



RAILWAY ROLLING STOCK CABLE APPLICATION GUIDE

1. Application

Rolling stock cables are used for moving vehicles across railway, metro and underground rail infrastructures. The cables are required to have various properties including those that ensure fire safety, such as high flame retardancy and high durability, as well as low smoke and toxicity.

2. Rating Voltage

According to EN standards EN50264, the voltage class is divided into the following four categories.

Rating Voltage V			
U ₀	U	U _m	V ₀
300 ^a	500 ^a	600 ^a	450 ^a
600	1000	1200	900
1800	3000	3600	2700
3600	6000	7200	5400

^a Multicore cables only

3. Rating working temperature range

EN 50264 cable: -40~+90 °C

EN 50306 cable: -40~+105 °C

4. Bending radius recommended

At cable temperature +10~+30 °C,

Min. bending radii

Unscreened Cables	For cable diameter (mm)	
	≤ 12	> 12
Fixed installation	4D	5D
Careful bending (once only at termination)	3D	4D
Screened cables		
All installations	10D	10D

NOTE D is the overall diameter.





5. Current carrying capacity

EN50264 cables are mainly used as power line or power line connection. The current capacity as follows.

Current Ratings	
Conductor cross-sectional area mm ²	Current rating Single cable A
1,0	20
1,5	25
2,5	33
4	46
6	60
10	85
16	110
25	150
35	190
50	240
70	300
95	360
120	425
150	490
185	560
240	675
300	775
400	950

These ratings are applicable to a single cable installed in “free air” with unrestricted ventilation. They are based upon a 45 °C ambient air temperature with a maximum conductor operating temperature of 90 °C





6. Derating factors for other ambient temperatures

Temperature °C	Factor K ¹
30	1,15
35	1,10
40	1,05
45	1,00
50	0,94
55	0,88
60	0,81
65	0,74
70	0,66
75	0,57
80	0,47
85	0,33
105	1,15
120	1,29
140	1,45
150	1,52

The tabulated value of short circuit current are applicable to standard wall cables to EN 50264 and are based upon a duration of current flow of 1 s.

It is assumed the cable has an initial conductor temperature of 90 °C and that the final conductor temperature will be limited to 200 °C.

