DIN EN 1982



ICS 77.150.30

Supersedes DIN EN 1982:2008-08

Copper and copper alloys – Ingots and castings; English version EN 1982:2017, English translation of DIN EN 1982:2017-11

Kupfer und Kupferlegierungen – Blockmetalle und Gussstücke; Englische Fassung EN 1982:2017, Englische Übersetzung von DIN EN 1982:2017-11

Cuivre et alliages de cuivre – Lingots et pièces moulées; Version anglaise EN 1982:2017, Traduction anglaise de DIN EN 1982:2017-11

Document comprises 80 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.



A comma is used as the decimal marker.

National foreword

This document (EN 1982:2017) has been prepared by Technical Committee CEN/TC 133 "Copper and copper alloys" (Secretariat: DIN, Germany).

The responsible German body involved in its preparation was *DIN-Normenausschuss Kunststoffe* (DIN Standards Committee Plastics), Working Committee NA 036-00-08 AA "Copper casting alloys".

Amendments

This standard differs from DIN EN 1982:2008-08 as follows:

- a) with regard to pressure equipment applications, a clear distinction between ingots and castings has been made throughout the standard;
- b) information concerning pressure equipment application has been included in the Introduction and in the Scope;
- c) additional information concerning materials that can be used for products in contact with drinking water has been included in Tables F.1, F.4, G.4, G.8, G.9, H.2, K.2, P.1 and P.2;
- d) material tables containing information on the chemical compositions and mechanical properties of the materials have been transferred from Clause 6 to Annexes C to P and have been rearranged;
- e) the following 16 new materials have been included: CB773S and CC773S (new Table F.4), CB757S and CC757S (new Table G.8), CB768S and CC768S (new Table H.2), CB770S and CC7700S (new Table G.4), CB771S and CC771S (new Table F.1), CB772S and CC772S (new Table G.9), CB245E and CC245E (new Table P.1) and CB246E and CC246E (new Table P.2);
- f) the terms "ingot" and "casting" have been included in Clause 3;
- g) item o) in Clause 5 "Ordering information" has been deleted and the subsequent items have been renumbered;
- h) in 6.1 "Composition", a clear distinction between ingots and castings with regard to pressure equipment applications has been made;
- i) for ingots and castings, a subdivision into 6.2.1 "Ingots" and 6.2.2 "Castings" with regard to pressure equipment applications has been made;
- j) subclauses 5 i), 6.1, 6.4, 6.5 and 8.2.3 have been revised;
- k) a note that mechanical properties for the "Pressure die cast GS" castings are mandatory has been included:
- l) Table ZA.1 has been modified;
- m) B.5 has been deleted;
- n) several editorial changes have been made.

Previous editions

DIN 1705: 1963-01, 1973-06, 1981-11

DIN 1705-1: 1928-04, 1932-10, 1939x-04, 1953-12 DIN 1705-2: 1928-04, 1932-10, 1939x-04, 1953-12

DIN 1705 Supplement 1: 1981-11 DIN 1709: 1963-01, 1973-06, 1981-11

DIN 1709-1: 1925-04, 1930-07, 1937-09, 1953-12

DIN 1709-2: 1930-07, 1937-09, 1953-12

DIN 1709 Supplement 1: 1981-11

DIN 1714: 1936x-02, 1963-01, 1973-06, 1981-11

DIN 1714-1: 1953-12 DIN 1714-2: 1953-12

DIN 1714 Supplement 1: 1981-11

DIN 1716: 1939-04, 1963-01, 1973-06, 1981-11

DIN 1716-1: 1953-12 DIN 1716-2: 1953-12

DIN 1716 Supplement 1: 1981-11 DIN 17655: 1971-07, 1981-11 DIN 17656: 1963-01, 1973-06

DIN 17658: 1973-06

DIN EN 1982: 1998-12, 2008-08

DIN EN 1982:2017-1	D	IN	FN	1	98	12	.2	0 1	17	-1	-
--------------------	---	----	----	---	----	----	----	------------	----	----	---

— This page is intentionally blank —

EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 1982

September 2017

ICS 77.150.30

Supersedes EN 1982:2008

English Version

Copper and copper alloys - Ingots and castings

Cuivre et alliages de cuivre - Lingots et pièces moulées

Kupfer und Kupferlegierungen - Blockmetalle und Gussstücke

This European Standard was approved by CEN on 9 July 2017.

