

# Conductor resistance data

## Conductor resistance data according to VDE 0295 and IEC 60228

Conductor resistance data for cables and insulated cables for high-voltage systems are executed in accordance with DIN VDE 0295 in conformity with IEC 60228, depending on conductor class, as from 0.5 mm<sup>2</sup>. The resistance of each conductor at 20° C must not exceed the maximum specified for the particular nominal cross-section. Adherence to the maximum values for conductor resistance is verified by means of an ohmmeter applied to the conductor or of the finished cable. Measurement is performed in accordance with DIN VDE 0472, Part 501.

This does not apply to conductors in telecommunications cables.

Conductor dimensions	High-voltage cables						Welding cable	
	Cu conductors				Al conductors		Cu conductors	
	consisting of tin-plated wires		consisting of bright wires		consisting of bright wires		consisting of bright wires	consisting of tin-plated wires
Nominal cross-section mm <sup>2</sup>	Class 1 Class 2 Ω/km	Class 5 Class 6 Ω/km	Class 1 Class 2 Ω/km	Class 5 Class 6 Ω/km	Class 1 Ω/km	Class 2 Ω/km	Ω/km	Ω/km
0,05	–	~380,0	–	~360,0	–	–	–	–
0,08	–	~240,0	–	~230,0	–	–	–	–
0,09	–	~230,0	–	~215,0	–	–	–	–
0,14	–	~140,0	–	~138,0	–	–	–	–
0,22	–	~96,8	–	~95,0	–	–	–	–
0,25	–	~79,3	–	~77,8	–	–	–	–
0,34	–	~57,1	–	~56,0	–	–	–	–
0,5	36,7	40,1	36,0	39,0	–	–	–	–
0,75	24,8	26,7	24,5	26,0	–	–	–	–
1,0	18,2	20,0	18,1	19,5	–	–	–	–
1,5	12,2	13,7	12,1	13,3	–	–	–	–
2,5	7,56	8,21	7,41	7,98	–	–	–	–
4,0	4,70	5,09	4,61	4,95	–	–	–	–
6,0	3,11	3,39	3,08	3,30	–	–	–	–
10,0	1,84	1,95	1,83	1,91	–	–	–	–
16,0	1,16	1,24	1,15	1,21	–	1,91 <sup>2)</sup>	1,16	1,19
25,0	0,734	0,795	0,727 <sup>1)</sup>	0,780	1,20	1,20	0,758	0,780
35,0	0,529	0,565	0,524 <sup>1)</sup>	0,554	0,868	0,868	0,536	0,552
50,0	0,391	0,393	0,387 <sup>1)</sup>	0,386	0,641	0,641	0,379	0,390
70,0	0,270	0,277	0,268 <sup>1)</sup>	0,272	0,443	0,443	0,268	0,276
95,0	0,195	0,210	0,193 <sup>1)</sup>	0,206	0,320	0,320	0,198	0,204
120,0	0,154	0,164	0,153 <sup>1)</sup>	0,161	0,253	0,253	0,155	0,159
150,0	0,126	0,132	0,124 <sup>1)</sup>	0,129	0,206	0,206	0,125	0,129
185,0	0,100	0,108	0,0991	0,106	0,164	0,164	0,102	0,105
240,0	0,0762	0,0817	0,0754	0,0801	0,125	0,125	–	–
300,0	0,0607	0,0654	0,0601	0,0641	0,100	0,100	–	–
400,0	0,0475	0,0495	0,0470	0,0486	–	0,0778	–	–
500,0	0,0369	0,0391	0,0366	0,0384	–	0,0605	–	–
630,0	0,0286	0,0292	0,0283	0,0287	–	0,0469	–	–

<sup>1)</sup> applies to mineral insulated Class 1 cables

<sup>2)</sup> applies only to conductors with reduced cross-section for NAYCWY 4 x 25/16

### Explanatory notes

Class 1 - for single-wire conductors

Class 2 - for multi-wire conductors

Class 5 - for fine-wired conductors

Class 6 - for ultra-fine-wired conductors