# 6491B Cable H07Z-R

Eland Product Group **A3Z**

## Application

Suitable for use in conduit and for fixed, protected installation. In particular for installation where fire, smoke emission and toxic fumes create a potential threat.

## Standards

BS7211, BASEC approved*

## Technical Data

**Conductor**
Class 2 stranded plain copper conductors
to BS EN 60228:2005 (previously BS6360)

**Insulation**
LSZH (Low Smoke Zero Halogen)

**Insulation Colour**
Black, Blue, Green/Yellow, Red, Yellow, White, Violet, Brown, Grey, Orange, Pink

**Voltage Rating**
450/750V

**Temperature Rating**
0°C to +90°C

**Minimum Bending Radius**
Up to 10mm$^2$: 3 x overall diameter
10mm$^2$ to 25mm$^2$: 4 x overall diameter
Above 25mm$^2$: 5 x overall diameter

**Note**
*Sizes up to and including 25mm$^2$ are BASEC approved. For sizes 35mm$^2$ and above please call for more information.

## Dimensions

| Eland Part Number | No. of Cores x Nominal Cross Sectional Area mm$^2$ | Nominal Thickness of Insulation mm | Nominal Overall Diameter mm | Nominal Weight kg/Km |
|---|---|---|---|---|
| A3Z6491B015* | 1 x 1.5 | 0.7 | 3.4 | 22 |
| A3Z6491B025* | 1 x 2.5 | 0.8 | 4.2 | 35 |
| A3Z6491B040* | 1 x 4.0 | 0.8 | 4.8 | 50 |
| A3Z6491B060* | 1 x 6.0 | 0.8 | 5.4 | 72 |
| A3Z6491B10* | 1 x 10.0 | 1.0 | 6.8 | 121 |
| A3Z6491B16* | 1 x 16.0 | 1.0 | 8.0 | 182 |
| A3Z6491B25* | 1 x 25.0 | 1.2 | 9.8 | 285 |
| A3Z6491B35* | 1 x 35.0 | 1.2 | 11.0 | 390 |
| A3Z6491B50* | 1 x 50.0 | 1.4 | 13.2 | 510 |
| A3Z6491B70* | 1 x 70.0 | 1.4 | 15.1 | 710 |
| A3Z6491B95* | 1 x 95.0 | 1.6 | 17.0 | 980 |
| A3Z6491B120* | 1 x 120.0 | 1.6 | 19.0 | 1220 |
| A3Z6491B150* | 1 x 150.0 | 1.8 | 21.0 | 1500 |
| A3Z6491B185* | 1 x 185.0 | 2.2 | 23.5 | 1910 |
| A3Z6491B240* | 1 x 240.0 | 2.2 | 26.5 | 2490 |
| A3Z6491B300* | 1 x 300.0 | 2.4 | 29.5 | 3100 |
| A3Z6491B400* | 1 x 400.0 | 2.6 | 33.5 | 3950 |
| A3Z6491B500* | 1 x 500.0 | 2.8 | 37.0 | 5000 |
| A3Z6491B630* | 1 x 630.0 | 2.8 | 41.0 | 6350 |

*Eland Part Numbers shown above designate the sheath colour (*). For each colour substitute * for a colour code as listed below. e.g. A2TRD0040 = 4.0mm$^2$ Red, A2TPK0015 = 1.5mm$^2$ Pink

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| Colour | Black | Blue | Grey | Green/ Yellow | Orange | Red | Pink | Yellow | Violet | Brown | White |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | BK | BL | GR | GY | OR | RD | PK | YW | VI | BR | WH |

