

TABLE OF PROPERTIES OF THE CONDUCTORS - DEFINITION OF THE CURRENT LOADS

A PROPERTIES OF THE MATERIALS

	MAX SPECIFIC RESISTIVITY AT 20° C - $\Omega \cdot \text{mm}^2 / \text{m}$		DENSITY g/cm^3
Electrolytic bare copper 99,9 Cu ETP1	Standard ASTM B3	0,017241	8,89
Tin Coated Copper	Standard ASTM B 33 - EN 13602	0,017931	8,89
Nickel Coated copper	Standard ASTM B355 - Classe 2	0,017960	8,89
Nickel 99,2 Minimum	Standard ASTM B 160	0,090 $\pm$ 0.01	8,90

B CONDUCTORS TABLE OF PROPERTIES AND LOADS

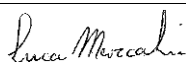
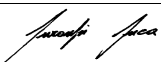
Wires heat up due to the passage of the current.
Always keep into consideration this physical phenomena when selecting the sections to be used. In fact, knowing the thermal proprieties of the insulator, the ambient maximum working temperature, and the ΔT generated by the passage of the current, it is possible to accurately evaluate the sections. The values contained in table -C- are determined according to our experience and tests, or by using the **DIN-VDE 0298-4** norm when possible, and are referred to single core cables.

	Max Resistance at 20° C for copper allowed by the norm EN 60228 Ω/km					RELATION LOAD-TEMPERATURE at T +20°C (I max)			
Nominal Section	Solid Conductors Class 1		Flexible Conductors Class 5 - 6			ΔT with current Flow (I)			
	Bare copper	Coated copper	Bare copper	Coated copper	Nickel ($\pm 15\%$)	Copper		Nickel	
mm^2	Ω / Km	Ω / Km	Ω / Km	Ω / Km	Ω / Km	+50°C	+5°C	+50°C	+5°C
0,25			81,00	82,50	360,00	5,00	2,50	1,25	0,50
0,35			56,50	58,50	257,14	8,00	2,80	1,75	0,70
0,50	36,0	36,70	39,00	40,10	180,00	12,00	3,80	2,50	1,00
0,75	24,5	24,80	26,00	26,70	120,00	15,00	4,80	3,70	1,50
1,00	18,1	18,20	19,50	20,00	90,00	17,00	6,00	5,00	2,00
1,50	12,1	12,20	13,30	13,70	60,00	23,00	8,00	7,50	3,00
2,00	9,10	9,18	9,75	10,10	45,00	28,00	9,00	10,00	4,00
2,50	7,41	7,56	7,98	8,21	36,00	33,00	10,00	11,00	4,50
3,00	6,15	6,2	6,50	6,67	30,00	37,00	12,00	12,00	5,00
4,00	4,61	4,70	4,95	5,09	22,50	41,00	14,00	16,00	6,50
6,00	3,08	3,11	3,30	3,39	15,00	50,00	18,00	24,00	9,80
10,00	1,83	1,84	1,91	1,95	9,00	80,00	25,00	35,00	15,00
16,00	1,15	1,16	1,21	1,24	5,62	100,00	35,00	56,00	22,00
25,00			0,78	0,795	3,60	145,00	50,00	75,00	32,00

C TABLE OF RESISTIVITY AND LOADS

It is known that wires increase their resistivity when the temperature increases, thus decreasing their load.
As we have not found any literature in the regulations in force, we had to make laboratory tests on copper wires, in order to draw up this approximate table:

Temperature	20°C Ω/km	100°C	145°C	170°C	250°C	
Resistivity increase in consequence of the temperature compare with the nominal value	VN	VN + 20%	VN + 35%	VN + 45%	VN + 75%	
	(Nominal Value)					
Load decrease	PM	PM - 20%	PM - 35%	PM - 45%	PM - 75%	
	(Max Load)					

Data Emissione	17/05/1999	Indice Modifica	9	Data Modifica	04/06/2024
Redatto SETP		Verificato SEP		Approvato DIG	
Il presente documento è di esclusiva proprietà BLF srl. Le leggi vigenti ne tutelano la proprietà. This document is an exclusive BLF srl property. Current laws defend this property.					



T
0
0
2