

Conductors

By far the largest and most important component of any earthing or structural lightning protection system is the actual conductor.

Furse offer a comprehensive range of copper and aluminium conductors in each of the main world standard formats, i.e. flat tape, solid circular and stranded.

Conductor colour chart

| | | |
|-------|----------|---|
| Black | 18B29* |  |
| Green | BS 6746C |  |
| Grey | 00A07* |  |
| Stone | 08B23* |  |
| White | 10B15* |  |
| Brown | 06C39* |  |

* PVC colours to BS 5252

The choice of a lightning protection conductor is usually governed by its aesthetic impact on the structure to be protected. For many people the term lightning conductor conjures up an image of a bright green strip running down the spire of a church. This would clearly be unacceptable to the owner / architect of a modern structure.

In order to reduce the impact of an external system Furse offer a range of UV stabilised PVC covered tapes and solid circular conductors in colours chosen to match common building materials.

Copper conductor ratings

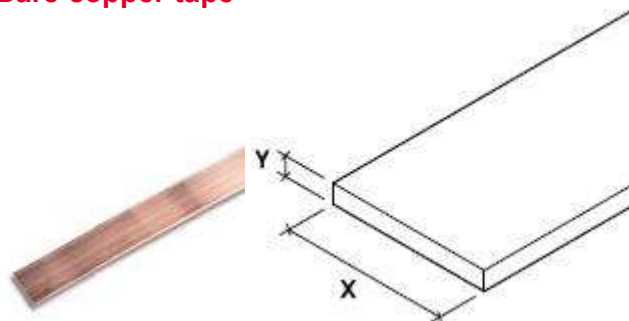
For below ground earthing applications Furse produce a large range of bare copper, tape and stranded conductors thus offering the designer of the system the correctly rated conductor without the need to oversize.

The following conductor ratings are based upon the recommendations of BS 7430 with an initial conductor temperature of 30°C and a maximum temperature of 250°C.

| Conductor size | C.S.A. (mm ²) | kA for 1 sec | kA for 3 sec | Conductor size | C.S.A. (mm ²) | kA for 1 sec | kA for 3 sec |
|----------------|---------------------------|--------------|--------------|----------------|---------------------------|--------------|--------------|
| 12.5 x 1.5mm | 18.75 | 3.3 | 1.9 | 31 x 6mm | 186 | 32.7 | 18.9 |
| 12.5 x 3mm | 37.5 | 6.6 | 3.8 | 38 x 3mm | 114 | 20.1 | 11.6 |
| 20 x 1.5mm | 30 | 5.3 | 3.0 | 38 x 5mm | 190 | 33.4 | 19.3 |
| 20 x 3mm | 60 | 10.6 | 6.1 | 38 x 6mm | 228 | 40.1 | 23.2 |
| 25 x 1.5mm | 37.5 | 6.6 | 3.8 | 40 x 3mm | 120 | 21.1 | 12.2 |
| 25 x 3mm | 75 | 13.2 | 7.6 | 40 x 4mm | 160 | 28.2 | 16.3 |
| 25 x 4mm | 100 | 17.6 | 10.2 | 40 x 5mm | 200 | 35.2 | 20.3 |
| 25 x 6mm | 150 | 26.4 | 15.2 | 40 x 6mm | 240 | 42.2 | 24.4 |
| 30 x 2mm | 60 | 10.6 | 6.1 | 40 x 6.3mm | 252 | 44.4 | 25.6 |
| 30 x 3mm | 90 | 15.8 | 9.1 | 50 x 3mm | 150 | 26.4 | 15.2 |
| 30 x 4mm | 120 | 21.1 | 12.2 | 50 x 4mm | 200 | 35.2 | 20.3 |
| 30 x 5mm | 150 | 26.4 | 15.2 | 50 x 5mm | 250 | 44.0 | 25.4 |
| 31 x 3mm | 93 | 16.4 | 9.5 | 50 x 6mm | 300 | 52.8 | 30.5 |
| 31.5 x 4mm | 126 | 22.2 | 12.8 | 50 x 6.3mm | 315 | 55.4 | 32.0 |

