



SLOVENSKI STANDARD

SIST EN 755-1:2008

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SIST EN 755-1:1998

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

Aluminium und Aluminiumlegierungen - Stranggepresste Stangen, Rohre und Profile - Teil 1: Technische Lieferbedingungen

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Aluminium et alliages d'aluminium - Barres, tubes et profilés filés - Partie 1 : Conditions techniques de contrôle et de livraison [SIST EN 755-1:2008](#)

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English Version

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This European Standard was approved by CEN on 10 February 2008.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Contents

Page

Foreword.....	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Ordering information	6
5 Requirements	8
5.1 Production and manufacturing processes	8
5.2 Quality control.....	8
5.3 Chemical composition limits	8
5.4 Mechanical properties.....	8
5.5 Freedom from surface defects	8
5.6 Tolerances on dimensions and form	9
5.7 Stress corrosion cracking resistance.....	9
5.8 Additional requirements	9
6 Test procedures	9
6.1 Sampling.....	9
6.2 Test methods.....	11
6.3 Re-tests.....	12
7 Inspection documents.....	12
8 Marking of products.....	12
9 Packaging	13
10 Arbitration.....	13
Annex A (normative) Location of test pieces.....	14
A.1 Round, square and hexagonal bar.....	14
A.1.1 For diameter (<i>D</i>) or width across flats (<i>S</i>) up to and including 40 mm:	14
A.1.2 For diameter (<i>D</i>) or width across flats (<i>S</i>) over 40 mm;	14
A.2 Rectangular bar.....	15
A.2.1 For thickness up to and including 12,5 mm:	15
A.2.2 For thickness (<i>T</i>) over 12,5 mm and up to and including 40 mm:	15
A.2.3 For thickness (<i>T</i>) exceeding 40 mm:.....	15
A.3 Tube	15
A.4 Profiles.....	16
A.4.1 For thickness up to and including 12,5 mm:	16
A.4.2 For thickness over 12,5 mm and up to and including 40 mm:	16
A.4.3 For thickness exceeding 40 mm:	16
Annex B (normative) Resistance to stress-corrosion cracking for alloy EN AW-7075 in tempers T73, T73510 and T73511 – Electrical conductivity	17
Bibliography	18

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 755-1:2008](https://standards.iteh.ai/catalog/standards/sist/41137a0f-0e5a-4a9b-8820-f5eb8ef6ce41/sist-en-755-1-2008)

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Foreword

This document (EN 755-1:2008) 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 September 2008, and conflicting national standards shall be withdrawn at the latest by September 2008.

This document supersedes EN 755-1:1997.

Within its programme of work, Technical committee CEN/TC 132 entrusted CEN/TC 132/WG 5 "*Extruded and drawn products*" to revise EN 755-1:1997.

The following technical modifications have been introduced during the revision:

- Clause 1: Scope is clarified with respect to what is not included
- Clause 3: Definition of order document is included
- Clause 4: Ordering document shall contain information about application, especially for products to be anodised
- Subclauses 5.4 and 6.2.3: Provisions regarding Brinell hardness testing are included
- Subclauses 5.7 and 6.2.6: Requirements to stress corrosion cracking resistance are included (from former Annex A in Part 2)
- Subclause 6.1.1: For samples for chemical analysis reference is made to EN 14361
- Subclause 6.1.3.3: For shapes and dimensions of test pieces reference is made to EN 10002-1 (and former Annex A is deleted)
- Clause 7: For inspection documents, reference is made to EN 10204
- Annex B: Annex B Resistance to stress corrosion cracking – Electrical conductivity is added (taken from former Part 2)

EN 755 comprises the following parts under the general title "*Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles*":

- *Part 1: Technical conditions for inspection and delivery*
- *Part 2: Mechanical properties*
- *Part 3: Round bars, tolerances on dimensions and form*
- *Part 4: Square bars, tolerances on dimensions and form*
- *Part 5: Rectangular bars, tolerances on dimensions and form*
- *Part 6: Hexagonal bars, tolerances on dimensions and form*
- *Part 7: Seamless tubes, tolerances on dimensions and form*
- *Part 8: Porthole tubes, tolerances on dimensions and form*

— *Part 9: Profiles, tolerances on dimensions and form*

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.

CEN/TC 132 affirms it is its policy that in the case when a patentee refuses to grant licenses on standardized standards products under reasonable and not discriminatory conditions then this product shall be removed from the corresponding standard.

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, 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 and the United Kingdom.

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1 Scope

This document specifies the technical conditions for inspection and delivery of wrought aluminium and aluminium alloy extruded rod/bar, tube and profile for general engineering applications.

This document does not apply to:

- forging stock (EN 603),
- extruded precision profiles in alloys EN AW-6060 and EN AW-6063 (EN 12020),
- products delivered in coils (prEN 13957),
- coiled tubes cut to length (prEN 13957).

2 Normative references

The following referenced documents are indispensable for the application 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 515, *Aluminium and aluminium alloys — Wrought products — Temper designations*

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

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

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

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

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

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

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

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

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

EN 2004-1, *Aerospace series — Test methods for aluminium and aluminium alloy products — Part 1: Determination of electrical conductivity of wrought aluminium alloys*

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

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

EN 12258-1:1998, *Aluminium and aluminium alloys — Terms and definitions — Part 1: General terms*

EN 755-1:2008 (E)

EN 14242, *Aluminium and aluminium alloys — Chemical analysis — Inductively coupled plasma optical emission spectral analysis*

EN 14361, *Aluminium and aluminium alloys — Chemical analysis — Sampling from metal melts*

EN ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method (ISO 6506-1:2005)*

ISO 9591, *Corrosion of aluminium alloys — Determination of resistance to stress corrosion cracking*

ASTM G47, *Standard Test Method for Determining Susceptibility to Stress-Corrosion Cracking of 2XXX and 7XXX Aluminium Alloy Products*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12258-1:1998 and the following apply.

