

# Medium Voltage XLPE Insulated Cables

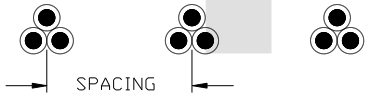
## Rating Factors for Cables Laid Direct in Air

| Standard laying conditions | Other laying conditions  |
|----------------------------|--|
| Air temperature 30°C       | $I_{\text{standard}} = \text{Standard current rating in air}$  |
|                            | $I_{\text{rated}} = I_{\text{standard}} \times k_1 \times k_2$ |
|                            | $k_1 = \text{Table 1}$   |
|                            | $k_2 = \text{Table 2 to Table 4}$                              |
|                            | $k_3 = \text{Table 5}$   |

Table 1 – Rating factor for variation in temperature of air (k1)

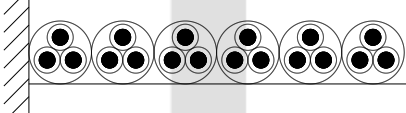
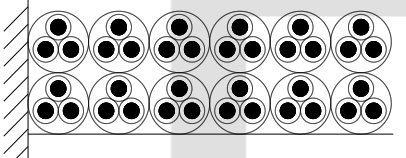
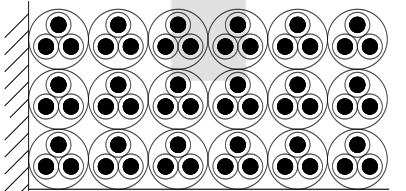
| Air temperature °C |      |      |      |      |      |      |      |      |
|--------------------|------|------|------|------|------|------|------|------|
| 10                 | 15   | 20   | 25   | 30   | 35   | 40   | 45   | 50   |
| 1.17               | 1.13 | 1.09 | 1.04 | 1.00 | 0.95 | 0.91 | 0.86 | 0.81 |

Table 2 – Group Rating factors for trefoil grouped cables in horizontal formation, installed direct in air (k2)

| Number of Cable Circuits |  |       |       |       |       |
|--------------------------|--|-------|-------|-------|-------|
|                          | Touching   | 150mm | 300mm | 450mm | 600mm |
| 2                        | 0.79   | 0.81  | 0.85  | 0.88  | 0.90  |
| 3                        | 0.67   | 0.71  | 0.76  | 0.80  | 0.83  |
| 4                        | 0.61   | 0.65  | 0.72  | 0.76  | 0.80  |
| 5                        | 0.56   | 0.61  | 0.68  | 0.73  | 0.77  |
| 6                        | 0.53   | 0.58  | 0.66  | 0.72  | 0.76  |
| 7                        | 0.50   | 0.55  | 0.63  | 0.70  | 0.74  |
| 8                        | 0.48   | 0.53  | 0.62  | 0.69  | 0.74  |
| 9                        | 0.46   | 0.52  | 0.61  | 0.68  | 0.73  |
| 10                       | 0.45   | 0.51  | 0.60  | 0.67  | 0.73  |

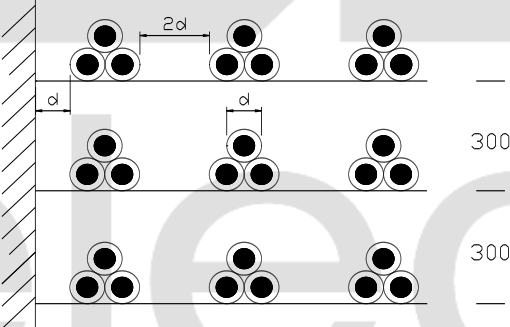
# Medium Voltage XLPE Insulated Cables Rating Factors for Cables Laid Direct in Air

Table 3 – Group Rating factors for 3-core cables installed in air on ladder racks or perforated cable trays (k2)

| Number of Cable Circuits in a Layer   | 1    | 2    | 3    | 4    | 5    | 7    | 10   |
|---|------|------|------|------|------|------|------|
| <b>Single layer</b><br>          | 0.95 | 0.84 | 0.80 | 0.77 | 0.76 | 0.74 | 0.73 |
| <b>Two layers</b><br>            |      |      |      | 0.71 | 0.66 | 0.59 | 0.53 |
| <b>More than two layers</b><br> |      |      |      | 0.70 | 0.64 | 0.55 | 0.48 |

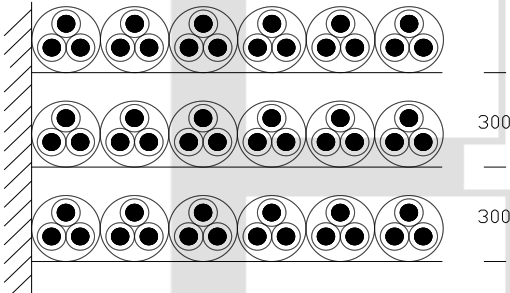
NOTE : No derating needs to be applied when cables are installed in a single layer and spaced one cable diameter apart.

Table 4 – Group rating factor for trefoil groups of three single core cables installed in air on ladder racks or perforated cable tray (k2)

|  | Number of cable circuits on racks or trays | Number of Racks or Trays |      |      |
|---|--|--------------------------|------|------|
|   |  | 1                        | 2    | 3    |
| 1   | 1  | 1.00                     | 0.98 | 0.96 |
| 2   | 2  | 1.00                     | 0.95 | 0.93 |
| 3   | 3  | 1.00                     | 0.94 | 0.92 |
| 6   | 6  | 1.00                     | 0.93 | 0.90 |
| Cable spaced as shown   |  |                          |      |      |

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Table 5 – Additional rating factor to be applied to the single layer factors of Table 3, when two or more racks or trays are installed one above the other with a 300mm vertical spacing (k3)

| Cable Circuits installed touching   | Number of Cable Circuits on Racks or Trays | Number of Racks or Trays |      |      |      |      |
|---|--|--------------------------|------|------|------|------|
|   |  | 1                        | 2    | 3    | 6    | 9    |
|  | 1  | 0.95                     | 0.84 | 0.80 | 0.75 | 0.73 |
|   | 2  | 0.95                     | 0.80 | 0.76 | 0.71 | 0.69 |
|   | 3  | 0.95                     | 0.78 | 0.74 | 0.70 | 0.68 |
|   | 6  | 0.95                     | 0.76 | 0.72 | 0.68 | 0.66 |

*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.*