

Standard laying conditions		Other laying conditions	
Soil thermal resistivity	1.2K.m/W	$I_{\text{standard}}$ = Standard current rating in ground	
Depth of burial	500mm	$I_{\text{rated}} = I_{\text{standard}} \times k_1 \times k_2 \times k_3 \times k_4$	
Soil temperature	25°C	$k_1$ = Table 1 $k_2$ = Table 2 $k_3$ = Table 3 : $k_4$ = Table 4 to Table 7	

Table 1 – Rating factor for variation in soil temperature ( $k_1$ )

Insulation Type	Max. Conductor Temperature °C	Soil temperature °C						
		10	15	20	25	30	35	40
PVC D2	70	1.15	1.11	1.05	1.00	0.94	0.88	0.82
XLPE	90	1.11	1.07	1.04	1.00	0.96	0.92	0.88
PVC D5	105	1.12	1.08	1.04	1.00	0.96	0.91	0.87

Table 2 – Rating factor for variation in depth of laying ( $k_2$ )

Depth of laying (m)	0.5	0.8	1.0	1.2	1.5
Laid direct in Ground	1.00	0.95	0.94	0.92	0.91
Drawn into single way Ducts	1.00	0.97	0.96	0.95	0.93

Table 3 – Rating factor for variation in thermal resistivity of soil ( $k_3$ )

	Soil thermal resistivity K.m/W						
	0.7	1.0	1.2	1.5	2.0	2.5	3.0
Laid direct in Ground	1.16	1.07	1.00	0.92	0.88	0.74	0.68
Drawn into single way Ducts	1.08	1.04	1.00	0.95	0.89	0.84	0.79

NOTE : The drying of soil or backfill was not taken in to consideration in these calculations.

african cables

**POWER BY INNOVATION... INNOVATION THROUGH PARTNERSHIPS**

Cbi electric: african cables | a division of ATC Pty Ltd | Registration No. 1955/003773/07  
 PO Box 172, Vereeniging 1930 | 1 Steel Road, Peacehaven, Vereeniging, 1939, South Africa  
 Tel: +27 16 430 6000 | www.cbi-electric.com | a Reunert company | B-BBEE Level 1  
 ISO 9001 | ISO 14001 | ISO 45001

Table 4 – Group Rating factors for twin or multicore cables in horizontal formation, laid direct in ground ( $k_4$ )

Cable Voltage	Number of Circuits					
		Touching	150mm	300mm	450mm	600mm
600/1000V	2	0.81	0.87	0.91	0.93	0.95
	3	0.70	0.78	0.84	0.88	0.90
	4	0.63	0.74	0.81	0.86	0.89
	5	0.59	0.70	0.78	0.84	0.87
	6	0.55	0.68	0.77	0.83	0.87
	7	0.52	0.66	0.76	0.82	0.86
	8	0.49	0.64	0.75	0.81	0.86
	1900/3300V	2	0.80	0.85	0.89	0.91
3		0.68	0.76	0.81	0.84	0.87
4		0.62	0.71	0.77	0.81	0.84
5		0.57	0.66	0.73	0.78	0.82
6		0.54	0.64	0.71	0.77	0.81
7		0.51	0.62	0.69	0.75	0.80
8		0.48	0.60	0.67	0.73	0.79

Table 5 – Group Rating factors for circuits of three single core cables in Trefoil formation touching, laid direct in ground ( $k_4$ )

Cable Voltage	Number of Circuits					
		Touching	150mm	300mm	450mm	600mm
600/1000V	2	0.78	0.83	0.88	0.91	0.93
	3	0.66	0.73	0.79	0.84	0.87
	4	0.61	0.68	0.73	0.81	0.85
	5	0.56	0.64	0.72	0.79	0.83
	6	0.53	0.61	0.71	0.78	0.82
	7	0.50	0.59	0.70	0.77	0.81
	8	0.47	0.57	0.69	0.76	0.80
	1900/3300V	2	0.78	0.82	0.86	0.89
3		0.66	0.71	0.77	0.80	0.83
4		0.59	0.65	0.72	0.77	0.8
5		0.55	0.61	0.68	0.74	0.78
6		0.52	0.58	0.66	0.72	0.76
7		0.49	0.56	0.64	0.70	0.75
8		0.46	0.54	0.62	0.68	0.74

Table 6 – Group Rating factors for twin or multicore cables installed in single way Ducts or Pipes (k<sub>4</sub>)

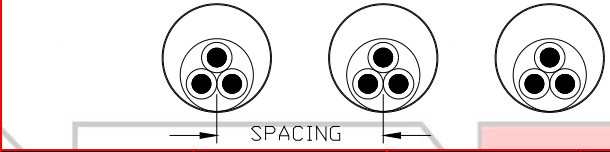

Cable Voltage	Number of Circuits				
		Touching	300mm	450mm	600mm
600/1000V	2	0.90	0.93	0.95	0.96
	3	0.83	0.88	0.91	0.93
	4	0.79	0.85	0.89	0.92
	5	0.75	0.83	0.88	0.91
	6	0.73	0.82	0.87	0.90
	7	0.71	0.81	0.86	0.89
	8	0.69	0.80	0.85	0.88
	1900/3300V	2	0.88	0.91	0.93
3		0.80	0.85	0.88	0.90
4		0.76	0.81	0.85	0.88
5		0.72	0.78	0.83	0.86
6		0.69	0.76	0.81	0.85
7		0.66	0.74	0.79	0.84
8		0.63	0.72	0.78	0.83

Table 7 – Group Rating factors for single core cables installed in Trefoil single way Ducts or Pipes (k<sub>4</sub>)

Cable Voltage	Number of Circuits			
		Touching	450mm	600mm
600/1000V	2	0.87	0.91	0.93
	3	0.78	0.84	0.87
	4	0.74	0.81	0.85
	5	0.70	0.79	0.83
	6	0.69	0.78	0.82
	7	0.67	0.77	0.81
	8	0.65	0.76	0.80
	1900/3300V	2	0.85	0.88
3		0.75	0.80	0.83
4		0.70	0.77	0.80
5		0.67	0.74	0.78
6		0.64	0.72	0.76
7		0.62	0.70	0.74
8		0.60	0.68	0.72

*Disclaimer: The cable rating factors are designed as a guide for calculation of a wide range of cable types and cables sizes. While single rating factors remain reasonably accurate, the more factors that are applied simultaneously, larger possible variances arise. While every effort has been made to ensure the information contained herein is correct, CBI-electric: african cables disclaim responsibility for any action, proceedings, liabilities, claims, damages, costs, losses and expense in relation to, or arising out of any use of the factors. Due to continuous improvement CBI-electric: african cables reserves the right to change the above without notice*