Conductors

Bare copper tape

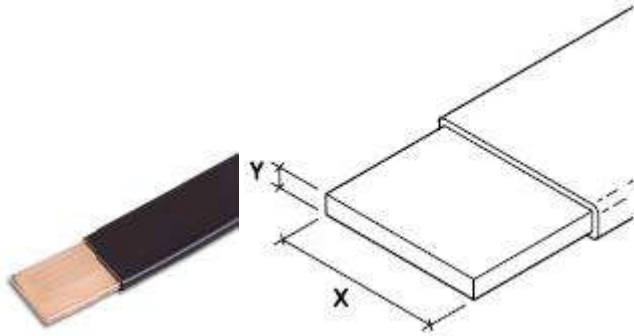


| Conductor size (XxY) | Weight per metre | Standard coil size | Part no. | Conductor size (XxY) | Weight per metre | Standard coil size | Part no. |
|----------------------|------------------|--------------------|----------|----------------------|------------------|--------------------|----------|
| 12.5 x 1.5mm | 0.17kg | 100m | TC005 | 31 x 6mm | 1.65kg | 30m | TC050 |
| 12.5 x 3mm | 0.33kg | 100m | TC010 | 38 x 3mm | 1.01kg | 50m | TC055 |
| 20 x 1.5mm | 0.27kg | 100m | TC015 | 38 x 5mm | 1.69kg | 30m | TC060-FU |
| 20 x 3mm | 0.53kg | 100m | TC020 | 38 x 6mm | 1.45kg | 25m | TC065 |
| 25 x 1.5mm | 0.33kg | 100m | TC025 | 40 x 3mm | 1.06kg | 40m | TC067 |
| 25 x 3mm | 0.67kg | 25m' | TC030 | 40 x 4mm | 2.03kg | 30m | TC066 |
| 25 x 4mm | 0.89kg | 50m | TC035 | 40 x 5mm | 1.78kg | 25m | TC071 |
| 25 x 6mm | 1.33kg | 40m | TC040 | 40 x 6mm | 2.16kg | 25m | TC068 |
| 30 x 2mm | 0.53kg | 50m | TC039 | 40 x 6.3mm | 2.24kg | 25m | TC069 |
| 30 x 3mm | 0.80kg | 50m | TC042 | 50 x 3mm | 1.33kg | 40m | TC070 |
| 30 x 4mm | 1.07kg | 40m | TC044 | 50 x 4mm | 1.78kg | 30m | TC075 |
| 30 x 5mm | 1.33kg | 40m | TC043 | 50 x 5mm | 2.22kg | 20m | TC078 |
| 31 x 3mm | 0.83kg | 50m | TC045 | 50 x 6mm | 2.68kg | 20m | TC080 |
| 31.5 x 4mm | 1.13kg | 40m | TC048 | 50 x 6.3mm | 2.80kg | 20m | TC082 |

High conductivity copper tape to BS EN 13601 (formerly BS 1432).

• 25 x 3mm also available in 50m coil size (TC030/50).