## Conductors

**Class 2 stranded conductors for Single Core and Multi-Core cables**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Nominal Cross Sectional Area mm2 | Minimum Number of Wires in the Conductor | | | | | | Maximum Resistance of Conductor at 20°C Annealed Copper Conductor Plain Wires ohms/Km |
| | Circular | | Circular Compacted | | Shaped | | |
| | Cu | Al | Cu | Al | Cu | Al | |
| 1.50 | 7 | - | 6 | - | - | - | 12.1000 |
| 2.50 | 7 | - | 6 | - | - | - | 7.4100 |
| 4.00 | 7 | - | 6 | - | - | - | 4.6100 |
| 6.00 | 7 | - | 6 | - | - | - | 3.0800 |
| 10.00 | 7 | 7 | 6 | 6 | - | - | 1.8300 |
| 16.00 | 7 | 7 | 6 | 6 | - | - | 1.1500 |
| 25.00 | 7 | 7 | 6 | 6 | 6 | 6 | 0.7270 |
| 35.00 | 7 | 7 | 6 | 6 | 6 | 6 | 0.5240 |
| 50.00 | 19 | 19 | 6 | 6 | 6 | 6 | 0.3870 |
| 70.00 | 19 | 19 | 12 | 12 | 12 | 12 | 0.2680 |
| 95.00 | 19 | 19 | 15 | 15 | 15 | 15 | 0.1930 |
| 120.00 | 37 | 37 | 18 | 15 | 18 | 15 | 0.1530 |
| 150.00 | 37 | 37 | 18 | 15 | 18 | 15 | 0.1240 |
| 185.00 | 37 | 37 | 30 | 30 | 30 | 30 | 0.0991 |
| 240.00 | 37 | 37 | 34 | 30 | 34 | 30 | 0.0754 |
| 300.00 | 61 | 61 | 34 | 30 | 34 | 30 | 0.0601 |
| 400.00 | 61 | 61 | 53 | 53 | 53 | 53 | 0.0470 |
| 500.00 | 61 | 61 | 53 | 53 | 53 | 53 | 0.0366 |
| 600.00 | 91 | 91 | 53 | 53 | 53 | 53 | 0.0283 |

Table in accordance with BS EN 60228:2005 (previously BS6360)

## Electrical Characteristics

**Current Carrying Capacity (amperes)**

| Nominal Cross Sectional Area mm² | Reference Method 4 (enclosed in conduit in thermally insulating wall etc.) | | Reference Method 3 (enclosed in conduit on a wall or in trunking etc.) | | Reference Method 1 (clipped direct) | | Reference Method 11 (on a perforated cable tray horizontal or vertical) | | Reference Method 12 (free air) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Horizontal Flat Spaced | Vertical Flat Spaced | Trefoil |
| | 2 Cables Single Phase AC or DC Amps | 3 or 4 Cables Three Phase AC Amps | 2 Cables Single Phase AC or DC Amps | 3 or 4 Cables Three Phase AC Amps | 2 Cables Single Phase AC or DC Flat and Touching Amps | 3 or 4 Cables Three Phase AC Flat and Touching or Trefoil Amps | 2 Cables Single Phase AC or DC Flat and Touching Amps | 3 or 4 Cables Three Phase AC Flat and Touching or Trefoil Amps | 2 Cables Single Phase AC or DC or 3 Cables Three Phase AC Amps | 2 Cables Single Phase AC or DC or 3 Cables Three Phase AC Amps | 3 Cables Three Phase AC Amps |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1.0 | 14 | 13 | 17 | 15 | 19 | 17.5 | - | - | - | - | - |
| 1.5 | 18 | 17 | 22 | 19 | 25 | 23.0 | - | - | - | - | - |
| 2.5 | 24 | 23 | 30 | 26 | 34 | 31.0 | - | - | - | - | - |
| 4.0 | 33 | 30 | 40 | 35 | 46 | 41.0 | - | - | - | - | - |
| 6.0 | 43 | 39 | 51 | 45 | 59 | 54.0 | - | - | - | - | - |
| 10.0 | 58 | 53 | 71 | 63 | 81 | 74.0 | - | - | - | - | - |
| 16.0 | 76 | 70 | 95 | 85 | 109 | 99.0 | - | - | - | - | - |
| 25.0 | 100 | 91 | 126 | 111 | 143 | 130.0 | 158 | 140 | 183 | 163 | 138 |
| 35.0 | 124 | 111 | 156 | 138 | 176 | 161.0 | 195 | 176 | 226 | 203 | 171 |
| 50.0 | 149 | 135 | 189 | 168 | 228 | 209.0 | 293 | 215 | 274 | 246 | 209 |
| 70.0 | 189 | 170 | 240 | 214 | 293 | 268.0 | 308 | 279 | 351 | 318 | 270 |
| 95.0 | 228 | 205 | 290 | 259 | 355 | 326.0 | 375 | 341 | 426 | 389 | 330 |
| 120.0 | 263 | 235 | 336 | 299 | 413 | 379.0 | 436 | 398 | 495 | 453 | 385 |
| 150.0 | 300 | 270 | 375 | 328 | 476 | 436.0 | 505 | 461 | 570 | 524 | 445 |
| 185.0 | 341 | 306 | 426 | 370 | 545 | 500.0 | 579 | 530 | 651 | 600 | 511 |
| 240.0 | 400 | 358 | 500 | 433 | 644 | 590.0 | 686 | 630 | 769 | 711 | 606 |
| 300.0 | 459 | 410 | 573 | 493 | 743 | 681.0 | 794 | 730 | 886 | 824 | 701 |
| 400.0 | - | - | 683 | 584 | 868 | 793.0 | 915 | 849 | 1065 | 994 | 820 |
| 500.0 | - | - | 783 | 666 | 990 | 904.0 | 1044 | 973 | 1228 | 1150 | 936 |
| 630.0 | - | - | 900 | 764 | 1130 | 1033.0 | 1191 | 1115 | 1423 | 1338 | 1069 |
| 800.0 | - | - | - | - | 1288 | 1179.0 | 1358 | 1275 | 1581 | 1485 | 1214 |
| 1000.0 | - | - | - | - | 1443 | 1323.0 | 1520 | 1436 | 1775 | 1671 | 1349 |