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 CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

© 2017 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 1982:2017 E

Cont	tents	Page
Europ	oean foreword	4
Introd	duction	6
1	Scope	8
2	Normative references	8
3	Terms and definitions	8
4	Designations	
4.1	Material	
4.1.1	General	9
4.1.2	Symbol	9
4.1.3	Number	
4.2	Casting process	10
4.3	Product	10
5	Ordering information	11
6	Requirements	13
6.1	Composition	
6.2	Mechanical properties	
6.2.1	Ingots	13
6.2.2	Castings	13
6.3	Electrical properties	13
6.4	Microstructure and grain size	
6.5	Dezincification resistance	
6.6	Outer and inner conditions	
6.6.1	Ingots	
6.6.2	Castings	14
7	Sampling and testing frequency	14
7.1	General	
7.2	Analysis of the chemical composition	
7.2.1	General	
7.2.2	Ingots	
7.2.3	Castings	
7.3	Mechanical tests	
7.3.1	Mechanical testing of ingots	
7.3.2	Mechanical testing of continuous castings	
7.3.3	Mechanical testing of non-continuous castings	
7.4	Microstructure	
7.4.1	Alpha-phase content	
7.4.2	Assessment of grain refinement	
7.5	Dezincification resistance	16
8	Test methods	
8.1	Analysis of the chemical composition	
8.2	Mechanical tests	
8.2.1	Tensile test	
8.2.2	Preparation of tensile test samples	16

8.2.3	Hardness test	
8.3	Electrical conductivity	
8.4	Microstructure	
8.4.1	Alpha-phase determination	
8.4.2	Grain size determination	
8.5	Dezincification resistance	
8.6	Surface condition	
8.7	Retests	
8.7.1 8.7.2	General Analysis of the chemical composition	
8.7.2 8.7.3	Mechanical tests	
8.7.4	Dezincification resistance test	_
8.8	Rounding of results	
9	Declaration of conformity and inspection documentation	
9.1	Declaration of conformity	
9.2	Inspection documentation	
10	Marking, labelling, packaging	20
10.1	Ingots	
10.2	Castings	20
Annex	A (informative) Guidance for the ordering and supply of copper and copper alloy castings	21
Annex	B (informative) Optional supplementary testing procedures for ingots and castings	
Annex	C (normative) Unalloyed copper	26
Annex	D (normative) Copper-chromium alloys	27
Annex	E (normative) Copper-zinc alloys	28
Annex	F (normative) Copper-zinc-aluminium alloys	29
Annex	G (normative) Copper-zinc-lead alloys	33
Annex	H (normative) Copper-zinc-silicon alloys	42
	I (normative) Other copper-zinc alloys	
Annex	J (normative) Copper-tin alloys	48
Annex	K (normative) Copper-tin-zinc-lead alloys	53
Annex	L (normative) Copper-tin-lead alloys	59
Annex	M (normative) Copper-aluminium alloys	63
Annex	N (normative) Copper-manganese alloys	68
Annex	O (normative) Copper-nickel alloys	69
Annex	P (normative) Copper-silicon-zinc alloys	73
Annex	ZA (informative) Relationship between this European Standard and the Essential Safety Requirements of Directive 2014/68/EU aimed to be covered	75
Riblio	granhy	76

European foreword

This document (EN 1982:2017) 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 March 2018, and conflicting national standards shall be withdrawn at the latest by March 2018.

This document supersedes EN 1982:2008.

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

For relationship with EU Directive 2014/68/EU, see informative Annex ZA, which is an integral part of this document.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 7 "Ingots and castings" to prepare the revision of the following standard:

EN 1982:2008, Copper and copper alloys — Ingots and castings

In comparison with EN 1982:2008, the following significant changes were made:

- a) introduction of a clear distinction between ingots and castings with regard to pressure equipment applications in the whole standard;
- b) addition of information concerning pressure equipment application to the introduction and to the scope;
- c) addition of information concerning materials that can be used for products in contact with drinking water in Tables F.1, F.4, G.4, G.8, G.9, H.2, K.2, P.1 and P.2;
- d) rearrangements of the tables giving the chemical compositions and mechanical properties of the materials which were moved from Clause 6 to Annex C to Annex P;
- e) addition of the following 16 new materials: CB773S and CC773S (new Table F.4), CB757S and CC757S (new Table G.8), CB768S and CC768S (new Table H.2), CB770S and CC770S (new Table G.4), CB771S and CC771S (new Table F.1), CB772S and CC772S (new Table G.9) CB245E and CC245E (new Table P.1) and CB246E and CC246E (new Table P.2);
- f) addition of the terms "ingot" and "casting" and their definitions in Clause 3;
- g) deletion of item o) in Clause 5 "Ordering information" and renumbering of the subsequent items;
- h) subdivision between ingots and castings with regard to pressure equipment applications in 6.2.1 "Ingots" and 6.2.2 "Castings";
- i) revision of Clause 5 i), 6.1, 6.4, 6.5 and 8.2.3;
- j) indication that mechanical properties for the "Pressure die cast GP" castings are mandatory;
- k) amendment of Table ZA.1;
- l) deletion of B.5;

DIN EN 1982:2017-11 EN 1982:2017 (E)

m) several editorial amendments.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.