

<b>STN</b>	<b>Hliník a zliatiny hliníka Tvárnené výrobky a liate výrobky Zvláštne požiadavky na výrobky určené na výrobu tlakových zariadení</b>	<b>STN EN 12392</b>  42 1460
------------	---	--

Aluminium and aluminium alloys - Wrought products and cast products - Special requirements for products intended for the production of pressure equipment

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/26

Obsahuje: EN 12392:2025

Oznámením tejto normy sa ruší  
STN EN 12392+A1 (42 1460) z júla 2024

**141974**

---

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2026  
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.



EUROPEAN STANDARD

EN 12392

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2025

ICS 77.150.10

Supersedes EN 12392:2016+A1:2022

English Version

## Aluminium and aluminium alloys - Wrought products and cast products - Special requirements for products intended for the production of pressure equipment

Aluminium et alliages d'aluminium - Produits corroyés et moulés - Exigences particulières pour les produits destinés à la fabrication des équipements sous pression

Aluminium und Aluminium-Legierungen - Knet- und Gusserzeugnisse - Besondere Anforderungen an Erzeugnisse für die Fertigung von Druckgeräten

This European Standard was approved by CEN on 30 June 2025.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a 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 European Standard 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.

CEN members are the national standards bodies of 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



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

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

## EN 12392:2025 (E)

<b>Contents</b>	<b>Page</b>
European foreword.....	4
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Terms and definitions</b> .....	<b>8</b>
<b>4 Symbols</b> .....	<b>13</b>
<b>5 Materials</b> .....	<b>14</b>
5.1 General.....	14
5.2 Wrought products.....	14
5.3 Cast products.....	14
5.4 Elongation after fracture.....	14
<b>6 Technical conditions for inspection and delivery</b> .....	<b>15</b>
6.1 Manufacturing methods.....	15
6.1.1 General.....	15
6.1.2 Specific requirements regarding porthole extruded and/or drawn products.....	15
6.1.3 Quality control.....	16
6.2 Orders or tenders.....	17
6.3 Test procedures.....	18
6.3.1 General.....	18
6.3.2 Chemical analysis of the melt.....	18
6.3.3 Hydrogen content.....	18
6.3.4 Tensile and hardness testing.....	18
6.3.5 Specific test procedures by product form.....	20
6.4 Inspection documents.....	24
6.5 Marking.....	24
6.6 Packaging.....	25
<b>7 Mechanical properties</b> .....	<b>25</b>
7.1 Mechanical properties at room temperature.....	25
7.1.1 General.....	25
7.1.2 Sheet, strip, plate and circles.....	25
7.1.3 Extruded rod/bar, tube, coiled tube and profile.....	25
7.1.4 Cold drawn rod/bar, tube and coiled tube.....	25
7.1.5 Forgings.....	25
7.1.6 Castings.....	25
7.2 Low and high temperature properties.....	25
<b>8 Tolerances on dimensions and form</b> .....	<b>26</b>
8.1 Sheet, strip, plate and circles.....	26
8.2 Extruded rod/bar, tube, coiled tube and profile.....	26
8.3 Cold drawn rod/bar, tube and coiled tube.....	26
8.4 Forgings.....	26
8.5 Castings.....	26
<b>Annex A (informative) Materials and application ranges</b> .....	<b>39</b>
<b>Annex B (informative) Tensile properties at low and high temperatures</b> .....	<b>47</b>
<b>B.1 General</b> .....	<b>47</b>

<b>B.2</b>	<b>Wrought products .....</b>	<b>48</b>
<b>B.3</b>	<b>Cast products.....</b>	<b>52</b>
<b>Annex C</b>	<b>(normative) Empirical conversion between values of <math>A</math> and <math>A_{50}</math>.....</b>	<b>56</b>
<b>Annex D</b>	<b>(informative) Significant technical changes between this document and its previous edition.....</b>	<b>60</b>
<b>Annex ZA</b>	<b>(informative) Relationship between this European Standard and the essential safety requirements of Directive 2014/68/EU aimed to be covered .....</b>	<b>63</b>
<b>Bibliography</b>	<b>.....</b>	<b>64</b>

**EN 12392:2025 (E)****European foreword**

This document (EN 12392:2025) has been prepared by Technical Committee CEN/TC 132 “Aluminium and aluminium alloys”, 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 2026, and conflicting national standards shall be withdrawn at the latest by April 2026.

