



# SLOVENSKI STANDARD

kSIST prEN 1715-2:2008

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SIST EN 1715-2:1998

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Aluminium and aluminium alloys - Drawing stock - Part 2: Specific requirements for electrical applications

Aluminium und Aluminiumlegierungen - Vordraht - Teil 2: Besondere Anforderungen für elektrotechnische Anwendungen

Aluminium et alliages d'aluminium - Fil machine - Partie 2: Exigences spécifiques pour les applications électriques

**Ta slovenski standard je istoveten z: EN 1715-2:2008**

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Will supersede EN 1715-2:1997

English Version

## Aluminium and aluminium alloys - Drawing stock - Part 2: Specific requirements for electrical applications

Aluminium et alliages d'aluminium - Fil machine - Partie 2:  
Exigences spécifiques relatives aux applications électriques

Aluminium und Aluminiumlegierungen - Vordraht - Teil 2:  
Besondere Anforderungen für elektrotechnische  
Anwendungen

This draft European Standard is submitted to CEN members for formal vote. It has been drawn up by the Technical Committee CEN/TC 132.

If this draft becomes a European Standard, 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.

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

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## Foreword

This document (prEN 1715-2:2007) has been prepared by Technical Committee CEN/TC 132 "Aluminium and aluminium alloys", the secretariat of which is held by AFNOR.

This document is currently submitted to the Formal Vote.

This document will supersede EN 1715-2:1997.

Within its programme of work, Technical Committee CEN/TC 132 entrusted CEN/TC 132/WG 4 "Wires and drawing stock" to revise EN 1715-2:1997.

Besides editorial adjustments in the text and update of normative references, the following changes have been made:

- Clause 3: amended; Table 1 inclusion of alloys EN AW-1110, EN AW-5005, EN AW-8030 and EN AW-8176;
- Clause 4: amended.

EN 1715 comprises the following parts under the general title: "*Aluminium and aluminium alloys – Drawing stock*":

- *Part 1: General requirements and technical conditions for inspection and delivery*
- *Part 2: Specific requirements for electrical applications*
- *Part 3: Specific requirements for mechanical uses (excluding welding)*
- *Part 4: Specific requirements for welding applications*
- *Part 5: Specific requirements for aluminium food packaging<sup>1)</sup>*

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.

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1) Under preparation.

## 1 Scope

This European Standard specifies requirements for drawing stock of aluminium and aluminium alloys for electrical applications.

The general requirements and technical conditions for inspection and delivery are specified in prEN 1715-1.

This European Standard does not apply to drawn wire.

## 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*

prEN 1715-1, *Aluminium and aluminium alloys — Drawing stock — Part 1: General requirements and technical conditions for inspection and delivery*

IEC 60468, *Method of measurement of resistivity of metallic materials*

## 3 Requirements

### 3.1 Chemical composition

Aluminium and aluminium alloys commonly used for electrical applications are given in Table 1.

Their chemical composition shall be in accordance with EN 573-3, and for alloys EN AW-1110, EN AW-8030 and EN AW-8176, according to Table A.1.

The elements determined and reported in the certificate of mass and analysis shall be:

Si, Fe, Cu, Mn, Mg, Cr, Zn, Ti, Ga, V and B.

**Table 1 — Main alloys for electrical purposes - Tempers for delivery - Mechanical and electrical properties**

Alloy designation	Temper	Mechanical properties			Electrical properties (temperature : 20 °C)	
		Tensile strength $R_m$ MPa		Elongation typical $A_{100\text{ mm}}$ %	Resistivity $\mu\Omega \cdot \text{cm}$ max.	Conductivity % IACS min.
		min.	max.			
EN AW-1110 [Al 99,1]	F	125	145	15	2,97	58,0
EN AW-1370 [Al 99,7] and EN AW-1350 [Al 99,5]	H14	115	130	14	2,801	61,5
	H13	105	120	16	2,801	61,5
	H12	95	110	20	2,801	61,5
	H11	80	95	25	2,785	61,9
	O	60	80	40	2,725	63,3
EN AW-5005 [Al Mg1]	H16	165	205	20	3,31	52,0
EN AW-5154A [Al Mg3,5]	F	210	280	16	5,20	33,1
	O	210	275	20	5,10	33,8
	O3	210	260	25	5,10	33,8
EN AW-6101 [Al MgSi]	T1 <sup>a</sup>	190	-	17	3,50	49,2
	T4 <sup>a</sup>	150	-	23	3,50	49,2
EN AW-6201 [Al Mg0,7Si]	T1 <sup>a</sup>	205	-	17	3,60	47,8
	T4 <sup>a</sup>	160	-	21	3,60	47,8
EN AW-8030 [Al FeCu]	O	60	110	40	2,86	60,2
	H24	100	150	25	2,86	60,2
EN AW-8176 [Al FeSi]	O	60	110	40	2,86	60,2
	H24	100	150	25	2,86	60,2

<sup>a</sup> Measurements made not less than 3 days after quenching.

### 3.2 Temper for delivery

The variety of application of drawn wire and cable made from drawing stock of aluminium and aluminium alloys requires the precise definition of the temper for delivery. Temper shall be indicated in accordance with EN 515.

For aluminium grades EN AW-1350 [Al 99,5] and EN AW-1370 [Al 99,7] the temper shall be either:

- O annealed or;
- H11 - H12 - H13 - H14 corresponding to different mechanical strength level for the "as fabricated" condition.

## **prEN 1715-2:2007 (E)**

For age hardening alloys EN AW-6101 [Al MgSi] and EN AW-6201 [Al Mg<sub>0,7</sub>Si], two tempers of delivery are commonly used:

- T4: solution heat-treated and naturally aged;
- T1: cooled from an elevated temperature shaping process and naturally aged.

For the different alloys and tempers, the mechanical and electrical properties shall be in accordance with Table 1.

If no temper is specified when ordering, the supplied temper shall be F (as manufactured) without special range of characteristics.

Other tempers shall be agreed between manufacturer and purchaser.

## **4 Product inspection and testing methods**

### **4.1 Chemical composition**

The chemical composition shall be checked for each cast delivered in accordance with prEN 1715-1.

### **4.2 Mechanical properties**

The mechanical properties shall be measured once per coil in accordance with prEN 1715-1.

Other test frequencies shall be agreed between manufacturer and purchaser.

### **4.3 Specific electrical resistivity (or conductivity)**

The specific electrical resistivity (or conductivity) shall be measured according to IEC 60468 at least once per cast.

Other test frequencies shall be agreed between manufacturer and purchaser.

## **5 Delivery documents and inspection documents**

A certificate of mass and analysis shall be provided in accordance with prEN 1715-1.

In addition, a test report in accordance with prEN 1715-1 shall be delivered for each consignment with reference to the order, and giving the following information:

- identification of the alloy;
- temper;
- nominal diameter;
- list of coil identification numbers;
- results of test for mechanical and electrical properties;
- date of manufacture;
- date of heat treatment for alloys EN AW-6101 and EN AW-6201;