

SLOVENSKI STANDARD

SIST EN 13480-8:2012

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Kovinski industrijski cevovodi - 8. del: Dodatne zahteve za cevovode iz aluminija in aluminijevih zlitin

Metallic industrial piping - Part 8: Additional requirements for aluminium and aluminium alloy piping

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Metallische industrielle Rohrleitungen - Teil 8: Zusatzanforderungen an Rohrleitungen aus Aluminium und Aluminiumlegierungen

[SIST EN 13480-8:2012](#)

Tuyauteries industrielles métalliques - Partie 8: Exigences complémentaires relatives aux tuyauteries en aluminium et alliages d'aluminium

Ta slovenski standard je istoveten z: EN 13480-8:2012

ICS:

77.140.75	Jeklene cevi in cevni profili za posebne namene	Steel pipes and tubes for specific use
77.150.10	Aluminijski izdelki	Aluminium products

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Metallic industrial piping - Part 8: Additional requirements for aluminium and aluminium alloy piping

Tuyauteries industrielles métalliques - Partie 8: Exigences complémentaires relatives aux tuyauteries en aluminium et alliages d'aluminium

Metallische industrielle Rohrleitungen - Teil 8: Zusatzerfordernungen an Rohrleitungen aus Aluminium und Aluminiumlegierungen

This European Standard was approved by CEN on 8 May 2012.

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Foreword

This document (EN 13480-8:2012) 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of an identical text or by endorsement, at the latest by December 2012, and conflicting national standards shall be withdrawn at the latest by December 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] 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 this document.

This European Standard EN 13480 for metallic industrial piping consists of eight interdependent and not dissociable Parts which are:

- *Part 1: General;*
- *Part 2: Materials;*
- *Part 3: Design and calculation;*
- *Part 4: Fabrication and installation;*
- *Part 5: Inspection and testing;*
- *Part 6: Additional requirements for buried piping;*
- CEN/TR 13480-7, *Guidance on the use of conformity assessment procedures;*
- *Part 8: Additional requirements for aluminium and aluminium alloy piping.*

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Although these Parts may be obtained separately, it should be recognised that the Parts are inter-dependant. As such the manufacture of metallic industrial piping requires the application of all the relevant Parts in order for the requirements of the Standard to be satisfactorily fulfilled.

This European Standard will be maintained by a Maintenance MHD working group whose scope of working is limited to corrections and interpretations related to EN 13480.

The contact to submit queries can be found at http://portailgroupe.afnor.fr/public_espacenormalisation/CENTC267WG8/index.htm. A form for submitting questions can be downloaded from the link to the MHD website. After subject experts have agreed an answer, the answer will be communicated to the questioner. Corrected pages will be given specific issue number and issued by CEN according to CEN Rules. Interpretation sheets will be posted on the website of the MHD.

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This document supersedes EN 13480-8:2007+A1:2011. This new edition incorporates the Amendments/the corrigenda which have been approved previously by CEN members, and the corrected pages up to Issue 17 without any further technical change. Annex Y provides details of significant technical changes between this European Standard and the previous edition.

Amendments to this new edition may be issued from time to time and then used immediately as alternatives to rules contained herein. It is intended to deliver a new Issue of EN 13480:2012 each year, consolidating these Amendments and including other identified corrections.

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

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1 Scope

This Part of this European Standard specifies requirements for industrial piping systems made of aluminium and aluminium alloys in addition to the general requirements for industrial piping according to the series of standards EN 13480:2012 and CEN/TR 13480-7:2002.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 485-3:2003, *Aluminium and aluminium alloys — Sheet, strip and plate — Part 3: Tolerances on dimensions and form for hot-rolled products*

EN 485-4:1993, *Aluminium and aluminium alloys — Sheet, strip and plate — Part 4: Tolerances on shape and dimensions for cold-rolled products*

EN 571-1:1997, *Non-destructive testing — Penetrant testing — Part 1: General principles*

