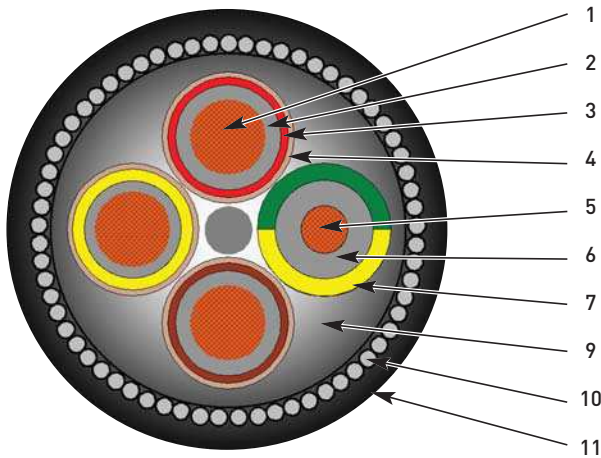




Type 331 and 321 Flexible Trailing Cables with Galvanised Steel Pliable Wire Armouring

1900/3300 volt in accordance with BS 6708:1998

For use as mine roadway extension cables and mechanically protected trailing cables in quarries. BCS 504 refers



| Item | Description | Details |
|------|----------------------|---|
| 1 | Phase conductor | (3 off) TAC flex conductors |
| 2 | Phase insulation | Extruded MEPR black |
| 3 | Phase identification | Proofed tape - red, yellow, brown |
| 4* | Phase core screen | Composite copper/nylon braid |
| 5 | Earth conductor | (1 off) TAC flex conductor |
| 6 | Earth insulation | Extruded MEPR black |
| 7 | Earth identification | Proofed tape - green, yellow |
| 8 | Lay up | 3 power cores + 1 earth core laid up around an elastomeric centre |
| 9 | Bedding sheath | Extruded PCP black |
| 10 | Pliable armour | Galvanised steel wires |
| 11 | Overall sheath | Extruded heavy duty PCP black with blue stripe |

* Does not apply to Type 321

Description

Type 331

Flexible tinned annealed copper (TAC) conductors, MEPR insulated, 3 copper/nylon screened power cores plus 1 unscreened earth core, laid up around a PCP centre, elastomeric bedding sheathed overall with a heavy duty flame retardant elastomeric compound.

Type 321

As type 331, except that the power cores are unscreened.



Type 331 and 321 Flexible Trailing Cables

TECHNICAL DETAILS Type 331

| Phase Conductor | | | | | | | | |
|---|-----------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|---------------------------|
| Number and CSA | mm ² | 3 x 25 mm ² | 3 x 35 mm ² | 3 x 50 mm ² | 3 x 70 mm ² | 3 x 95 mm ² | 3 x 120 mm ² | 3 x 150 mm ² * |
| Nominal diameter over insulation and tape | mm | 13.50 | 15.10 | 16.20 | 18.15 | 19.60 | 21.95 | 23.10 |
| Nominal diameter over screen | mm | 15.50 | 17.10 | 18.20 | 20.15 | 21.60 | 23.95 | 25.40 |
| Earth Conductor | | | | | | | | |
| Number and CSA | mm ² | 1 x 16 mm ² | 1 x 25 mm ² | 1 x 35 mm ² | 1 x 50 mm ² | 1 x 70 mm ² | 1 x 70 mm ² | 1 x 70 mm ² |
| Nominal diameter over insulation and tape | mm | 15.50 | 17.10 | 18.20 | 20.15 | 21.60 | 23.95 | 25.40 |
| Cable Details | | | | | | | | |
| Diameter over inner sheath - minimum | mm | 42.20 | 48.20 | 52.60 | 60.00 | 65.10 | 68.80 | 71.50 |
| Diameter over inner sheath - maximum | mm | 44.70 | 50.70 | 55.60 | 63.00 | 68.90 | 72.60 | 74.00 |
| Overall diameter - minimum | mm | 57.80 | 64.60 | 69.80 | 80.30 | 86.40 | 90.90 | 93.80 |
| Overall diameter - maximum | mm | 61.60 | 68.40 | 73.80 | 84.60 | 90.70 | 95.20 | 98.10 |
| Minimum bending radius | mm | 620 | 690 | 740 | 850 | 910 | 960 | 980 |
| Maximum pulling tension | kgf | 540 | 780 | 1110 | 1560 | 2000 | 2000 | 2000 |
| Approximate cable weight | kg/km | 6400 | 7800 | 9100 | 12400 | 14600 | 16300 | 18200 |
| Electrical Details | | | | | | | | |
| Continuous current rating at 25°C ambient | Amps | 110 | 135 | 170 | 205 | 250 | 295 | 320 |
| Maximum d.c. resistance at 20°C: | | | | | | | | |
| - Power conductor | Ω/km | 0.795 | 0.565 | 0.393 | 0.277 | 0.210 | 0.164 | 0.132 |
| - Earth conductor | Ω/km | 1.240 | 0.795 | 0.565 | 0.393 | 0.277 | 0.277 | 0.277 |
| - Screens in parallel | Ω/km | 1.350 | 0.800 | 0.700 | 0.690 | 0.840 | 0.550 | 0.55 |
| - Armour | Ω/km | 0.965 | 0.844 | 0.715 | 0.488 | 0.382 | 0.299 | 0.24 |
| Nominal reactance at 50 Hz | Ω/km | 0.125 | 0.117 | 0.113 | 0.108 | 0.105 | 0.101 | 0.098 |
| Nominal reactance at 60 Hz | Ω/km | 0.150 | 0.140 | 0.136 | 0.129 | 0.126 | 0.121 | 0.118 |
| Minimum insulation resistance of power cores at 20°C | MΩ/km | 1250 | 1100 | 950 | 820 | 720 | 660 | 600 |
| 3 Phase volt drop based on full load current at 50 Hz | mV/A/mt | 1.69 | 1.21 | 0.85 | 0.61 | 0.48 | 0.39 | 0.32 |

