

| Standard laying conditions | | Other laying conditions |
|----------------------------|----------|---|
| Soil thermal resistivity | 1.2K.m/W | $I_{\text{standard}} = \text{Standard current rating in ground}$ |
| 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 | $k_1 = \text{Table 1}$ $k_2 = \text{Table 2}$ $k_3 = \text{Table 3}$ $k_4 = \text{Table 4 to Table 7}$ |

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 | 0.97 | 0.94 | 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 |

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

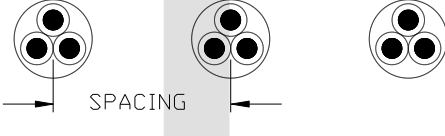
| Cable Voltage | Number of Circuits |  | | | | |
|---------------|--------------------|--|-------|-------|-------|-------|
| | | Touching | 150mm | 300mm | 450mm | 600mm |
| 600/1000V | 2 | 0.81 | 0.87 | 0.91 | 0.93 | 0.95 |
| | 3 | 0.70 | 0.78 | 0.84 | 0.88 | 0.90 |
| | 4 | 0.63 | 0.74 | 0.81 | 0.86 | 0.89 |
| | 5 | 0.59 | 0.70 | 0.78 | 0.84 | 0.87 |
| | 6 | 0.55 | 0.68 | 0.77 | 0.83 | 0.87 |
| 1900/3300V | 2 | 0.80 | 0.85 | 0.89 | 0.91 | 0.93 |
| | 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 |

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

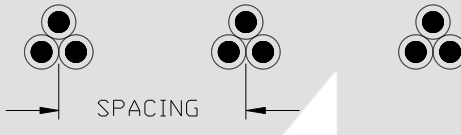
| Cable Voltage | Number of Circuits |  | | | | |
|---------------|--------------------|--|-------|-------|-------|-------|
| | | Touching | 150mm | 300mm | 450mm | 600mm |
| 600/1000V | 2 | 0.78 | 0.83 | 0.88 | 0.91 | 0.93 |
| | 3 | 0.66 | 0.73 | 0.79 | 0.84 | 0.87 |
| | 4 | 0.61 | 0.68 | 0.73 | 0.81 | 0.85 |
| | 5 | 0.56 | 0.64 | 0.72 | 0.79 | 0.83 |
| | 6 | 0.53 | 0.61 | 0.71 | 0.78 | 0.82 |
| 1900/3300V | 2 | 0.78 | 0.82 | 0.86 | 0.89 | 0.91 |
| | 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 |

Table 6 – Group Rating factors for twin or multicore cables installed in single way Ducts or Pipes

(k₄)

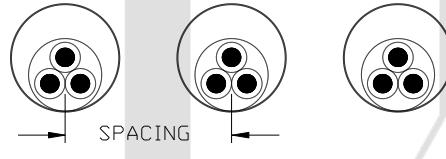
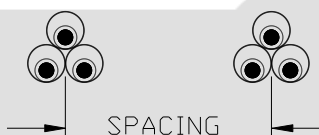
| Cable Voltage | Number of Circuits |  | | | |
|---------------|--------------------|--|-------|-------|-------|
| | | Touching | 300mm | 450mm | 600mm |
| 600/1000V | 2 | 0.90 | 0.93 | 0.95 | 0.96 |
| | 3 | 0.83 | 0.88 | 0.91 | 0.93 |
| | 4 | 0.79 | 0.85 | 0.89 | 0.92 |
| | 5 | 0.75 | 0.83 | 0.88 | 0.91 |
| | 6 | 0.73 | 0.82 | 0.87 | 0.90 |
| 1900/3300V | 2 | 0.88 | 0.91 | 0.93 | 0.94 |
| | 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 |

Table 7 – Group Rating factors for single core cables installed in Trefoil single way Ducts or Pipes

(k₄)

| 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 |
| 1900/3300V | 2 | 0.85 | 0.88 | 0.90 |
| | 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 |

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.