BRITISH STANDARD

BS EN
1715-2 : 1998

Aluminium and aluminium alloys — Drawing stock

Part 2. Specific requirements for electrical applications

The European Standard EN 1715-2 : 1997 has the status of a British Standard

ICS 77.150.10

National foreword

This British Standard is the English language version of EN 1715-2 : 1997.

The UK participation in its preparation was entrusted by Technical Committee NFE/35, Light metals and their alloys, to Subcommittee NFE/35/5, Wrought aluminium and aluminium alloys, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled 'International Standards Correspondence Index', or by using the 'Find' facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 4, an inside back cover and a back cover.

This British Standard, having been prepared under the direction of the Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on 15 January 1998

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EN 1715-2

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Descriptors: Aluminium, aluminium alloys, drawing stock, electric conductors, specifications, chemical composition, delivery condition, mechanical properties, electrical properties, inspections, 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.

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CEN

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

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

Ref. No. EN 1715-2 : 1997 E

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 conductors 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.

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.

Table 1. Alloys for electrical purposes — Tempers for delivery — Mechanical and electrical characteristics

Alloy designation	Temper	Mechanical characteristics			Resistivity	Conductivity
		R_m MPa		Elongation A_{100}, typical %	μΩ ·cm	% IACS
		minimum	maximum		maximum	minimum
EN AW-1370 [EAl 99,7] and EN AW-1350 [EAl 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 [EAl MgSi]	T1[1)]	190	—	17	3,50	49,2
	T4[1)]	150	—	23	3,50	49,2
EN AW-6201 [EAl 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.

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 [EAl 99,5] and EN AW-1370 [EAl 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 levels for the 'as fabricated' condition.

For age-hardening alloys EN AW-6101 [EAl MgSi] and EN AW-6201 [EAl 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 a 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 between the supplier and 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 between the 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 shall give 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.

NOTE. Other inspection documents can be defined between the supplier and customer in accordance with **7.2** of EN 1715-1 : 1997.

6 Marking and packing

Marking and packing shall be in accordance with EN 1715-1.

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