* Not included in BS 6708, but designed in accordance with the specification requirements.

TECHNICAL DETAILS Type 321

| Phase Conductor | | | | | | |
|---|-----------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| Number and CSA | mm ² | 3 x 35 mm ² | 3 x 50 mm ² | 3 x 70 mm ² | 3 x 95 mm ² | 3 x 120 mm ² |
| Nominal diameter over insulation and tape | mm | 15.10 | 16.20 | 18.15 | 19.60 | 21.95 |
| Earth Conductor | | | | | | |
| Number and CSA | mm ² | 1 x 35 mm ² | 1 x 50 mm ² | 1 x 70 mm ² | 1 x 95 mm ² | 1 x 120 mm ² |
| Nominal diameter over insulation and tape | mm | 15.10 | 16.20 | 18.15 | 19.60 | 21.95 |
| Cable Details | | | | | | |
| Diameter over inner sheath - minimum | mm | 44.30 | 51.30 | 56.40 | 63.80 | 67.50 |
| Diameter over inner sheath - maximum | mm | 46.80 | 54.30 | 59.40 | 66.80 | 71.30 |
| Overall diameter - minimum | mm | 60.30 | 68.30 | 74.40 | 84.90 | 89.40 |
| Overall diameter - maximum | mm | 64.10 | 72.30 | 78.40 | 89.20 | 93.70 |
| Minimum bending radius | mm | 640 | 720 | 790 | 890 | 940 |
| Maximum pulling tension | kgf | 840 | 1200 | 1680 | 2000 | 2000 |
| Approximate cable weight | kg/km | 4900 | 6400 | 7700 | 10800 | 12300 |
| Electrical Details | | | | | | |
| Continuous current rating at 25°C ambient | Amps | 135 | 170 | 205 | 250 | 295 |
| Maximum d.c. resistance at 20°C: | | | | | | |
| - Power conductor | Ω/km | 0.565 | 0.393 | 0.277 | 0.210 | 0.164 |
| - Earth conductor | Ω/km | 0.565 | 0.393 | 0.277 | 0.210 | 0.164 |
| - Armour | Ω/km | 0.990 | 0.760 | 0.530 | 0.400 | 0.320 |
| Nominal reactance at 50 Hz | Ω/km | 0.117 | 0.113 | 0.108 | 0.105 | 0.101 |
| Nominal reactance at 60 Hz | Ω/km | 0.140 | 0.136 | 0.129 | 0.126 | 0.121 |
| Minimum insulation resistance of power cores at 20°C | MΩ/km | 1100 | 950 | 820 | 720 | 660 |
| 3 Phase volt drop based on full load current at 50 Hz | mV/A/mt | 1.21 | 0.85 | 0.61 | 0.48 | 0.39 |

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**THORNE &
DERRICK
INTERNATIONAL**

Thorne & Derrick
+44 (0) 191 410 4292
www.powerandcables.com

