

DIN EN 13605:2013-09 (E)

Copper and copper alloys - Copper profiles and profiled wire for electrical purposes

Contents		Page
Foreword		4
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
4	Designations	7
4.1	Material	7
4.2	Material condition	7
4.3	Product	7
5	Ordering information	8
6	Requirements	10
6.1	Composition	10
6.2	Mechanical properties	10
6.3	Electrical properties	10
6.4	Freedom from hydrogen embrittlement	10
6.5	Drawings	10
6.6	Dimensions and tolerances	10
6.7	Form of delivery of profiled wire	14
6.8	Mass tolerances	14
6.9	Surface condition	14
7	Sampling	15
7.1	General	15
7.2	Analysis	15
7.3	Mechanical, electrical and hydrogen embrittlement tests	15
8	Test methods	15
8.1	Analysis	15
8.2	Tensile test	15
8.3	Hardness test	15
8.4	Electrical test	16
8.5	Hydrogen embrittlement test	16
8.6	Retests	16
8.7	Rounding of results	16
9	Declaration of conformity and inspection documentation	17
9.1	Declaration of conformity	17
9.2	Inspection documentation	17
10	Marking, packaging, labelling	17
Annex A (informative) Characteristics of coppers for electrical purposes		25
Bibliography		27
Figures Figure 1 -- Profile within a circumscribing circle		11

Figure 2 -- Cross-sectional dimensions	11
Figure 3 -- Twist of a profile	12
Figure 4 -- Indication of flatness on a U-Profile	13
Figure 5 -- Indication of flatness on a H-Profile	13
Figure 6 -- Indication of angularity	13
Figure 7 -- Indication of perpendicularity	13
Figure 8 -- Indication of straightness tolerances	14
Tables Table 1 -- Composition of unalloyed copper grades	18
Table 2 -- Composition of copper grades	19
Table 3 -- Mechanical properties	20
Table 4 -- Electrical properties (at 20 °C)	21
Table 5 -- Tolerances for dimensions b and h, ratio bmax. or hmax. to smin. < 20 : 1	21
Table 6 -- Tolerances for dimensions b and h, ratio bmax. or hmax. to smin. 20 : 1	22
Table 7 -- Thickness tolerances	22
Table 8 -- Radius tolerances	22
Table 9 -- Maximum radii of sharp corners	22
Table 10 -- Twist tolerances -- coefficient f	23
Table 11 -- Straightness tolerances for profiles	23
Table 12 -- Tolerances on "as manufactured" lengths	23
Table 13 -- Tolerances on "fixed" lengths	24
Table 14 -- Sampling rate	24
Table A.1 -- Particular characteristics of coppers for electrical purposes	26