

**SLOVENSKI STANDARD**  
**SIST EN 13480-8:2012/A2:2015**  
**01-november-2015**

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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

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

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

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**Ta slovenski standard je istoveten z: EN 13480-8:2012/A2:2015**

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**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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EUROPEAN STANDARD

EN 13480-8:2012/A2

NORME EUROPÉENNE

EUROPÄISCHE NORM

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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:  
Zusatzanforderungen an Rohrleitungen aus Aluminium  
und Aluminiumlegierungen

This amendment A2 modifies the European Standard EN 13480-8:2012; it was approved by CEN on 2 September 2015.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN 13480-8:2012/A2:2015) has been prepared by Technical Committee CEN/TC 267 "Metallic industrial piping", the secretariat of which is held by AFNOR.

This amendment to EN 13480-8:2012 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2016, and conflicting national standards shall be withdrawn at the latest by March 2016.

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 EN 13480-8:2012.

This document includes the text of the amendment itself. The corrected pages of EN 13480-8:2012 will be published as Issue 5 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

**EN 13480-8:2012/A2:2015 (E)****1 Modification to Clause 2**

Replace the list of normative references by the following:

EN 485-2:2013, *Aluminium and aluminium alloys — Sheet, strip and plate — Part 2: Mechanical properties*

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

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

EN 573-3:2013, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition and form of products*

EN 586-2:1994, *Aluminium and aluminium alloys — Forgings — Part 2: Mechanical properties and additional property requirements*

EN 754 (all parts), *Aluminium and aluminium alloys — Cold drawn rod/bar and tube*

EN 755 (all parts), *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles*

EN 764-3, *Pressure equipment — Part 3: Definition of parties involved*

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

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

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

EN 13445-4:2014, *Unfired pressure vessels — Part 4: Fabrication*

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*

EN ISO 148-1:2010, *Metallic materials — Charpy pendulum impact test — Part 1: Test method (ISO 148-1:2009)*

EN ISO 3452-1:2013, *Non-destructive testing — Penetrant testing — Part 1: General principles (ISO 3452-1:2013)*

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, Corrected version 2010-03-01)*

- EN ISO 4136:2012, *Destructive tests on welds in metallic materials — Transverse tensile test (ISO 4136:2012)*
- EN ISO 5173:2010 + A1:2011, *Destructive tests on welds in metallic materials — Bend tests (ISO 5173:2009 + Amd 1:2011)*
- EN ISO 6892-1:2009, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2009)*
- EN ISO 6892-2:2011, *Metallic materials — Tensile testing — Part 2: Method of test at elevated temperature (ISO 6892-2:2011)*
- 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 10893-8:2011, *Non-destructive testing of steel tubes — Part 8: Automated ultrasonic testing of seamless and welded steel tubes for the detection of laminar imperfections (ISO 10893-8:2011)*
- EN ISO 10893-11:2011, *Non-destructive testing of steel tubes — Part 11: Automated ultrasonic testing of the weld seam of welded steel tubes for the detection of longitudinal and/or transverse imperfections (ISO 10893-11:2011)*
- 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 16810:2014, *Non-destructive testing — Ultrasonic testing — General principles (ISO 16810:2012)*
- EN ISO 16811:2014, *Non-destructive testing — Ultrasonic testing — Sensitivity and range setting (ISO 16811:2012)*
- EN ISO 16823:2014, *Non-destructive testing — Ultrasonic testing — Transmission technique (ISO 16823:2012)*
- EN ISO 16826:2014, *Non-destructive testing — Ultrasonic testing — Examination for discontinuities perpendicular to the surface (ISO 16826:2012)*
- EN ISO 16827:2014, *Non-destructive testing — Ultrasonic testing — Characterization and sizing of discontinuities (ISO 16827:2012)*
- EN ISO 16828:2014, *Non-destructive testing — Ultrasonic testing — Time-of-flight diffraction technique as a method for detection and sizing of discontinuities (ISO 16828:2012)*
- EN ISO 17636-1:2013, *Non-destructive testing of welds — Radiographic testing — Part 1: X- and gamma-ray techniques with film (ISO 17636-1:2013)*
- EN ISO 17636-2:2013, *Non-destructive testing of welds — Radiographic testing — Part 2: X- and gamma-ray techniques with digital detectors (ISO 17636-2:2013)*
- EN ISO 17637:2011, *Non-destructive testing of welds — Visual testing of fusion-welded joints (ISO 17637:2003)*

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EN ISO 17639:2013, *Destructive tests on welds in metallic materials — Macroscopic and microscopic examination of welds (ISO 17639:2003)*

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 15608:2013, *Welding — Guidelines for a metallic materials grouping system (ISO/TR 15608:2013)*

ISO 857-1:1998, *Welding and allied processes — Vocabulary — Part 1: Metal welding processes*

**2 Modification to 5.1**

Replace sub-clause 5.1 by the following:

**5.1 General**

Materials for pressure-bearing parts compliant with the requirements of this European Standard shall be accompanied by inspection documents in accordance with EN 10204:2004.

The type of inspection document shall be in accordance with EN 764-5:2002 and include a declaration of compliance to the material specification.

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

**3 Modification to 5.2**

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Replace table title of Table 5.2-1 by the following.

**Table 5.2-1 — Grouping system based on CEN ISO/TR 15608:2013 and EN AW numbers according to EN 573-3:2013**

**4 Modification to 5.3**

Replace sub-clause 5.3 by the following:

**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

$$L_o = 5,65\sqrt{S_o} \quad (5.3-1)$$

that is  $\geq 14$  % 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 of  $\geq 10$  % in the longitudinal or transverse direction as defined by the material specification measured on a gauge length as defined in equation (5.3-1).



## 5 Modification to 5.6

*Replace sub-clause 5.6 by the following:*

NOTE 1 See also EN 13480-2:2012, 4.2.2.

EN 13480-2:2012, 4.2.2.1, 2<sup>nd</sup> paragraph is not applicable for aluminium and aluminium alloys.

Nominal design stress values are given in Table C.1, Table C.2, Table C.3 and Table C.4. Design temperatures that exceed the respective temperature limit in Annex C are not permitted.

For materials of group 22.4 temperatures above 80 °C may result in grain boundary precipitation of Al<sub>3</sub>Mg<sub>2</sub>. These materials may be used at temperatures above 80 °C up to 200 °C only for non-corrosive service.

NOTE 2 For further material properties, see EN 12392:2000.

For welded parts and heat treated parts after forming only the values equivalent to the O temper shall be used for design when 6 000 series flanges, etc. are welded. Nominal design stresses are given in C.6. The weld area shall be based on the O temper but the flange strength away from the weld (2t) may be based on the actual temper (T4 or T6).

For aluminium and aluminium alloys values of 0,2 % proof strength (or 1 % proof strength for material group 21-1 000 series aluminium) for temperatures above 20 °C shall be established by linear interpolation between two adjacent values according to EN 12392:2000, Clause 8.

For material of group 22.4: For short periods, higher temperatures are permitted (e.g. when defrosting refrigerating plant) up to 150 °C are permissible provided that the pressure is reduced to half the working pressure for a period up to 8 h and to atmospheric pressure for a period up to 24 h.

## 6 Modification to Table 7.5-1

*Replace table footnote d by the following:*

For  $V_d$  (%) for cylinders and cones, see EN 13480-4:2012, 7.1.3; for  $V_d$  (%) for dished circular products, see EN 13445-4:2014, 9.2.1.

## 7 Modification to Table 8.5-1

*Replace Table 8.5-1 by the following:*