Replace:

"EN ISO 3506-1:1997, *Mechanical properties of corrosion-resistant stainless steel fasteners —Part 1: Bolts, screws and studs (ISO 3506-1:1997)*

EN ISO 3506-2:1997, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 2: Nuts (ISO 3506-2:1997)"*

with:

"EN ISO 3506-1:2009, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 1: Bolts, screws and studs (ISO 3506-1:2009)*

EN ISO 3506-2:2009, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 2: Nuts (ISO 3506-2:2009)".*

After EN ISO 3506-2:1997, add the following new reference:

"EN ISO 16426:2002, *Fasteners — Quality assurance system (ISO 16426:2002)".*

2 Modifications to B.2.2.4, Bolts and nuts

Replace the first three paragraphs with the following ones:

"Requirements for prevention of brittle fracture are specified in Tables B.2-8, B.2-9 and B.2-10.

For other bolts and nuts, the following applies:

— a specified impact energy of minimum 40 J is required at T_{KV} = RT for $T_M \geq -10$ °C;

— if T_M is lower than −10 °C, specified impact energy of minimum 40 J is required at $T_{KV} \leq T_M$;

— bolting material with a design temperature below −160 °C shall be impact tested at −196 °C.".

Replace Table B.2-8 with the following one:

"

Table B.2–8 — General requirements for prevention of brittle fracture with reference thickness for nuts and bolts for $T_M \geq -10$ °C

European Standard	Type of material [a]	Thickness limitation	Impact test for $T_M \geq -10$ °C	Test temperature / value
EN 10269:2013	All steels	According to EN 10269:2013	According to EN 10269:2013, Table 4	According to EN 10269:2013, Table 4
EN ISO 898-1:2013	5.6	M ≤ 39	M ≥ 16	RT [b] / 40 J
	8.8	M ≤ 39	M ≥ 16	RT [b] / 52 J
EN ISO 898-2:2012	5	M ≤ 39	None	—
	8	M ≤ 39	None	—

[a] Starting material shall comply with EN 10269:2013. Bolting according to EN ISO 898-1 and/or EN ISO 898-2 is suitable only for temperatures up to 50 °C (see 4.2.2.1).

[b] Testing in accordance with EN 10269:2013. Additional testing is required to comply with $T_M = -20$ °C in accordance with EN ISO 898-1:2013, 9.14.

".

Replace Table B.2-9 with the following one:

“

Table B.2–9 — General requirements for prevention of brittle fracture with reference thickness for nuts and bolts, bolting material according to EN 10269:2013

Type of material	Thickness limitation	Impact test (impact energy of minimum 40 J)	T_M
1.4307, 1.4301, 1.4303, 1.4404, 1.4401, 1.4948, 1.4919, 1.4941	According to EN 10269:2013, Table 10	According to EN 10269:2013, Table 4	–196 °C
1.4429, 1.4910, 1.4980	According to EN 10269:2013, Table 10	According to EN 10269:2013, Table 4	–273 °C
1.5525, 1.1133	According to EN 10269:2013, Table 10	According to EN 10269:2013, Table 10	–20 °C
1.7218	$d \leq 60$ mm	According to EN 10269:2013, Table 10	–60 °C
	$60 < d \leq 100$ mm		–50 °C
1.6582, 1.6580, 1.7225	According to EN 10269:2013, Table 10	According to EN 10269:2013, Table 10	–40 °C
1.5680	$d \leq 40$ mm	According to EN 10269:2013, Table 10	–120 °C
	$40 < d \leq 75$ mm		–90 °C
1.5662	According to EN 10269:2013, Table 10	According to EN 10269:2013, Table 10	–196 °C

”.

Replace Table B.2-10 with the following one:

“

Table B.2–10 — General requirements for prevention of brittle fracture with reference thickness for nuts and bolts

Standard	Type of material [a]		Thickness limitation	T_M	Impact test
EN ISO 3506-1:2009	A2, A3	50	M ≤ 39	– 200 °C	None
		70	M ≤ 24		
EN ISO 3506-1:2009	A4, A5	50	M ≤ 39	– 60 °C [b]	None
		70	M ≤ 24		
EN ISO 3506-2:2009	A2, A3, A4, A5	50	M ≤ 39	– 200 °C	None
		70	M ≤ 24		

[a] Nuts and bolts shall comply with EN 13445-2:2014, F.2.

[b] –200 °C for studs or hot forged bolts with head in property class 50.

”.

3 Modification to B.2.2.5, Lowest minimum metal temperature for austenitic stainless steels

Replace the 1st paragraph with the following one:

"Solution annealed austenitic stainless steels according to Table B.2-11 can be applied down to temperature T_M given in the table without impact testing, except when impact testing is required by the material standard.".

4 Modification to D.2, European standardised steels grouped according to product forms

In Table D.2-1, add the following note h *to the lines 174, 176, 178, 183, 186 and 189:*

"h For 1.4923 +QT2, 1.4913 +QT, 1.4307 +C800, 1.4303 +C800, 1.4404 +C800 and 1.4401 +C800: These grades are acceptable as long as the relevant safety factors for bolting specified in EN 13445-3 are applied.".

5 Addition of Annex E (normative), Special provisions for materials and components

Add the following new Annex E:

"