## Steel Conductors (SC/GZ \& SC/AC)

Galvanised steel conductors manufactured to AS 1222.1
SC/GZ

| Stranding andwire diameter | Nominal <br> Overall <br> diameter | Cross sectional area | Approx mass | Minimum breaking load | Modulus of elasticity | Coefficient of linear expansion | DC resist at $20^{\circ} \mathrm{C}$ | AC <br> Resist <br> at 50 Hz <br> $75{ }^{\circ} \mathrm{C}$ | Continuous current carrying capacity. A |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  | Winter night |  |  | Summer noon |  |  |
|  |  |  |  |  |  |  |  |  | $\begin{aligned} & \text { still } \\ & \text { air } \end{aligned}$ | $1 \mathrm{~m} / \mathrm{s}$ wind | $\begin{aligned} & 2 \mathrm{~m} / \mathrm{s} \\ & \text { wind } \end{aligned}$ | $\begin{aligned} & \text { still } \\ & \text { air } \end{aligned}$ | $\begin{aligned} & 1 \mathrm{~m} / \mathrm{s} \\ & \text { wind } \end{aligned}$ | $\begin{aligned} & 2 \mathrm{~m} / \mathrm{s} \\ & \text { wind } \end{aligned}$ |
| No/mm | mm | $\mathrm{mm}^{2}$ | kg/km | kN | GPa | $\times 10-6 /{ }^{\circ} \mathrm{C}$ | ת/km | ת/km |  |  |  |  |  |  |
| 3/2.00 | 4.3 | 9.43 | 74 | 11.7 | 189 | 11.5 | 20 | 25 | 22 | 39 | 46 | 18 | 35 | 42 |
| 3/2.75 | 5.9 | 17.8 | 140 | 22.2 | 189 | 11.5 | 11 | 14 | 32 | 56 | 64 | 26 | 52 | 59 |
| 7/2.00 | 6.0 | 22.0 | 173 | 26.0 | 187 | 11.5 | 8.7 | 11 | 33 | 63 | 72 | 30 | 57 | 67 |
| 7/2.75 | 8.3 | 41.6 | 328 | 49.0 | 187 | 11.5 | 4.6 | 5.7 | 56 | 93 | 109 | 43 | 83 | 103 |
| 7/3.25 | 9.8 | 58.1 | 458 | 68.7 | 187 | 11.5 | 3.3 | 4.1 | 69 | 115 | 134 | 52 | 105 | 122 |
| 7/3.75 | 11.3 | 77.3 | 609 | 91.3 | 187 | 11.5 | 2.5 | 3.1 | 83 | 136 | 160 | 63 | 122 | 144 |
| 19/2.00 | 10.0 | 59.7 | 473 | 70.5 | 184 | 11.5 | 3.2 | 4.0 | 72 | 118 | 136 | 55 | 106 | 125 |
| 19/2.75 | 13.8 | 113 | 894 | 133 | 184 | 11.5 | 1.7 | 2.1 | 108 | 173 | 203 | 78 | 154 | 182 |
| 19/3.25 | 16.3 | 158 | 1250 | 186 | 184 | 11.5 | 1.2 | 1.5 | 138 | 216 | 252 | 96 | 188 | 224 |