PVC covered copper tape

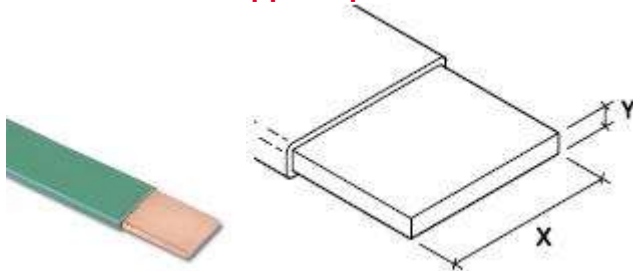


| Conductor size (XxY) | Weight per metre | Standard coil size | Colour range | | | | | |
|----------------------|------------------|--------------------|--------------|----------|------------|-------------|-------------|-------------|
| | | | Black 18B29 | Green * | Grey 00A07 | Stone 08B23 | White 10B15 | Brown 06C39 |
| 12.5 x 1.5mm | 0.21kg | 100m | TC100 | - | - | - | - | - |
| 25 x 3mm | 0.77kg | 25m | TC105-FU | TC110 | TC115-FU | TC120-FU | TC125-FU | TC130 |
| 25 x 3mm | 0.77kg | 50m | TC105/50 | TC110/50 | TC115/50 | TC120/50 | TC125/50 | TC130/50 |
| 25 x 6mm | 1.53kg | 40m | - | TC140-FU | - | - | - | - |
| 50 x 6mm | 2.95kg | 20m | - | TC145 | - | - | - | - |

High conductivity copper tape to BS EN 13601 (formerly BS 1432).

PVC colours to BS 5252. * Green to BS 6746C. Other colours are available to order. Contact Furse for details. Furse takes every precaution to ensure the UV stability of its PVC coverings, but as with all plastics, colour variation will occur over time.

LSOH covered copper tape

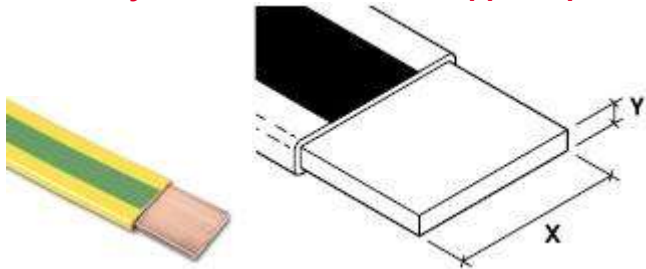


| Conductor size (XxY) | Colour | Weight per metre | Standard coil size | Part no. |
|----------------------|--------|------------------|--------------------|----------|
| 25 x 3mm | Green | 0.77kg | 25m* | TC910 |
| 25 x 6mm | Green | 1.53kg | 40m | TC940 |
| 50 x 6mm | Green | 2.95kg | 20m | TC980 |

High conductivity copper tape to BS EN 13601 (formerly BS 1432). PVC colours to BS 6746C.

* 25 x 3mm also available in 50m coil size (TC910/50).

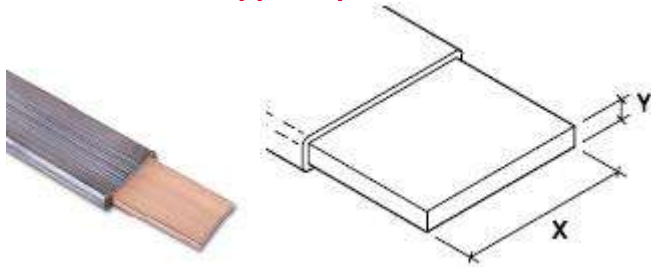
Green & yellow PVC insulated copper tape



| Conductor size (XxY) | Weight per metre | Standard coil size | Part no. |
|----------------------|------------------|--------------------|----------|
| 25 x 3mm | 0.79kg | 25m* | TC111-FU |

High conductivity copper tape to BS EN 13601 (formerly BS 1432). PVC colours to BS 6746C.
 -Also available in 50m coil size (TC111/50).

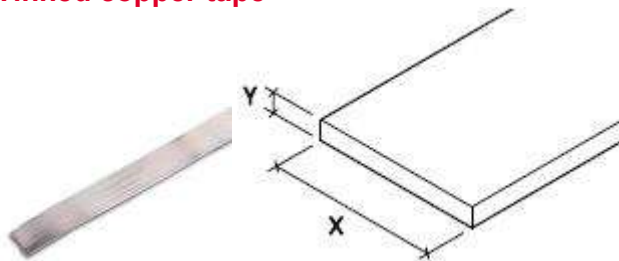
Lead covered copper tape



| Conductor size (XxY) | Weight per metre | Standard coil size | Part no. |
|----------------------|------------------|--------------------|----------|
| 25 x 3mm | 2.56kg | 50m | TC330 |

High conductivity copper tape to BS EN 13601 (formerly BS 1432).