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 supersedes EN 12392:2016+A1:2022.

Details of significant technical changes between this document and its previous edition are provided at Annex D.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

## 1 Scope

This document specifies the material requirements and testing procedures applicable to wrought and cast aluminium and aluminium alloys intended for use in the production of pressure equipment.

This document covers:

- the products forms, grades and tempers of wrought and cast aluminium and aluminium alloys which are used for such applications together with data for wrought and cast alloys over their permissible working temperature ranges;
- the technical conditions for inspection and delivery, mechanical property limits and tolerances on form and dimensions by reference to the appropriate European standards for the relevant wrought and cast aluminium and aluminium alloys;
- additional requirements which are specific to pressure equipment applications.

It applies to hot-rolled plate, cold-rolled sheet/strip/circles, extruded or extruded and cold drawn rod/bar, tube, extruded open/hollow profiles, forgings and castings. Considering this, this document is intended to be used in conjunction with the EN 573 series, EN 485 series, EN 941, EN 754 series, EN 755 series, EN 586 series and EN 1706. The materials and application ranges covered by this document are those given in Annex A, Table A.1 for wrought alloys and Table A.2 for castings.

The objective of this document is to only cover the materials used for components of pressure equipment. Fabrication or fabrication methods for pressure equipment are excluded from this document.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 485-1:2016, *Aluminium and aluminium alloys — Sheet, strip and plate — Part 1: Technical conditions for inspection and delivery*

EN 485-2:2016+A1:2018, *Aluminium and aluminium alloys — Sheet, strip and plate — Part 2: Mechanical properties*

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 573-3:2019+A2:2023, *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Part 3: Chemical composition and form of products*

EN 586-1:1997, *Aluminium and aluminium alloys — Forgings — Part 1: Technical conditions for inspection and delivery*

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

EN 586-3:2001, *Aluminium and aluminium alloys — Forgings — Part 3: Tolerances on dimensions and form*

**EN 12392:2025 (E)**

EN 754-1:2016, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 1: Technical conditions for inspection and delivery*

EN 754-2:2024, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 2: Mechanical properties*

EN 754-3:2008, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 3: Round bars, tolerances on dimensions and form*

EN 754-4:2008, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 4: Square bars, tolerances on dimensions and form*

EN 754-5:2008, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 5: Rectangular bars, tolerances on dimensions and form*

EN 754-6:2008, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 6: Hexagonal bars, tolerances on dimensions and form*

EN 754-7:2016, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 7: Seamless tubes, tolerances on dimensions and form*

EN 754-8:2016, *Aluminium and aluminium alloys — Cold drawn rod/bar and tube — Part 8: Porthole tubes, tolerances on dimensions and form*

EN 755-1:2016, *Aluminium and aluminium alloys— Extruded rod/bar, tube and profiles — Part 1: Technical conditions for inspection and delivery*

EN 755-2:2016, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 2: Mechanical properties*

EN 755-3:2008, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 3: Round bars, tolerances on dimensions and form*

EN 755-4:2008, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 4: Square bars, tolerances on dimensions and form*

EN 755-5:2008, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 5: Rectangular bars, tolerances on dimensions and form*

EN 755-6:2008, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 6: Hexagonal bars, tolerances on dimensions and form*

EN 755-7:2016, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 7: Seamless tubes, tolerances on dimensions and form*

