

MEDIUM VOLTAGE CABLES

Physical & electrical characteristics

| Aluminium 1.9/3.3kV – Three core heavy duty screened unarmoured | | | | | | | | | | |
|---|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|
| Product code: 3CALX3HD | | | | | | | | | | |
| Nominal conductor area mm ² | 25 | 35 | 50 | 70 | 95 | 120 | 150 | 185 | 240 | 300 |
| Nominal conductor diameter mm | 6.1 | 7.1 | 8.1 | 9.8 | 11.5 | 12.9 | 14.2 | 16.0 | 18.1 | 20.6 |
| Nominal insulation thickness mm | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Approx cable diameter mm | 35.9 | 38.4 | 40.7 | 44.8 | 48.6 | 51.8 | 54.9 | 58.8 | 63.9 | 69.5 |
| Approx mass kg/100m | 110 | 130 | 160 | 205 | 255 | 290 | 330 | 375 | 445 | 520 |
| Max pulling tension on conductors kN | 3.8 | 5.3 | 7.5 | 11 | 14 | 18 | 23 | 25 | 25 | 25 |
| Max pulling tension on stocking grip kN | 3.8 | 5.2 | 5.8 | 7.0 | 8.3 | 9.4 | 11 | 12 | 14 | 17 |
| Min bending radius* during installation mm | 650 | 690 | 730 | 810 | 880 | 930 | 990 | 1060 | 1150 | 1250 |
| Min bending radius* set in position mm | 430 | 460 | 490 | 540 | 580 | 620 | 660 | 710 | 770 | 830 |
| Max conductor resistance, dc @ 20°C Ohm/km | 1.20 | 0.868 | 0.641 | 0.443 | 0.320 | 0.253 | 0.206 | 0.164 | 0.125 | 0.100 |
| Conductor resistance, ac @ 90°C & 50 Hz Ohm/km | 1.54 | 1.11 | 0.822 | 0.568 | 0.411 | 0.325 | 0.265 | 0.211 | 0.162 | 0.130 |
| Inductance mH/km | 0.381 | 0.363 | 0.349 | 0.321 | 0.307 | 0.298 | 0.290 | 0.279 | 0.270 | 0.262 |
| Inductive reactance, @ 50Hz Ohm/km | 0.120 | 0.114 | 0.110 | 0.101 | 0.0964 | 0.0935 | 0.0910 | 0.0875 | 0.0849 | 0.0824 |
| Zero seq. impedance @ 20°C & 50 Hz Ohm/km | 4.48+ j0.0722 | 3.39+ j0.0668 | 2.37+ j0.0626 | 1.70+ j0.0542 | 1.26+ j0.0499 | 1.09+ j0.0472 | 1.05+ j0.0449 | 1.01+ j0.0416 | 0.967+ j0.0391 | 0.942+ j0.0368 |
| Capacitance, phase to earth µF/km | 0.317 | 0.354 | 0.390 | 0.449 | 0.509 | 0.556 | 0.604 | 0.665 | 0.740 | 0.827 |
| Min insulation resistance @ 20°C MOhm.km | 8,300 | 7,300 | 6,600 | 5,700 | 5,000 | 4,600 | 4,200 | 3,800 | 3,400 | 3,000 |
| Electric stress at conductor screen kV/mm | 1.19 | 1.16 | 1.14 | 1.11 | 1.09 | 1.08 | 1.07 | 1.06 | 1.05 | 1.03 |
| Charging current @ rated voltage & 50 Hz A/phase/km | 0.189 | 0.212 | 0.233 | 0.268 | 0.304 | 0.332 | 0.360 | 0.397 | 0.442 | 0.494 |
| Short circuit rating | Phase conductor kA, 1 sec | 2.4 | 3.3 | 4.7 | 6.6 | 9.0 | 11.3 | 14.2 | 17.5 | 22.7 |
| | Metallic screen kA, 1 sec | 2.5 | 3.3 | 4.8 | 6.6 | 8.9 | 10 | 10 | 10 | 10 |
| Continuous current rating | In ground, direct buried A | 110 | 125 | 150 | 185 | 225 | 255 | 285 | 320 | 420 |
| | In ground, in singleway ducts A | 90 | 110 | 130 | 160 | 185 | 215 | 240 | 270 | 360 |
| | In free air, unenclosed & spaced from wall A | 105 | 125 | 145 | 180 | 220 | 265 | 300 | 340 | 465 |

The cables described in this technical manual are designed to be used for the supply of electrical energy in fixed applications up to the rated voltages at a nominal power frequency between 49Hz and 61Hz. All values in this catalogue are for XLPE cables only. *Increased radius required for HDPE and nylon incorporating designs.