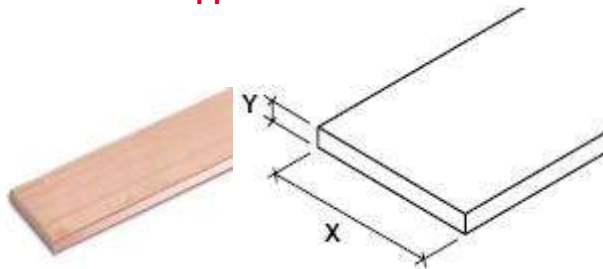
Tinned copper tape



| Conductor size (XxY) | Weight per metre | Standard coil size | Part no. |
|----------------------|------------------|--------------------|----------|
| 12.5 x 1.5mm | 0.17kg | 100m | TC225-FU |
| 25 x 3mm | 0.67kg | 50m | TC230 |
| 30 x 2mm | 0.53kg | 50m | TC239 |
| 25 x 6mm | 1.33kg | 40m | TC240 |
| 31 x 3mm | 0.83kg | 50m | TC245 |
| 38 x 5mm | 1.69kg | 30m | TC260 |
| 50 x 6mm | 2.68kg | 20m | TC280 |

High conductivity copper tape to BS EN 13601 (formerly BS 1432).

Hard drawn copper bar



Bare hard drawn bar

| Conductor size (XxY) | Weight per metre | Part no. |
|----------------------|------------------|----------|
| 25 x 3mm | 0.67kg | BA205* |
| 25 x 6mm | 1.33kg | BA210 |
| 38 x 6mm | 2.03kg | BA225 |
| 50 x 6mm | 2.67kg | BA230* |
| 50 x 10mm | 4.45kg | BA235 |
| 75 x 6mm | 4.00kg | BA240 |
| 100 x 6mm | 5.38kg | BA250-FU |

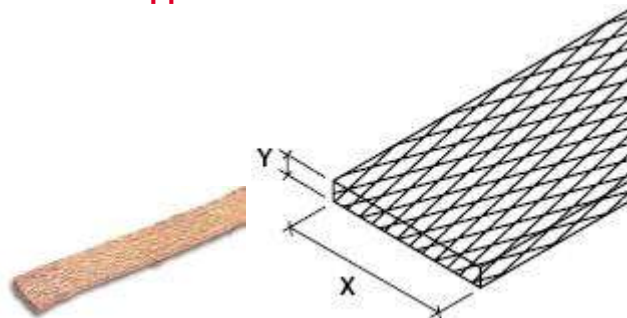
Tinned hard drawn bar

| Conductor size (XxY) | Weight per metre | Part no. |
|----------------------|------------------|----------|
| 50 x 6mm | 2.67kg | BA231* |

Standard lengths of 4 metres except * supplied in maximum lengths of 3 metres.

Hard drawn high conductivity copper bar to BS 2874-C101/C103.

Flexible copper braid



Bare braid

| Overall nominal size (XxY) | Size | Weight per metre | Part no. |
|----------------------------|-------------------|------------------|----------|
| 12 x 1mm | 6mm ² | 0.055kg | BD020 |
| 15 x 1.5mm | 10mm ² | 0.096kg | BD025 |
| 19 x 2.5mm | 16mm ² | 0.16kg | BD026 |
| 32 x 6mm | 70mm ² | 0.63kg | BD027 |
| 25 x 3.5mm | 35mm ² | 0.34kg | BD030 |