Ambient Temperature: 30°C
Conductor Operating Temperature: 90°C

**Voltage Drop (per ampere per metre)**

| Nominal Cross Sectional Area | 2 Cables, Single Phase AC | | | | | | | | | | | | | 3 or 4 Cables, Three Phase AC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2 Cables DC | Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall) | | | Reference Methods 1 & 11 (clipped direct or on trays, touching) | | | Reference Method 12 (spaced*) | | | Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall). | | | Reference Methods 1, 11 & 12 (in trefoil) | | | Reference Method (flat and touching) | | | Reference Method 12 (flat spaced *) | | |
| 1 | 2 | | 3 | | | 4 | | | 5 | | | 6 | | | 7 | | | 8 | | | 9 | | |
| $mm^2$ | mV/A/m | | mV/A/m | | | mV/A/m | | | mV/A/m | | | mV/A/m | | | mV/A/m | | | mV/A/m | | | mV/A/m | |
| 1.0 | 46.0 | | 46.0 | | | 46.0 | | | 46.0 | | | 40.0 | | | 40.0 | | | 40.0 | | | 40.0 | |
| 1.5 | 31.0 | | 31.0 | | | 31.0 | | | 31.0 | | | 27.0 | | | 27.0 | | | 27.0 | | | 27.0 | |
| 2.5 | 19.0 | | 19.0 | | | 19.0 | | | 19.0 | | | 16.0 | | | 16.0 | | | 16.0 | | | 16.0 | |
| 4.0 | 12.0 | | 12.0 | | | 12.0 | | | 12.0 | | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | |
| 6.0 | 7.9 | | 7.9 | | | 7.9 | | | 7.9 | | | 6.8 | | | 6.8 | | | 6.8 | | | 6.8 | |
| 10.0 | 4.7 | | 4.7 | | | 4.7 | | | 4.7 | | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| 16.0 | 2.9 | | 2.9 | | | 2.9 | | | 2.9 | | | 2.5 | | | 2.5 | | | 2.5 | | | 2.5 | |
| | | r | x | z | r | x | z | r | x | z | r | x | z | r | x | z | r | x | z | r | x | z |
| 25.0 | 1.850 | 1.850 | 0.31 | 1.90 | 1.850 | 0.190 | 1.850 | 1.850 | 0.28 | 1.85 | 1.600 | 0.27 | 1.650 | 1.600 | 0.165 | 1.60 | 1.600 | 0.190 | 1.600 | 1.600 | 0.27 | 1.65 |
| 35.0 | 1.350 | 1.350 | 0.29 | 1.35 | 1.350 | 0.180 | 1.350 | 1.350 | 0.27 | 1.35 | 1.150 | 0.25 | 1.150 | 1.150 | 0.155 | 1.15 | 1.150 | 0.180 | 1.150 | 1.150 | 0.26 | 1.20 |
| 50.0 | 0.990 | 1.000 | 0.29 | 1.05 | 0.990 | 0.180 | 1.000 | 0.990 | 0.27 | 1.00 | 0.870 | 0.25 | 0.900 | 0.860 | 0.155 | 0.87 | 0.860 | 0.180 | 0.870 | 0.860 | 0.26 | 0.89 |
| 70.0 | 0.680 | 0.700 | 0.28 | 0.75 | 0.680 | 0.175 | 0.710 | 0.680 | 0.26 | 0.73 | 0.600 | 0.24 | 0.650 | 0.590 | 0.150 | 0.61 | 0.590 | 0.175 | 0.620 | 0.590 | 0.25 | 0.65 |
| 95.0 | 0.490 | 0.510 | 0.27 | 0.58 | 0.490 | 0.170 | 0.520 | 0.490 | 0.26 | 0.56 | 0.440 | 0.23 | 0.500 | 0.430 | 0.145 | 0.45 | 0.430 | 0.170 | 0.460 | 0.430 | 0.25 | 0.49 |
| 120.0 | 0.390 | 0.410 | 0.26 | 0.48 | 0.390 | 0.165 | 0.430 | 0.390 | 0.25 | 0.47 | 0.350 | 0.23 | 0.420 | 0.340 | 0.140 | 0.37 | 0.340 | 0.165 | 0.380 | 0.340 | 0.24 | 0.42 |
| 150.0 | 0.320 | 0.330 | 0.26 | 0.43 | 0.320 | 0.165 | 0.360 | 0.320 | 0.25 | 0.41 | 0.290 | 0.23 | 0.370 | 0.280 | 0.140 | 0.31 | 0.280 | 0.165 | 0.320 | 0.280 | 0.24 | 0.37 |
