

13. Allowable ampacity and Current reduction factors

■ Allowable ampacity and Current reduction factors

Allowable ampacity(A) for cable is based on calculation by JCS0168 under aerial one-cable and temperature at 30°C, not representing a guaranteed value.
 ※JCS0168...Calculation of the current rating of power cables for rated voltage up to and including 33kV.
 Allowable ampacity cable at ambient temperature above 30°C is to be determined by multiplying the current value by the appropriate current reduction factors in the following table.
 If the electric wire exceeds the allowable ampacity, the electric wire may generate heat and cause a fire, so consider the ambient temperature and the conditions for multi-row laying according to the usage conditions. Please use by multiplying the allowable ampacity value by the reduction factors or reduction rate.

Table 1 Current reduction factors (60°C)

Ambient temperature (°C)	30	35	40	45	50	55
Current reduction factors	1.00	0.91	0.82	0.71	0.58	0.41

Table 2 Current reduction factors (70°C)

Ambient temperature (°C)	30	35	40	45	50	55	60	65
Current reduction factors	1.00	0.94	0.87	0.79	0.71	0.61	0.5	0.35

Table 3 Current reduction factors (75°C)

Ambient temperature (°C)	30	35	40	45	50	55	60	65	70
Current reduction factors	1.00	0.94	0.88	0.82	0.75	0.67	0.58	0.47	0.33

Table 4 Current reduction factors (80°C)

Ambient temperature (°C)	30	35	40	45	50	55	60	65	70	75
Current reduction factors	1.00	0.95	0.89	0.84	0.77	0.71	0.63	0.55	0.45	0.32

Table 5 Current reduction factors (90°C)

Ambient temperature (°C)	30	35	40	45	50	55	60	65	70	75	80	85
Current reduction factors	1.00	0.96	0.91	0.87	0.82	0.76	0.71	0.65	0.58	0.50	0.41	0.29

Table 6 Current reduction factors (105°C)

Ambient temperature (°C)	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Current reduction factors	1.00	0.97	0.93	0.89	0.86	0.82	0.77	0.73	0.68	0.63	0.58	0.52	0.45	0.36	0.26

Allowable current overseas


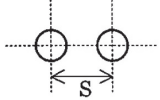
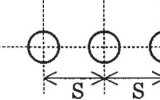
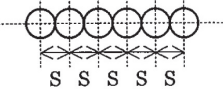
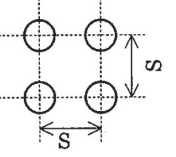
※For details on allowable ampacity of the cable when used in Europe, refer to the applicable standard "IEC 60364-5-52 (Electrical installations of buildings - Part 5-52 : Selection and erection of electrical equipment - Wiring systems)".

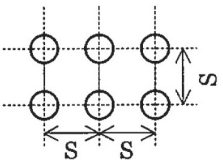
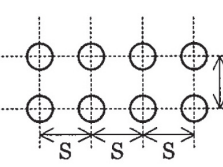
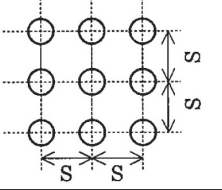
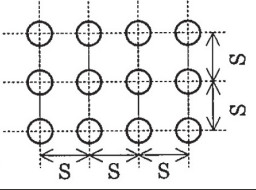
※In the United States, the permissible current value is determined by the number of circuits that are energized, so please refer to the US Electrical Standards (NFPA70) and the US Electrical Standards Industrial Machinery Electrical Regulations (NFPA79).

■ Reduction factors by laying multiple cables in the air

When calculating the allowable current value for multi-row laying from the allowable current value (initial value) for single-row laying, multiply the initial value by the reduction rate of the conditions obtained from the table below.

Table 7-1 Reduction factors in aerial multi-row laying of Articles 1 to 12

Number of line		Reduction factors of current				
		1	2	3	6	4
Arrangement Space of center						
	S = d	1.00	0.85	0.80	0.70	0.70
	S = 2d		0.95	0.95	0.90	0.90
	S = 3d		1.00	1.00	0.95	0.95

Number of line		Reduction factors of current			
		6	8	9	12
Arrangement Space of center					
	S = d	0.60	—	—	—
	S = 2d	0.90	0.85	0.80	0.80
	S = 3d	0.95	0.90	0.85	0.85

According to JCS 0168-1

Table 7-2 Reduction factors in aerial multi-row laying in cases other than the above table

Space of center arrangement		Reduction factors of current															
		Step (n)	1					2					3				
		Line (m)	7~20	4	5	6	7	8~20	3	4	5	6	7				
S = d			0.70	0.60	0.56	0.53	0.51	0.50	0.48	0.41	0.37	0.34	0.32				
S = 2d			0.80	—	0.73	0.72	0.71	0.70	—	—	0.68	0.66	0.65				

Space of center arrangement		Reduction factors of current							
		Step (n)	3						
		Line (m)	8	9~10	11~12	13~15	16~19	20	
S = d			0.31	0.30	0.30	0.30	0.30	0.30	
S = 2d			0.65	0.64	0.63	0.62	0.61	0.60	

According to JCS 0168-1