Tinned braid

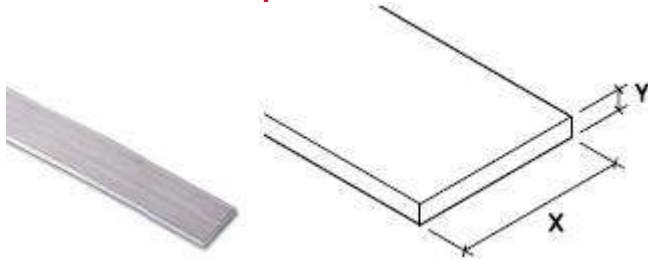
| Overall nominal size (XxY) | Size | Weight per metre | Part no. |
|----------------------------|-------------------|------------------|----------|
| 25 x 3.5mm | 35mm ² | 0.34kg | BD035 |

Suitable for earth bonding. Also supplied as standard pre-cut and drilled bonds.

High conductivity copper wire to BS 4109-C101.

Other sizes and types of braid can be made to order. Please telephone for details.

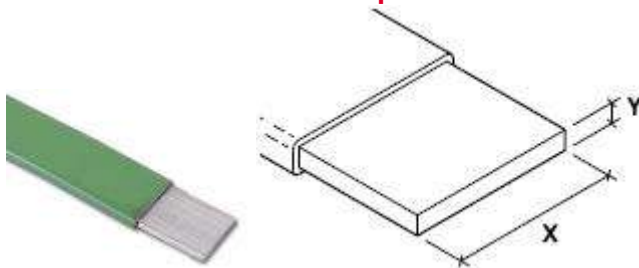
Bare aluminium tape



| Conductor size (XxY) | Weight per metre | Standard coil size | Part no. |
|----------------------|------------------|--------------------|----------|
| 12.5 x 1.5mm | 0.05kg | 50m | TA005 |
| 20 x 3mm | 0.17kg | 50m | TA020 |
| 25 x 3mm | 0.21kg | 50m | TA030 |
| 30 x 3mm | 0.25kg | 50m | TA042 |
| 25 x 6mm | 0.42kg | 50m | TA040 |
| 40 x 6mm | 0.67kg | 50m | TA068 |
| 50 x 6mm | 0.85kg | 50m | TA080 |

Aluminium tape to BS 2898-1350.

PVC covered aluminium tape

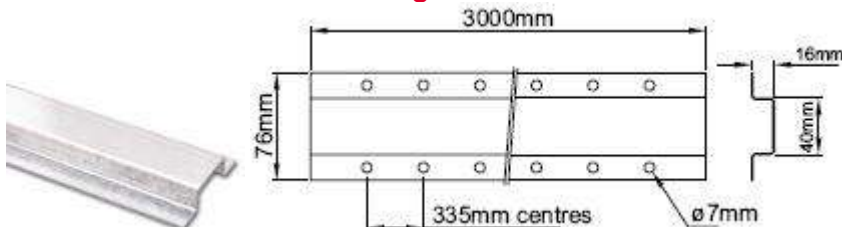


| Conductor size (XxY) | Weight per metre | Standard coil size | Colour range | | | | | |
|----------------------|------------------|--------------------|--------------|-------|-------|-------|-------|-------|
| | | | Black | Green | Grey | Stone | White | Brown |
| | | | 18B29 | * | 00A07 | 08B23 | 10B15 | 06C39 |
| 12.5 x 1.5mm | 0.09kg | 50m | TA100 | - | - | - | - | - |
| 20 x 3mm | 0.25kg | 50m | TA104 | - | - | - | - | - |
| 25 x 3mm | 0.30kg | 50m | TA105 | TA110 | TA115 | TA120 | TA125 | TA130 |

Aluminium tape to BS 2898-1350.

PVC colours to BS 5252. * Green to BS 6746C. Other colours are available to order. Contact Furse for details. Furse takes every precaution to ensure the UV stability of its PVC coverings, but as with all plastics, colour variation will occur over time.