EN 755-8:2016, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 8: Porthole tubes, tolerances on dimensions and form*

EN 755-9:2016, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 9: Profiles, tolerances on dimensions and form*

EN 764-5:2014, *Pressure equipment — Part 5: Inspection documentation of metallic materials and compliance with the material specification*

- EN 941:2022, *Aluminium and aluminium alloys — Circle and circle stock for the production of general applications — Specifications*
- EN 1370:2011, *Founding — Examination of surface condition*
- EN 1371-1:2011, *Founding — Liquid penetrant testing — Part 1: Sand, gravity die and low pressure die castings*
- EN 1559-1:2011, *Founding — Technical conditions of delivery — Part 1: General*
- EN 1559-4:2015, *Founding — Technical conditions of delivery — Part 4: Additional requirements for aluminium alloy castings*
- EN 1706:2020+A1:2021, *Aluminium and aluminium alloys — Castings — Chemical composition and mechanical properties*
- EN 1779:1999, *Non-destructive testing — Leak testing — Criteria for method and technique selection*
- EN 1779:1999/A1:2003, *Non-destructive testing — Leak testing — Criteria for method and technique selection*
- EN 2004-1:1993, *Aerospace series — Test methods for aluminium and aluminium alloy products — Part 1: Determination of electrical conductivity of wrought aluminium alloys*
- EN 2101:1991, *Aerospace series — Chromic acid anodizing of aluminium and wrought aluminium alloys*
- EN 12020-1:2022, *Aluminium and aluminium alloys — Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 — Part 1: Technical conditions for inspection and delivery*
- EN 12020-2:2022, *Aluminium and aluminium alloys — Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 — Part 2: Tolerances on dimensions and form*
- EN 12258-1:2012, *Aluminium and aluminium alloys — Terms and definitions — Part 1: General terms*
- EN 12681-1:2017, *Founding — Radiographic testing — Part 1: Film techniques*
- EN 12681-2:2017, *Founding — Radiographic testing — Part 2: Techniques with digital detectors*
- EN 13957:2008, *Aluminium and aluminium alloys — Extruded round, coiled tube for general applications — Specification*
- EN 13958:2008, *Aluminium and aluminium alloys — Cold drawn, round, coiled tube for general applications — Specification*
- EN 14242:2023, *Aluminium and aluminium alloys — Chemical analysis — Inductively coupled plasma optical emission spectrometric analysis*
- EN 14361:2025, *Aluminium and aluminium alloys — Chemical analysis — Sampling from metal melts*
- EN 14726:2019, *Aluminium and aluminium alloys — Determination of the chemical composition of aluminium and aluminium alloys by spark optical emission spectrometry*
- EN ISO 148-1:2016, *Metallic materials — Charpy pendulum impact test — Part 1: Test method (ISO 148-1:2016)*

**EN 12392:2025 (E)**

EN ISO 3452-1:2021, *Non-destructive testing — Penetrant testing — Part 1: General principles (ISO 3452-1:2021)*

EN ISO 6506-1:2014, *Metallic materials — Brinell hardness test — Part 1: Test method (ISO 6506-1:2014)*

EN ISO 6892-1:2019, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2019)*

EN ISO 8062-3:2023, *Geometrical product specifications (GPS) — Dimensional and geometrical tolerances for moulded parts — Part 3: General dimensional and geometrical tolerances and machining allowances for castings using  $\pm$  tolerances for indicated dimensions (ISO 8062-3:2023)*

EN ISO 8492:2013, *Metallic materials — Tube — Flattening test (ISO 8492:2013)*

EN ISO 8493:2004, *Metallic materials — Tube — Drift-expanding test (ISO 8493:1998)*

EN ISO 8495:2013, *Metallic materials — Tube — Ring-expanding test (ISO 8495:2013)*

EN ISO 8496:2013, *Metallic materials — Tube — Ring tensile test (ISO 8496:2013)*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**