

DIN EN 1982:2017-11 (E)

Copper and copper alloys - Ingots and castings

Contents		Page
European foreword		4
Introduction		6
1	Scope	8
2	Normative references	8
3	Terms and definitions	8
4	Designations	9
4.1	Material	9
4.1.1	General	9
4.1.2	Symbol	9
4.1.3	Number	9
4.2	Casting process	10
4.3	Product	10
5	Ordering information	11
6	Requirements	13
6.1	Composition	13
6.2	Mechanical properties	13
6.2.1	Ingots	13
6.2.2	Castings	13
6.3	Electrical properties	13
6.4	Microstructure and grain size	14
6.5	Dezincification resistance	14
6.6	Outer and inner conditions	14
6.6.1	Ingots	14
6.6.2	Castings	14
7	Sampling and testing frequency	14
7.1	General	14
7.2	Analysis of the chemical composition	14
7.2.1	General	14
7.2.2	Ingots	15
7.2.3	Castings	15
7.3	Mechanical tests	15
7.3.1	Mechanical testing of ingots	15
7.3.2	Mechanical testing of continuous castings	15
7.3.3	Mechanical testing of non-continuous castings	15
7.4	Microstructure	16
7.4.1	Alpha-phase content	16
7.4.2	Assessment of grain refinement	16
7.5	Dezincification resistance	16
8	Test methods	16
8.1	Analysis of the chemical composition	16
8.2	Mechanical tests	16
8.2.1	Tensile test	16
8.2.2	Preparation of tensile test samples	16

8.2.3	Hardness test	17
8.3	Electrical conductivity	17
8.4	Microstructure	18
8.4.1	Alpha-phase determination	18
8.4.2	Grain size determination	18
8.5	Dezincification resistance	18
8.6	Surface condition	18
8.7	Retests	18
8.7.1	General	18
8.7.2	Analysis of the chemical composition	18
8.7.3	Mechanical tests	18
8.7.4	Dezincification resistance test	18
8.8	Rounding of results	19
9	Declaration of conformity and inspection documentation	19
9.1	Declaration of conformity	19
9.2	Inspection documentation	19
10	Marking, labelling, packaging	20
10.1	Ingots	20
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	23
	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
	Annex I (normative) Other copper-zinc alloys	44
	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
	Bibliography	76