

Copper and copper alloys — Strip for lead frames

The European Standard EN 1758:1997 has the status of a
British Standard

ICS 77.150.30

National foreword

This British Standard is the English language version of EN 1758:1997 published by the European Committee for Standardization (CEN).

The UK participation in its preparation was entrusted by Technical Committee NFE/34, Copper and copper alloys, to Subcommittee NFE/34/1, Wrought and unwrought copper and copper 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.

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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 May 1998

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English version

Copper and copper alloys — Strip for lead frames

Cuivre et alliages de cuivre — Bandes pour grilles
de composants (lead frames)

Kupfer und Kupferlegierungen — Bänder für
Systemträger

This European Standard was approved by CEN on 6 November 1997.

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CEN

European Committee for Standardization
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Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 133, Copper and copper alloys, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by June 1998, and conflicting national standards shall be withdrawn at the latest by June 1998.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 2, Rolled flat products, to prepare the following standard:

EN 1758, *Copper and copper alloys — Strip for lead frames*.

This is one of a series of European Standards for copper and copper alloy rolled flat products. Other products are, or will be, specified as follows:

EN 1172, *Copper and copper alloys — Sheet and strip for building purposes*.

EN 1652, *Copper and copper alloys — Plate, sheet, strip and circles for general purposes*.

EN 1653, *Copper and copper alloys — Plate, sheet and circles for boilers, pressure vessels and hot water storage units*.

EN 1654, *Copper and copper alloys — Strip for springs and connectors*.

Copper and copper alloys — Copper plate, sheet and strip for electrical purposes. (WI: 00133022)

This standard gives information, which might be useful to the user, on physical properties of the product contained in annex A.

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 European Standard specifies the composition, property requirements and tolerances on dimensions and form for copper and copper alloy strip for lead frame material, with widths up to and including 100 mm. Thicknesses from 0,1 mm up to and including 1,0 mm are generally used for stamped lead frames for integrated circuits and low power devices and thicknesses from 1,0 mm up to and including 2,0 mm are generally used for stamped lead frames for high power devices.

The sampling procedures, the methods of test for verification of conformity to the requirements of this standard, and the delivery conditions are also specified.

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 1655, *Copper and copper alloys — Declarations of conformity.*

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

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

ISO 1811-2, *Copper and copper alloys — Selection and preparation of samples for chemical analysis — Part 2: Sampling of wrought products and castings.*

ISO 4287-1, *Surface roughness — Terminology — Part 1: Surface and its parameters.*

ISO 6507-2, *Metallic materials — Hardness test — Vickers test — Part 2: HV 0,2 to less than HV 5.*

ISO 6507-3, *Metallic materials — Hardness test — Vickers test — Part 3: Less than HV 0,2.*

ISO 7438, *Metallic materials — Bend test.*

ISO 7799, *Metallic materials — Sheet and strip 3 mm thick or less — Reverse bend test.*

HD 323.2.20 S3, *Environmental testing — Part 2: Tests — Test T: Soldering.*

NOTE Informative references to documents used in the preparation of this standard, and cited at the appropriate places in the text, are listed in a bibliography, see annex B.

3 Definitions

For the purposes of this standard, the following definitions apply.

3.1 strip

flat rolled product of rectangular cross-section with uniform thickness from at least 0,10 mm, supplied as level wound coils usually with slit edges; the thickness does not exceed one tenth of the width

3.2

lead frame

part which has been stamped or etched from a strip for assembling, carrying and effecting the electrical connections of semi-conductor components

4 Designations

4.1 Material

4.1.1 General

The material is designated either by symbol or number (see Tables 1 and 2).

Table 1 — Composition of copper

Material designation		Composition % (m/m)						
		Element	Cu ¹⁾	Bi	P	Pb	Other elements (see note)	
Symbol	Number						Total	Excluding
Cu-DLP	CW023A	min. max.	99,90 —	— 0,0005	0,005 0,013	— 0,005	— 0,03	Ag, Ni, P

¹⁾ Including Ag, up to a maximum of 0,015 %.

NOTE. The total of other elements (than copper) is defined as the sum of Ag, As, Bi, Cd, Co, Cr, Fe, Mn, Ni, O, P, Pb, S, Sb, Se, Si, Sn, Te and Zn, subject to the exclusion of any individual elements indicated.

Table 2 — Composition of low alloyed copper alloys

Material designation		Composition in % (m/m)								
		Element	Cu	Fe	Ni	P	Pb	Sn	Zn	Others Total
CuFe2P	CW107C	min. max.	Rem —	2,1 2,6	— —	0,015 0,15	— 0,03	— —	0,05 0,20	— 0,2
CuSn0,15	CW117C	min. max.	Rem. —	— 0,02	— 0,02	— 0,015	— —	0,10 0,1	— —	— —