# 76/132 (145) kV COPPER CONDUCTOR WITH CORRUGATED ALUMINIUM SHEATH IEC 60840 STANDARD

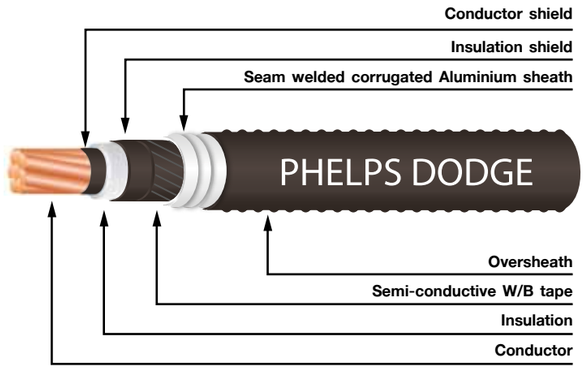
**APPLICATION :**
Preferably used for urban networks. Suitable for use in duct, trays and direct burial in ground.

**Advantages :**
Perfect radial moisture barrier and excellent earth fault current carrying capacity.

**Max. Conductor Temperature :**
90 °C

**AC TEST VOLTAGE :**
190 kV (30 minutes)

**REFERENCE STANDARD :**
IEC 60840




## CONSTRUCTION :

| | | |
|---|---|---|
| Conductor | : | Round compact stranded or Milliken conductor |
| Conductor shield | : | Semi-conducting tape and/or extruded semi-conducting cross-linked polyethylene |
| Insulation | : | Cross-linked polyethylene |
| Insulation shield | : | Semi-conducting cross-linked polyethylene |
| Longitudinal water blocking layer | : | Semi-conductive water blocking tape |
| Metallic shield and radial water barrier | : | Seam welded corrugated Aluminium sheath |
| Oversheath | : | Black PE (ST-7) |

**Cable Construction**

| Nominal cross-sectional area mm² | Diameter of conductor (Approx.) mm | Diameter over insulation (Approx.) mm | Nominal thickness of Al sheath mm | Nominal thickness of oversheath mm | Overall diameter (Approx.) mm | Cable weight (Approx.) kg/km | Standard packing m |
|---|---|---|---|---|---|---|---|
| 240 | 18.2 | 54.5 | 1.6 | 3.3 | 82 | 6,770 | 1,000/R |
| 300 | 20.3 | 55.5 | 1.6 | 3.3 | 83 | 7,390 | 1,000/R |
| 400 | 23.0 | 56.5 | 1.6 | 3.4 | 84 | 8,170 | 1,000/R |
| 500 | 26.0 | 59.0 | 1.8 | 3.4 | 87 | 9,490 | 1,000/R |
| 630 | 29.9 | 64.0 | 1.9 | 3.6 | 93 | 11,420 | 1,000/R |
| 800 | 33.8 | 68.0 | 2.0 | 3.7 | 97 | 13,520 | 500/R |
| 1,000 | 39.8 | 75.0 | 2.1 | 3.9 | 105 | 16,270 | 500/R |
| 1,200 | 43.0 | 78.0 | 2.2 | 4.0 | 109 | 18,290 | 500/R |
| 1,000(M) | 39.1 | 75.0 | 2.1 | 3.9 | 106 | 16,270 | 500/R |
| 1,200(M) | 42.2 | 78.5 | 2.2 | 4.0 | 109 | 18,210 | 500/R |
| 1,400(M) | 45.7 | 83.0 | 2.3 | 4.2 | 115 | 20,700 | 500/R |
| 1,600(M) | 48.8 | 86.0 | 2.3 | 4.3 | 118 | 22,810 | 500/R |
| 1,800(M) | 51.6 | 88.5 | 2.5 | 4.4 | 121 | 25,020 | 500/R |
| 2,000(M) | 54.7 | 92.0 | 2.5 | 4.5 | 125 | 27,330 | 400/R |
| 2,500(M) | 61.1 | 99.0 | 2.5 | 4.8 | 133 | 32,790 | 300/R |

(M) is Milliken conductor

R = Packing in reel



PHELPS DODGE CABLE TYPE HXLP-CAS

76/132 (145) kV COPPER CONDUCTOR WITH CORRUGATED ALUMINIUM SHEATH IEC 60840 STANDARD

**Electrical Properties and Current Rating (A)**

| Nominal cross-sectional area mm² | Maximum DC resistance of conductor at 20°C Ω/km | Minimum insulation resistance at 20°C MΩ-km | Current rating in air* (A) Trefoil ≥0.5xD$_e$ | Current rating in air* (A) Flat ≥0.5xD$_e$ | Current rating direct burial* (A) Trefoil 1 m | Current rating direct burial* (A) Flat 1 m | Current rating in PE duct in ground* (A) Trefoil 1 m | Current rating in PE duct in ground* (A) Flat 1 m |
|---|---|---|---|---|---|---|---|---|
| 240 | 0.0754 | 11,860 | 604 | 671 | 432 | 452 | 420 | 435 |
| 300 | 0.0601 | 10,910 | 688 | 769 | 486 | 510 | 473 | 491 |
| 400 | 0.0470 | 9,670 | 792 | 893 | 549 | 580 | 537 | 559 |
| 500 | 0.0366 | 8,600 | 907 | 1,034 | 615 | 657 | 608 | 637 |
| 630 | 0.0283 | 8,070 | 1,036 | 1,194 | 688 | 744 | 690 | 727 |
| 800 | 0.0221 | 7,420 | 1,166 | 1,364 | 756 | 831 | 770 | 819 |
| 1,000 | 0.0176 | 6,810 | 1,298 | 1,544 | 817 | 916 | 850 | 913 |
| 1,200 | 0.0151 | 6,440 | 1,379 | 1,661 | 854 | 970 | 900 | 973 |
| 1,000(M) | 0.0176 | 6,760 | 1,358 | 1,597 | 854 | 950 | 885 | 947 |
| 1,200(M) | 0.0151 | 6,410 | 1,456 | 1,733 | 900 | 1,014 | 945 | 1,018 |
| 1,400(M) | 0.0129 | 6,220 | 1,556 | 1,873 | 945 | 1,080 | 1,009 | 1,095 |
| 1,600(M) | 0.0113 | 5,930 | 1,642 | 1,999 | 983 | 1,137 | 1,062 | 1,160 |
| 1,800(M) | 0.0101 | 5,690 | 1,709 | 2,106 | 1,008 | 1,181 | 1,104 | 1,215 |
| 2,000(M) | 0.0090 | 5,450 | 1,782 | 2,220 | 1,037 | 1,228 | 1,149 | 1,272 |
| 2,500(M) | 0.0072 | 5,140 | 1,915 | 2,432 | 1,089 | 1,316 | 1,233 | 1,383 |

(M) is Milliken conductor

***CONDITION :**

1. Ambient air temperature 40°C
2. Ground temperature 30°C
3. Thermal resistivity of soil 1.2 K·m/W
4. Depth of laying 1.0 m
5. Axial spacing between phase cable is 2xOD$_{cable}$ or 2xOD$_{duct}$
6. Metallic shield and/or sheath bonded at single point or cross-bonded (no sheath circulating current).