EN 573-3:2009, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition and form of products*

EN 583-1:1998+A1:2003, *Non-destructive testing — Ultrasonic examination — Part 1: General principles*

EN 583-2:2001, *Non-destructive testing — Ultrasonic examination — Part 2: Sensitivity and range setting*

EN 583-3:1997, *Non-destructive testing — Ultrasonic examination — Part 3: Transmission technique*

EN 583-4:2002+A1:2003, *Non-destructive testing — Ultrasonic examination — Part 4: Examination for discontinuities perpendicular to the surface*

EN 895:1995, *Destructive tests on welds in metallic materials — Transverse tensile test*

EN 970:1997, *Non-destructive examination of fusion welds — Visual examination*

EN 1321:1996, *Destructive tests on welds in metallic materials — Macroscopic and microscopic examination of welds*

EN 1435:1997+A2:2003, *Non-destructive examination of welds — Radiographic examination of welded joints*

EN 1779:1999+A1:2003, *Non-destructive testing — Leak testing — Criteria for method and technique selection*

EN 10002-1:2001, *Metallic materials — Tensile testing — Part 1: Method of test at ambient temperature*

EN 10045-1:1990, *Metallic materials — Charpy impact test — Part 1: Test method*

EN 10204:2004, *Metallic products — Types of inspection documents*

EN 10246 (all parts), *Non-destructive testing of steel tubes*

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EN 12392:2000, *Aluminium and aluminium alloys — Wrought products — Special requirements for products intended for the production of pressure equipment*

EN 13445-4:2009, *Unfired pressure vessels — Part 4: Fabrication*

EN 13445-8:2009, *Unfired pressure vessels — Part 8: Additional requirements for pressure vessels of aluminium and aluminium alloys*

EN 13480-1:2012, *Metallic industrial piping — Part 1: General*

EN 13480-2:2012, *Metallic industrial piping — Part 2: Materials*

EN 13480-3:2012, *Metallic industrial piping — Part 3: Design and calculation*

EN 13480-4:2012, *Metallic industrial piping — Part 4: Fabrication and installation*

EN 13480-5:2012, *Metallic industrial piping — Part 5: Inspection and testing*

CEN/TR 13480-7:2002, *Metallic industrial piping — Part 7: Guidance on the use of conformity assessment procedures*

EN ISO 3834-2:2005, *Quality requirements for fusion welding of metallic materials — Part 2: Comprehensive quality requirements (ISO 3834-2:2005)*

EN ISO 3834-3:2005, *Quality requirements for fusion welding of metallic materials — Part 3: Standard quality requirements (ISO 3834-3:2005)*

EN ISO 4063:2010, *Welding and allied processes — Nomenclature of processes and reference numbers (ISO 4063:2009)*

EN ISO 7438:2005, *Metallic materials — Bend test (ISO 7438:2005)*

EN ISO 9606-2:2004, *Qualification test of welders — Fusion welding — Part 2: Aluminium and aluminium alloys (ISO 9606-2:2004)*

EN ISO 10042:2005, *Welding — Arc-welded joints in aluminium and its alloys — Quality levels for imperfections (ISO 10042:2005)*

EN ISO 11666:2010, *Non-destructive testing of welds — Ultrasonic testing — Acceptance levels (ISO 11666:2010)*

EN ISO 15614-2:2005, *Specification and qualification of welding procedures for metallic materials — Welding procedure test - Part 2: Arc welding of aluminium and its alloys (ISO 15614-2:2005)*

EN ISO 17640:2010, *Non-destructive testing of welds — Ultrasonic testing — Techniques, testing levels, and assessment (ISO 17640:2010)*

EN ISO 23277:2009, *Non-destructive testing of welds — Penetrant testing of welds — Acceptance levels (ISO 23277:2006)*

CEN ISO/TR 15608:2000, *Welding — Guidelines for a metallic materials grouping system (ISO/TR 15608:2000)*

3 Terms, definitions, symbols and units

For the purposes of this European Standard, the terms, definitions, symbols and units of EN 13480:2012 Parts 1 to 5 apply.

