

# Contact wire made of pure copper Cu-ETP according to EN 50149



## Values for Cu-ETP copper (normal tensile strength)

technical data		nominal cross section				
		80	100	107	120	150
min. tensile strength $R_m$ <sup>2)</sup>	N/mm <sup>2</sup>	355	355	350	330	310
min. breaking load <sup>1)</sup> $F_m$	kN	27.5	34.4	36.3	38.4	45.1
Percentage Elongation after fracture $A_{200}$	%	3 – 10	3 – 10	3 – 10	3 – 10	3 – 10
Modulus of elasticity $E$	kN/mm <sup>2</sup>	120	120	120	120	120
Half-hard point	°C	≥ 180	≥ 180	≥ 180	≥ 180	≥ 180
Electrical conductivity $\chi$ at 20 °C	m/(Ohm*mm <sup>2</sup> )	≥ 56.3	≥ 56.3	≥ 56.3	≥ 56.3	≥ 56.3
Electrical conductivity $\chi$ at 20 °C	% IACS	≥ 97	≥ 97	≥ 97	≥ 97	≥ 97
Specific electrical resistance $\rho_{el}$ at 20 °C	10 <sup>-8</sup> Ohm*m	≤ 1.777	≤ 1.777	≤ 1.777	≤ 1.777	≤ 1.777
Electrical resistance R	Ohm/km	≤ 0.229	≤ 0.183	≤ 0.171	≤ 0.153	≤ 0.122
Temperature coefficient $\alpha_{el}$ of electrical resistance	10 <sup>-3</sup> /K	3.8	3.8	3.8	3.8	3.8
Linear coefficient of thermal expansion $\alpha$	10 <sup>-5</sup> /K	1.7	1.7	1.7	1.7	1.7
Specific mass $\rho$	10 <sup>3</sup> kg/m <sup>3</sup>	8.89	8.89	8.89	8.89	8.89

<sup>1)</sup> calculation based on the minimum cross section

<sup>2)</sup> different tensile strengths on request

## Values for Cu-ETP copper (high tensile strength)

technical data		nominal cross section				
		80	100	107	120	150
min. tensile strength $R_m$ <sup>2)</sup>	N/mm <sup>2</sup>	375	375	360	360	360
min. breaking load <sup>1)</sup> $F_m$	kN	29.1	36.4	37.4	41.9	52.4
Percentage Elongation after fracture $A_{200}$	%	3 – 8	3 – 8	3 – 8	3 – 8	3 – 8
Modulus of elasticity $E$	kN/mm <sup>2</sup>	120	120	120	120	120
Half-hard point	°C	≥ 180	≥ 180	≥ 180	≥ 180	≥ 180
Electrical conductivity $\chi$ at 20 °C	m/(Ohm*mm <sup>2</sup> )	≥ 56.3	≥ 56.3	≥ 56.3	≥ 56.3	≥ 56.3
Electrical conductivity $\chi$ at 20 °C	% IACS	≥ 97	≥ 97	≥ 97	≥ 97	≥ 97
Specific electrical resistance $\rho_{el}$ at 20 °C	10 <sup>-8</sup> Ohm*m	≤ 1.777	≤ 1.777	≤ 1.777	≤ 1.777	≤ 1.777
Electrical resistance R	Ohm/km	≤ 0.229	≤ 0.183	≤ 0.171	≤ 0.153	≤ 0.122
Temperature coefficient $\alpha_{el}$ of electrical resistance	10 <sup>-3</sup> /K	3.8	3.8	3.8	3.8	3.8
Linear coefficient of thermal expansion $\alpha$	10 <sup>-5</sup> /K	1.7	1.7	1.7	1.7	1.7
Specific mass $\rho$	10 <sup>3</sup> kg/m <sup>3</sup>	8.89	8.89	8.89	8.89	8.89

<sup>1)</sup> calculation based on the minimum cross section

<sup>2)</sup> different tensile strengths on request