| 185.0 | 0.250 | 0.270 | 0.26 | 0.37 | 0.260 | 0.165 | 0.300 | 0.250 | 0.25 | 0.36 | 0.230 | 0.23 | 0.320 | 0.220 | 0.140 | 0.26 | 0.220 | 0.165 | 0.280 | 0.220 | 0.24 | 0.33 |
| 240.0 | 0.190 | 0.210 | 0.26 | 0.33 | 0.200 | 0.160 | 0.250 | 0.195 | 0.25 | 0.31 | 0.190 | 0.22 | 0.290 | 0.170 | 0.140 | 0.22 | 0.170 | 0.165 | 0.240 | 0.170 | 0.24 | 0.29 |
| 300.0 | 0.155 | 0.175 | 0.25 | 0.31 | 0.160 | 0.160 | 0.220 | 0.155 | 0.25 | 0.29 | 0.150 | 0.22 | 0.270 | 0.140 | 0.140 | 0.20 | 0.135 | 0.160 | 0.210 | 0.135 | 0.24 | 0.27 |
| 400.0 | 0.120 | 0.140 | 0.25 | 0.29 | 0.130 | 0.155 | 0.200 | 0.125 | 0.24 | 0.27 | 0.130 | 0.22 | 0.250 | 0.110 | 0.135 | 0.18 | 0.110 | 0.160 | 0.195 | 0.110 | 0.24 | 0.26 |
| 500.0 | 0.093 | 0.120 | 0.25 | 0.28 | 0.105 | 0.155 | 0.185 | 0.098 | 0.24 | 0.26 | 0.100 | 0.22 | 0.240 | 0.090 | 0.135 | 0.16 | 0.088 | 0.160 | 0.180 | 0.085 | 0.24 | 0.25 |
| 630.0 | 0.072 | 0.100 | 0.25 | 0.27 | 0.086 | 0.155 | 0.175 | 0.078 | 0.24 | 0.25 | 0.090 | 0.21 | 0.230 | 0.074 | 0.135 | 0.15 | 0.171 | 0.160 | 0.170 | 0.068 | 0.23 | 0.24 |
| 800.0 | 0.056 | | - | | 0.072 | 0.150 | 0.170 | 0.640 | 0.24 | 0.25 | | - | | 0.062 | 0.130 | 0.15 | 0.059 | 0.155 | 0.165 | 0.055 | 0.23 | 0.24 |
| 1000.0 | 0.045 | | - | | 0.063 | 0.150 | 0.165 | 0.054 | 0.24 | 0.24 | | - | | 0.055 | 0.130 | 0.14 | 0.050 | 0.155 | 0.165 | 0.047 | 0.23 | 0.24 |

Conductor Operating Temperature: 90°C

r = Resistive Component
x = Reactive Component
z = Impedance Value

Notes
1. Where the conductor is to be protected by a semi-enclosed fuse to BS3036, see item 6.2 of the preface to appendix 4 within the 16th edition regs.

2. The current-carrying capacities in columns 2 to 5 are also applicable to flexible cables BS7211 table 3(b) where the cables are used in fixed installations.

3. For cable in rigid PVC conduit the values stated in table 4D1 are applicable see Regulation 512-02).

4. Where a conductor operates at a temperature exceeding 70°C it shall be ascertained that the equipment connected to the conductor is suitable for the conductor operating temperature (see Regulation 512-02).

5. Where cables in this table are connected to equipment or accessories designed to operate at a temperature not exceeding 70°C, the current ratings given in the equivalent table for 70°C PVC insulated cables BS6004, BS6346 shall be used (see Reg 523-01-01).

* Spacings larger than those specified in Method 12 (see table 4A 16th edition regs) will result in larger volt drop.

*The information contained within this datasheet is for guidance only. When selecting accessories such as cleats, glands, etc please note that actual cable dimensions may vary due to manufacturing tolerances.*