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|----------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------|
|        | <b>CURRENT-CARRYING CAPACITIES</b> |  | <b>GUIA-02</b><br>Ed. 2/2016 Rev. 3 |
| <b>Tables for low voltage power cables with maximum operating temperature of 90 °C</b> |                                    |                                                                                     |                                     |

## DESCRIPTION

The following table shows the maximum current carrying capacities in normal service for low voltage electric cables with a maximum operating temperature of 90 °C (cables type RV-K, RZ1-K and the like). It also shows the data necessary to calculate the voltage drop that will appear at the end of the line. For cables with 4 or 5 conductors you can use the same data that the cables with 3 conductors.

These values are calculated for the specified conditions of installation. Any change in these conditions can lead to a substantial reduction in the current-carrying capacity that the responsible of the installation should be considered for sizing the cables correctly.

| Cross Section<br>(mm <sup>2</sup> ) | Current-carrying capacity<br>(Amps) |        | Voltage drop<br>(V/A·km) |                |
|-------------------------------------|-------------------------------------|--------|--------------------------|----------------|
|                                     | Air                                 | Buried | Cos $\phi$ = 0.8         | Cos $\phi$ = 1 |
| 1x1,5                               | 20                                  | 22     | 23,6                     | 29,4           |
| 1x2,5                               | 28                                  | 29     | 14,2                     | 17,6           |
| 1x4                                 | 37                                  | 37     | 8,87                     | 10,9           |
| 1x6                                 | 48                                  | 46     | 5,95                     | 7,29           |
| 1x10                                | 66                                  | 61     | 3,48                     | 4,22           |
| 1x16                                | 88                                  | 79     | 2,24                     | 2,67           |
| 1x25                                | 135                                 | 101    | 1,48                     | 1,72           |
| 1x35                                | 169                                 | 122    | 1,07                     | 1,22           |
| 1x50                                | 207                                 | 144    | 0,772                    | 0,852          |
| 1x70                                | 268                                 | 178    | 0,567                    | 0,601          |
| 1x95                                | 328                                 | 211    | 0,448                    | 0,455          |
| 1x120                               | 383                                 | 240    | 0,367                    | 0,356          |
| 1x150                               | 444                                 | 271    | 0,311                    | 0,285          |
| 1x185                               | 510                                 | 304    | 0,270                    | 0,234          |
| 1x240                               | 607                                 | 351    | 0,222                    | 0,177          |
| 1x300                               | 703                                 | 396    | 0,193                    | 0,142          |
| 1x400                               | 823                                 | 464    | 0,164                    | 0,107          |
| 1x500                               | 946                                 | 525    | 0,144                    | 0,0848         |
| 2x1,5                               | 26                                  | 26     | 27,3                     | 33,9           |
| 2x2,5                               | 36                                  | 34     | 16,4                     | 20,3           |
| 2x4                                 | 49                                  | 44     | 10,2                     | 12,6           |
| 2x6                                 | 63                                  | 56     | 6,83                     | 8,42           |
| 2x10                                | 86                                  | 73     | 3,99                     | 4,87           |
| 2x16                                | 115                                 | 95     | 2,56                     | 3,09           |
| 2x25                                | 149                                 | 121    | 1,68                     | 1,99           |
| 2x35                                | 185                                 | 146    | 1,22                     | 1,41           |

| Cross Section<br>(mm <sup>2</sup> ) | Current-carrying capacity<br>(Amps) |        | Voltage drop<br>(V/A·km) |                |
|-------------------------------------|-------------------------------------|--------|--------------------------|----------------|
|                                     | Air                                 | Buried | Cos $\phi$ = 0.8         | Cos $\phi$ = 1 |
| 2x50                                | 225                                 | 173    | 0,874                    | 0,98           |
| 2x70                                | 289                                 | 213    | 0,640                    | 0,694          |
| 2x95                                | 352                                 | 252    | 0,504                    | 0,525          |
| 2x120                               | 410                                 | 287    | 0,411                    | 0,411          |
| 2x150                               | 473                                 | 324    | 0,347                    | 0,329          |
| 2x185                               | 542                                 | 363    | 0,300                    | 0,270          |
| 2x240                               | 641                                 | 419    | 0,246                    | 0,204          |
| 3x1,5                               | 23                                  | 22     | 23,6                     | 29,4           |
| 3x2,5                               | 32                                  | 29     | 14,2                     | 17,6           |
| 3x4                                 | 42                                  | 37     | 8,84                     | 10,9           |
| 3x6                                 | 54                                  | 46     | 5,92                     | 7,29           |
| 3x10                                | 75                                  | 61     | 3,46                     | 4,22           |
| 3x16                                | 100                                 | 79     | 2,22                     | 2,67           |
| 3x25                                | 127                                 | 101    | 1,46                     | 1,72           |
| 3x35                                | 158                                 | 122    | 1,05                     | 1,22           |
| 3x50                                | 192                                 | 144    | 0,757                    | 0,852          |
| 3x70                                | 246                                 | 178    | 0,554                    | 0,601          |
| 3x95                                | 298                                 | 211    | 0,436                    | 0,455          |
| 3x120                               | 346                                 | 240    | 0,356                    | 0,356          |
| 3x150                               | 399                                 | 271    | 0,300                    | 0,285          |
| 3x185                               | 456                                 | 304    | 0,260                    | 0,234          |
| 3x240                               | 538                                 | 351    | 0,213                    | 0,177          |

## REFERENCE CONDITIONS (according to IEC 60364-5-52)

Type of current for 1 and 3 conductors: Three-phase, 50 Hz

Type of current for 2 conductors: Single phase, 50 Hz

Reference installation method: Single core up to 16 mm<sup>2</sup>: B1 (in conduit)  
“ from 25 mm<sup>2</sup>: F trefoil (on perforated tray)

Multicore: E (on perforated tray)

Buried: D (in duct in the ground)

Air temperature: 30 °C

Soil temperature: 20 °C

Soil thermal resistivity: 2.5 °K·m/W

For more information we recommend consulting the IEC 60364-5-52 standard, where additional tables and correction factors for different installation conditions are found.