

DIN EN 12166:2011-08 (E)

Copper and copper alloys - Wire for general purposes

Contents		Page
Foreword		4
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	7
4	Designation	8
4.1	Material	8
4.1.1	General	8
4.1.2	Symbol	8
4.1.3	Number	8
4.2	Material condition	8
4.3	Product	8
5	Ordering information	9
6	Requirements	11
6.1	Composition	11
6.2	Mechanical properties	11
6.3	Grain size	11
6.4	Dimensions and tolerances	11
6.4.1	Diameter or width across-flats	11
6.4.2	Shape tolerances for round wire	11
6.4.3	Corner and edge geometry (wire with square and rectangular cross-section only)	11
6.5	Joins	12
7	Sampling	12
7.1	General	12
7.2	Analysis	12
7.3	Tensile, hardness and grain size tests	12
8	Test methods	13
8.1	Analysis	13
8.2	Tensile test	13
8.3	Hardness test	13
8.4	Estimation of average grain size	13
8.5	Retests	14
8.6	Rounding of results	14
9	Declaration of conformity and inspection documentation	14
9.1	Declaration of conformity	14
9.2	Inspection documentation	14
10	Marking, packaging, labelling	14
Annex A (informative)	Position of wire cross-section within a coil, reel, spool or drum	30
Bibliography		32

Figures Figure 1 -- Calculation of corner radii	12
Figure A.1 -- Illustration of position of wire cross-section within the coil (bunched wound or stagger/traverse wound)	30
Figure A.2 -- Illustration of position of wire cross-section within the reel/spool/drum (stagger/traverse wound)	30
Figure A.3 -- Illustration of position of wire cross-section within the coil (bunched wound or stagger/traverse wound)	31
Figure A.4 -- Illustration of position of wire cross-section within the reel/spool/drum (stagger/traverse wound)	31
Tables Table 1 -- Composition of low alloyed copper alloys	15
Table 2 -- Composition of copper-nickel-zinc alloys	16
Table 3 -- Composition of copper-tin alloys	16
Table 4 -- Composition of copper-zinc alloys	17
Table 5 -- Composition of copper-zinc-lead alloys	18
Table 6 -- Composition of complex copper-zinc alloys	18
Table 7 -- Mechanical properties of wire of low alloyed copper alloys	19
Table 8 -- Mechanical properties of wire of copper-nickel-zinc alloys	21
Table 9 -- Mechanical properties of wire of copper-tin alloys	22
Table 10 -- Mechanical properties of wire of copper-zinc alloys	23
Table 11 -- Mechanical properties of wire of copper-zinc-lead alloys	25
Table 12 -- Mechanical properties of wire of complex copper-zinc alloys	26
Table 13 -- Grain size designations	26
Table 14 -- Tolerances on diameter of round wire	27
Table 15 -- Tolerances on width across-flats of square or regular polygonal wire	27
Table 16 -- Tolerances on width and thickness of rectangular wire	28
Table 17 -- Corner radii for square or rectangular wire	28
Table 18 -- Sampling rate	29