



# SLOVENSKI STANDARD

## SIST EN 586-2:1998

01-april-1998

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### Aluminij in aluminijeve zlitine - Izkovki - 2. del: Mehanske lastnosti in zahtevane dodatne lastnosti

Aluminium and aluminium alloys - Forgings - Part 2: Mechanical properties and additional property requirements

Aluminium und Aluminiumlegierungen - Schmiedestücke - Teil 2: Mechanische Eigenschaften und zusätzliche Eigenschaftsanforderungen

Aluminium et alliages d'aluminium - Pièces forgées - Partie 2: Caractéristiques mécaniques et autres caractéristiques exigées

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Ta slovenski standard je istoveten z: **EN 586-2:1994**

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#### **ICS:**

77.150.10      Aluminijski izdelki                      Aluminium products

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EUROPEAN STANDARD

EN 586-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1994

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Descriptors: Aluminium, aluminium alloys, forgings, specifications, characteristics, mechanical properties, resistivity, corrosion, resistance, stress corrosion, tests, tables (data)

English version

**Aluminium and aluminium alloys - Forgings - Part  
2: Mechanical properties and additional property  
requirements**

Aluminium et alliages d'aluminium - Pièces  
forgées - Partie 2: Caractéristiques mécaniques  
et autres caractéristiques exigées

Aluminium und Aluminiumlegierungen -  
Schmiedestücke - Teil 2: Mechanische  
Eigenschaften und zusätzliche  
Eigenschaftsanforderungen

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This European Standard was approved by CEN on 1994-06-16. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

# CEN

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

**Contents list**

<b>Foreword</b>	<b>3</b>
<b>1 Scope</b>	<b>4</b>
<b>2 Normative references</b>	<b>4</b>
<b>3 Definitions</b>	<b>5</b>
<b>4 Tensile testing</b>	<b>5</b>
<b>5 Mechanical properties</b>	<b>5</b>
<b>6 Electrical conductivity</b>	<b>9</b>
<b>7 Stress corrosion resistance</b>	<b>9</b>
<b>8 Additional properties</b>	<b>10</b>
<b>Annex A (normative) Rules for rounding</b>	<b>12</b>

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[SIST EN 586-2:1998](https://standards.iteh.ai/catalog/standards/sist/af76ff27-3b81-4c4d-a2b5-e96e61ef3cda/sist-en-586-2-1998)

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- Foreword

This European Standard has been drawn up by CEN/TC 132 "Aluminium and aluminium alloys", whose secretariat is held by the Association Française de Normalisation (AFNOR).

Within its programme of work, Technical Committee CEN/TC 132 entrusted CEN/TC132/WG3 "Forgings and cast and wrought forging stock" to prepare the following standard :

**EN 586-2 Aluminium and aluminium alloys - Forgings - Part 2 : Mechanical properties and additional properties**

This standard is part of a set of three standards. The other standards deal with :

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

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

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

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 1994, and conflicting national standards shall be withdrawn at the latest by December 1994.

In accordance with the CEN/CENELEC Internal Regulations, following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

## 1 Scope

This part of EN 586 specifies the mechanical properties and additional properties of forgings in aluminium and aluminium alloys for general engineering applications. The chemical composition and temper designations for these alloys are specified in EN 573-3 and EN 515 respectively

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to 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
- EN 586-1 Aluminium and aluminium alloys - Forgings - Part 1 : Technical conditions for inspection and delivery
- 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)
- ISO 6506:1981 Metallic materials - Hardness test - Brinell test
- ISO 6507-1:1982 Metallic materials - Hardness test - Vickers test - Part 1 : HV 5 to HV 100
- ISO 6508:1986 Metallic materials - Hardness test - Rockwell test (scales A-B-C-D-E-F-G-H-K)
- ISO 9591:1992 Corrosion of aluminium alloys - Determination of resistance to stress corrosion cracking

### 3 Definitions

For the definition of the terms forging, inspection lot and test, see EN 586-1.

For the purposes of this standard the following definitions apply :

- 3.1 **longitudinal direction** : Direction parallel to the primary grainflow, designated L.
- 3.2 **transverse direction (die forgings)** : Any direction not parallel to the primary grainflow, designated T.
- 3.3 **long transverse direction (hand forgings)** : Direction parallel to the major sectional dimension (width), designated LT.
- 3.4 **short transverse direction (hand forgings)** : Direction parallel to the minor sectional dimension (thickness), usually the direction of forging, designated ST.
- 3.5 **section size** : Diameter of the largest sphere which can be inscribed within the forging, designated t.

SIST EN 586-2:1998

- 4 **Tensile testing** [standards.iteh.ai/catalog/standards/sist/af76ff27-3b81-4c4d-a2b5-e96e61ef3cda/sist-en-586-2-1998](https://standards.iteh.ai/catalog/standards/sist/af76ff27-3b81-4c4d-a2b5-e96e61ef3cda/sist-en-586-2-1998)

For the selection of specimens and orientation and preparation of test pieces, see EN 586-1. Tensile testing shall be carried out in accordance with EN 10002-1.

### 5 Mechanical properties

The mechanical properties of class A aluminium alloys are given in tables 1 to 6. Test results shall be rounded in accordance with the rules given in Annex A.

Table 1: Alloy EN AW-2014 [Al Cu4SiMg]

Product	Temper	Section size t mm	Test direction	Tensile strength $R_m$ MPa min.	Proof stress $R_{p0,2}$ MPa min.	Elongation A % min.
All forgings	T4	$t \leq 150$	L	370	270	11
Die forgings	T6	$t \leq 50$	L or T	440 430	380 370	6 3
		$50 < t \leq 100$	L or T	440 430	370 360	6 3
Hand forgings	T652	$t \leq 75$	L	440	380	8
			or LT	430	370	4
			or ST	420	360	3
		$75 < t \leq 150$	L	420	370	7
			or LT or ST	420 410	360 350	4 3
$150 < t \leq 200$	L or LT or ST	410 410 400	360 350 340	6 3 2		

Table 2 : Alloy EN AW-2024 [Al Cu4Mg1]

Product	Temper	Section size t mm	Test direction	Tensile strength $R_m$ MPa min.	Proof stress $R_{p0,2}$ MPa min.	Elongation A % min.
All forgings	T4	$t \leq 100$	L	420	260	8



**Table 3 : Alloy EN AW-5083 [Al Mg4,5Mn0,7]**

Product	Temper	Section size $t_{\min}$ mm	Test direction	Tensile strength $R_m$ MPa min.	Proof stress $R_{p0,2}$ MPa min.	Elongation $A$ % min.
All forgings	H112	$t \leq 150$	L or T	270 260	120 110	12 10

**Table 4 : Alloy EN AW-5754 [Al Mg3]**

Product	Temper	Section size $t_{\min}$ mm	Test direction	Tensile strength $R_m$ MPa min.	Proof stress $R_{p0,2}$ MPa min.	Elongation $A$ % min.
All forgings	H112	$t \leq 150$	L	180	80	15

SIST EN 586-2:1998

<https://standards.iteh.ai/catalog/standards/sist/af76ff27-3b81-4c4d-a2b5-956311414191>**Table 5 : Alloy EN AW-6082 [Al Si1MgMn]**

Product	Temper	Section size $t$ mm	Test direction	Tensile strength $R_m$ MPa min.	Proof stress $R_{p0,2}$ MPa min.	Elongation $A$ % min.
All forgings	T6	$t \leq 100$	L or T	310 290	260 250	6 5