Aluminium-clad steel conductors manufactured to AS 1222.2
SC/AC

| Stranding andwire diameter | Nominal Overall diameter | Cross <br> sectional area | Approx mass | Minimum breaking load | Modulus of elasticity | Coefficient of linear expansion | DC resist at $20^{\circ} \mathrm{C}$ | AC Resist at 50 Hz $75^{\circ} \mathrm{C}$ | Continuous current carrying capacity. A |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  | Winter night |  |  | Summer noon |  |  |
|  |  |  |  |  |  |  |  |  | $\begin{aligned} & \text { still } \\ & \text { air } \end{aligned}$ | $1 \mathrm{~m} / \mathrm{s}$ wind | $2 \mathrm{~m} / \mathrm{s}$ wind | $\begin{aligned} & \text { still } \\ & \text { air } \end{aligned}$ | $1 \mathrm{~m} / \mathrm{s}$ wind | $2 \mathrm{~m} / \mathrm{s}$ wind |
| No/mm | mm | $\mathrm{mm}^{2}$ | kg/km | kN | GPa | $\times 10-6 /{ }^{\circ} \mathrm{C}$ | $\Omega / \mathrm{km}$ | $\Omega / \mathrm{km}$ |  |  |  |  |  |  |
| 3/2.75 | 5.9 | 17.82 | 118 | 22.7 | 159 | 12.9 | 4.80 | 5.74 | 49 | 85 | 102 | 42 | 79 | 94 |
| 3/3.00 | 6.5 | 21.21 | 141 | 27.0 | 159 | 12.9 | 4.02 | 4.83 | 56 | 95 | 108 | 45 | 86 | 106 |
| 3/3.25 | 7.0 | 24.89 | 165 | 31.6 | 159 | 12.9 | 3.42 | 4.12 | 62 | 106 | 125 | 48 | 94 | 115 |
| 3/3.75 | 8.1 | 33.12 | 220 | 39.3 | 159 | 12.9 | 2.58 | 3.08 | 73 | 127 | 145 | 58 | 115 | 137 |
| 7/2.75 | 8.3 | 41.58 | 277 | 50.1 | 157 | 12.9 | 2.06 | 2.45 | 84 | 142 | 163 | 66 | 126 | 151 |
| 7/3.00 | 9.0 | 49.48 | 330 | 59.7 | 157 | 12.9 | 1.73 | 2.05 | 93 | 155 | 184 | 71 | 142 | 163 |
| 7/3.25 | 9.8 | 58.07 | 387 | 69.9 | 157 | 12.9 | 1.47 | 1.77 | 105 | 175 | 200 | 79 | 159 | 185 |
| 7/3.75 | 11.3 | 77.28 | 515 | 86.9 | 157 | 12.9 | 1.11 | 1.34 | 126 | 208 | 238 | 95 | 193 | 219 |
| 7/4.25 | 12.8 | 99.33 | 662 | 105 | 157 | 12.9 | 0.864 | 1.06 | 152 | 245 | 279 | 112 | 215 | 255 |
| 19/2.75 | 13.8 | 112.9 | 755 | 136 | 155 | 12.9 | 0.764 | 0.912 | 162 | 263 | 304 | 118 | 236 | 273 |
| 19/3.00 | 15.0 | 134.3 | 899 | 162 | 155 | 12.9 | 0.642 | 0.767 | 185 | 293 | 338 | 133 | 254 | 307 |
| 19/3.25 | 16.3 | 157.6 | 1060 | 189 | 155 | 12.9 | 0.545 | 0.650 | 206 | 328 | 373 | 144 | 281 | 338 |
| 19/3.75 | 18.8 | 209.8 | 1410 | 236 | 155 | 12.9 | 0.411 | 0.491 | 248 | 385 | 445 | 175 | 336 | 402 |
| 19/4.25 | 21.3 | 269.6 | 1800 | 286 | 155 | 12.9 | 0.320 | 0.382 | 290 | 454 | 520 | 205 | 394 | 468 |

Note: Current ratings are based to the following conditions

- Conductor temperature rise above ambient of $40^{\circ} \mathrm{C}$
- Ambient air temp. of $35^{\circ} \mathrm{C}$ for summer noon or $10^{\circ} \mathrm{C}$ for winter night
- Direct solar radiation intensity of $1000 \mathrm{~W} / \mathrm{m}^{2}$ for summer noon or zero for winter night
- Diffuse solar radiation intensity of $100 \mathrm{~W} / \mathrm{m} 2$ for summer noon or zero for winter night
- Ground reflectance of 0.2
- Emissivity of 0.5 for rural weathered conductor or 0.85 for industrial weathered weathered conductor
- Solar absorption coefficient of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor Cross sections not to scale

