



SLOVENSKI STANDARD

SIST EN 1715-2:1998

01-april-1998

Aluminij in aluminijeve zlitine - Debela žica - 2. del: Posebne zahteve za uporabo v elektrotehnik

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 1715-2:1997

ICS:

77.150.10 Aluminijski izdelki Aluminium products

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ICS 77.150.10

Descriptors: aluminium, aluminium alloys, drawing stock, electric conductors, specifications, chemical composition, delivery condition, mechanical properties, electrical properties, inspection, tests

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 pour les
applications électriques

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

This European Standard was approved by CEN on 1997-08-21. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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CEN

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

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Foreword

This European Standard 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 March 1998, and conflicting national standards shall be withdrawn at the latest by March 1998.

Within its programme of work, Technical Committee CEN/TC 132 entrusted CEN/TC 132/WG 4 "Wires and drawing stock" to prepare the following standard :

EN 1715-2 Aluminium and aluminium alloys - Drawing stock - Part 2 : Specific requirements for electrical applications

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

EN 1715-1 Aluminium and aluminium alloys - Drawing stock - Part 1 : General requirements and technical conditions for inspection and delivery

EN 1715-3 Aluminium and aluminium alloys - Drawing stock - Part 3 : Specific requirements for mechanical uses (excluding welding)

EN 1715-4 Aluminium and aluminium alloys - Drawing stock - Part 4 : Specific requirements for welding applications

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This part of EN 1715 applies to drawing stock of aluminium and aluminium alloys for electrical conductor and cables and specifies characteristics and specific technical conditions for inspection and delivery of the products.

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

This standard does not apply to drawn wire.

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 product - Temper designations
EN 573-3	Aluminium and aluminium alloys - Chemical composition and forms of wrought products - Part 3 : Chemical composition
EN 1715-1	Aluminium and aluminium alloys - Drawing stock - Part 1 : General requirements and technical conditions for inspection and delivery

3 Specifications

3.1 Chemical composition

Aluminium grades and aluminium alloys used commonly for electrical conductors are given in table 1.

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Table 1 : Alloys for electrical purposes - Tempers for delivery - Mechanical and electrical characteristics

Alloy designation	Temper	Mechanical characteristics			Electrical characteristics (temperature : 20 °C)	
		R_m		Elongation A_{100} typical %	Resistivity $\mu\Omega \cdot \text{cm}$ max.	Conductivity % IACS min.
		min.	max.			
EN AW-1370 [EAI 99,7] and EN AW-1350 [EAI 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-6101 [EAI MgSi]	T1 1)	190	-	17	3,50	49,2
	T4 1)	150	-	23	3,50	49,2
EN AW-6201 [EAI Mg0,7Si]	T1 1)	205	-	17	3,60	47,8
	T4 1)	160	-	21	3,60	47,8

1) Measurements made not less than 3 days after quenching.

Their chemical composition shall be in accordance with EN 573-3.

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

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

3.2 Temper of supply

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 of delivery. Temper shall be indicated in accordance with EN 515.

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

- O annealed (by heat treatment on the coil) or ;
- H11 - H12 - H13 - H14 corresponding to different mechanical strength level for the "as fabricated" condition.

For age hardening alloys EN AW-6101 [EAI MgSi] and EN AW-6201 [EAI Mg0,7Si], two tempers of delivery are commonly used :

- T4 : quenched in coil from a conventional furnace, followed by natural ageing ;
- T1 : in line quenched on leaving the rolling mill and natural aged.

For the different alloys and tempers, the mechanical and electrical characteristics 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.

4 Product inspection and testing methods

4.1 Chemical composition

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

4.2 Mechanical characteristics

The mechanical characteristics shall be measured once per coil in accordance with EN 1715-1.

Other sampling frequencies shall be agreed by agreement between the supplier and the purchaser.

4.3 Specific electrical resistivity (or conductivity)

The specific electrical resistivity (or conductivity) shall be measured at least once per cast, or per manufacturing batch.

Other sampling frequencies shall be agreed by agreement between supplier and purchaser.

5 Delivery documents and inspection documents

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

In addition, a test report in accordance with EN 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 characteristics ;
- date of manufacture ;
- date of heat treatment for alloys EN AW-6101 and EN AW-6201 ;
- net mass.

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