3.1

order document

document or set of documents agreed between supplier and purchaser at the time of ordering

4 Ordering information

The order document shall contain the following:

a) form and type of product:

- form of the product (extruded rod/bar, tube or profile). If tube, whether seamless or porthole/bridge extruded,
- reference to EN 573-3 for chemical composition limits,
- reference to EN 515 for temper designation,
- purchaser application, in particular whether subsequent anodising is intended. This shall be clearly stated on the order document.

b) reference to EN 755-2 for mechanical property limits;

c) reference to this document (EN 755-1);

d) dimensions and shape of the product:

1) round tube:

- length,

and only two of the following dimensions:

- outside diameter,
- inside diameter,
- wall thickness.

- 2) round bar:
 - diameter,
 - length.
 - 3) square and hexagonal bar:
 - width across flats,
 - length.
 - 4) rectangular bar:
 - width,
 - thickness,
 - length.
 - 5) all other cases:
 - drawing of cross section,
 - length.
- e) tolerances on dimensions and form with reference to the appropriate European Standard and/or a drawing;
- f) quantity: [SIST EN 755-1:2008
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- mass,
 - number of pieces,
 - total length,
 - tolerance on quantity.
- g) any requirements for inspection documents;
- h) any special requirements agreed between supplier and purchaser:
- marking of products,
 - references to drawings, part numbers, etc.,
 - additional or special testing, e.g. stress corrosion testing,
 - surface finish requirements,
 - surface protection,
 - packaging,
 - inspection prior to delivery,

— use of $A_{50\text{mm}}$ value instead of A value for elongation.

- i) for products intended to be anodised by the purchaser, the order document shall also contain the information about the intended particular surface treatment with reference to the relevant European Standard.

5 Requirements

5.1 Production and manufacturing processes

Unless otherwise specified in the order document, the production and manufacturing processes shall be left to the discretion of the manufacturer. Unless it is explicitly stated in the order document, no obligation shall be placed on the manufacturer to use the same processes for subsequent similar orders.

5.2 Quality control

The supplier shall be responsible for the performance of all inspection and tests required by the relevant European Standard and/or the particular specification prior to shipment of the product. If the purchaser wishes to inspect the product at the manufacturer's works, he shall notify the supplier at the time of placing the order.

5.3 Chemical composition limits

The chemical composition limits shall be in conformity with the requirements specified in EN 573-3.

If the purchaser requires closer limits for elements than those specified in the above standard, these limits shall be according to an agreement between supplier and purchaser and stated in the order document.

5.4 Mechanical properties

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The mechanical properties shall be in conformity with those specified in EN 755-2 or those agreed between supplier and purchaser and stated in the order document.

Typical Brinell hardness values are given in EN 755-2, but they are not binding for acceptance purposes. However, a Brinell hardness value may be agreed upon for acceptance testing.

5.5 Freedom from surface defects

The extruded surface shall be free from defects prejudicial to its suitable and proper use.

The product shall have a smooth and clean surface. However, small surface defects such as light scratches, indentations, laminations, discolouration and non-uniform surface appearance resulting from heat-treatment, etc., which cannot always be totally avoided, are generally permitted on the product surface.

Whilst an operation designed to mask a fault is not permitted, the elimination of a superficial fault is permissible provided that the dimensional tolerances and material properties continue to meet the specification.

For products intended for surface treatment, the superficial defects (discolouration, mechanical or structural) shall not be so extensive as to impair the decorative appearance of the surface after the agreed surface treatment. Limiting samples may be agreed between supplier and purchaser.

5.6 Tolerances on dimensions and form

For the different forms of products, if not otherwise agreed between supplier and purchaser, the tolerances on dimensions and form shall be in conformity with the relevant European Standards EN 755-3, EN 755-4, EN 755-5, EN 755-6, EN 755-7, EN 755-8, and EN 755-9.

Unless otherwise agreed, the purchaser may reject only those products having dimensions not complying with the specified tolerances.

5.7 Stress corrosion cracking resistance

The products of alloy EN AW-7075, in tempers T73, T73510 and T73511, for thicknesses equal to or greater than 20 mm, shall exhibit no evidence of stress corrosion cracking when tested in accordance with ASTM G47 or ISO 9591 in the transverse direction at a stress level of 75 % of the specified $R_{p0,2}$.

If such testing is required this has to be specified in the order document.

5.8 Additional requirements

Any additional requirements shall be agreed between supplier and purchaser and stated in the order document.

6 Test procedures

6.1 Sampling

6.1.1 Samples for chemical analysis

Sampling shall be carried out at the time of casting according to EN 14361. The average content of each sample shall be within the specification for the chemical composition limits.

NOTE EN 14361 includes criteria on how to determine number, volume and shape of samples, about time and location of sampling and about the design and maintenance of the tools, in order to make sure that the average chemical composition of the sample is representative of the average chemical composition of the whole melt.

6.1.2 Specimens for mechanical testing

6.1.2.1 Location and size

Specimens shall be taken from samples in such a way that it is possible to orientate the test pieces in relation to the product, as specified in 6.1.2.2.

The specimens shall be sufficiently large to allow manufacture of the test pieces necessary to carry out the required test, and shall include sufficient metal to allow manufacture of test pieces for any re-tests required.

6.1.2.2 Orientation

All products shall be tested in the longitudinal direction in order to provide guaranteed mechanical properties.

Tests in other directions may be carried out and property limits established. However, this shall be agreed between supplier and purchaser and shall be stated in the order document. It should be noted that the mechanical properties obtained may differ from those for the longitudinal direction quoted in the relevant standard.