4 General requirements

The general requirements of EN 13480-1:2012 shall apply.

5 Materials

5.1 General

The requirements of EN 13480-2:2012 shall apply with the following additions/exclusions:

5.2 Material grouping system

Annex A of EN 13480-2:2012 is not applicable for aluminium and aluminium alloys. The allowable materials for industrial piping of aluminium and aluminium alloys shall be according to Table 5.2-1.

Any product form available in EN 12392:2000 for a material in this table at an acceptable temper is acceptable for construction to this European Standard. Other materials not defined here may be used by agreement by the parties concerned (see 4.3 of EN 13480-2:2012) if they meet the requirements of 5.2 and 5.3 of this standard and a Particular Material Appraisal is produced (see EN 764-4:2002).

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Table 5.2-1 — Grouping system based on CEN ISO/TR 15608:2000 and allowable materials of construction based on EN 12392:2000 using the EN AW numbers according to EN 573-3:2009

Group	Sub group	Type of aluminium and aluminium alloys	Designation		
			EN AW number	Chemical symbol	Temper
21		Pure aluminium with ≤ 1 % impurities or alloy content	EN AW – 1050A EN AW – 1070A EN AW – 1080A	EN AW–Al 99,5 EN AW–Al 99,7 EN AW–Al 99,8(A)	O, H111, H112 O, H111, H112 O, H111, H112
22	Non heat treatable alloys				
	22.1	Aluminium-manganese alloys	EN AW – 3003 EN AW – 3103 EN AW – 3105	EN AW–Al Mn1Cu EN AW–Al Mn1 EN AW–Al Mn0,5Mg0,5	O, H111, H112 O, H111, H112 O, H111
	22.2	Aluminium-magnesium alloys with Mg ≤ 1,5 %	EN AW – 5005 EN AW – 5005A EN AW – 5050	EN AW–Al Mg1(B) EN AW–Al Mg1(C) EN AW–Al Mg1,5 (C)	O, H111, H112 O, H111, H112 O, H111
	22.3	Aluminium-magnesium alloys with 1,5 % < Mg ≤ 3,5 %	EN AW – 5049 EN AW – 5052 EN AW – 5154A EN AW – 5251 EN AW – 5454 EN AW – 5754	EN AW–Al Mg2Mn0,8 EN AW–Al Mg2,5 EN AW–Al Mg3,5(A) EN AW–Al Mg2 EN AW–Al Mg3Mn(A) EN AW–Al Mg3	O, H111, H112 O, H111, H112 O, H111, H112 O, H111, H112 O, H111, H112 O, H111, H112
	22.4	Aluminium-magnesium alloys with Mg > 3,5 %	EN AW – 5083 EN AW – 5086	EN AW–Al Mg4,5Mn0,7 EN AW–Al Mg4	O, H111, H112 O, H111
23	Heat treatable alloys				
	23.1	Aluminium-magnesium-silicon alloys	EN AW 6060 EN AW 6061	EN AW–Al MgSi EN AW–Al Mg1SiCu	T4 ^a T4 ^b , T6 ^c
<p>a for seamless pipes and profiles only</p> <p>b for seamless pipes and flanges only</p> <p>c for flanges only</p>					

5.3 Elongation after fracture

Aluminium and aluminium alloys used for parts of industrial piping that are subjected to cold forming shall have a specified minimum elongation after fracture measured on a gauge length

$$L_o = 5,65\sqrt{S_o}$$

that is ≥ 14 % in the longitudinal or transverse direction as defined by the material specification.

Aluminium and aluminium alloys used for parts of industrial piping that are not subjected to cold forming (e.g. straight flanges and nozzles) shall have a specified minimum elongation after fracture measured on a gauge length

$$L_o = 5,65\sqrt{S_o}$$

that is ≥ 10 % in the longitudinal or transverse direction as defined by the material specification.