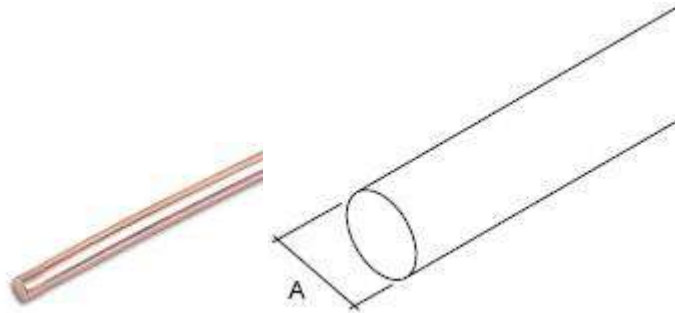
Anti-vandal down conductor guard



| Length | Weight each | Part no. |
|--------|-------------|----------|
| 3000mm | 2.90kg | AV005 |

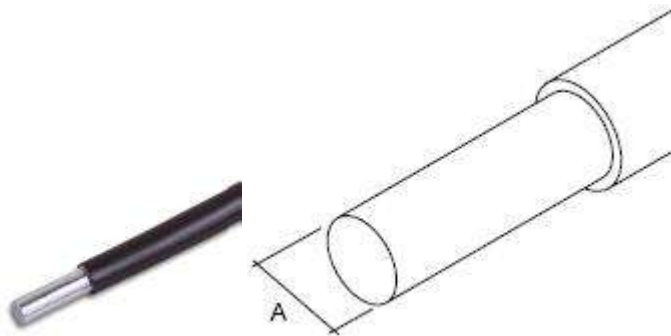
Recommended fixing - round head woodscrew 1 1/2" x no.10 and wall plug. Suitable for use with 25 x 3mm tape.

Bare solid circular



| Conductor material | Diameter (A) | Cross-sectional area | Weight per metre | Standard coil size | Part no. |
|--|--------------|----------------------|------------------|--------------------|----------|
| Copper <i>to BS EN 13601 (formerly BS 1433)</i> | 8mm | 50.27mm ² | 0.44kg | 50m | CD035 |
| Aluminium <i>to BS 2898-1350</i> | 8mm | 50.27mm ² | 0.12kg | 50m | CD080 |

PVC covered solid circular



| Conductor material | Diameter (A) | Cross-sectional area | Weight per metre | Standard coil size | Colour range | | | | |
|--|--------------|----------------------|------------------|--------------------|----------------|---------------|----------------|----------------|----------------|
| | | | | | Black 18B29 | Grey 00A07 | Stone 08B23 | White 10B15 | Brown 06C39 |
| Copper <i>to BS EN 13601 (formerly BS 1433)</i> | 8mm | 50.27mm ² | 0.49kg | 50m | CD036 | CD038 | CD039 | CD040 | CD041 |
| Aluminium <i>to BS 2898-1350</i> | 8mm | 50.27mm ² | 0.18kg | 50m | CD081 | CD083 | CD084 | CD085 | CD086 |

PVC colours to BS 5252. Other colours are available to order. Contact Furse for details. Furse takes every precaution to ensure the UV stability of its PVC coverings, but as with all plastics, colour variation will occur over time.

Bare stranded copper cable



Soft drawn stranded copper cable to BS 6360

| Cross-sectional area | Stranding no./mm Ø | Weight per metre | Part no. | Cross-sectional area | Stranding no./mm Ø | Weight per metre | Part no. |
|----------------------|--------------------|------------------|----------|----------------------|--------------------|------------------|----------|
| 6mm ² | 7/1.04 | 0.05kg | CB006 | 120mm ² | 37/2.03 | 1.09kg | CB120 |
| 16mm ² | 7/1.70 | 0.15kg | CB016 | 150mm ² | 37/2.25 | 1.33kg | CB150-FU |
| 25mm ² | 7/2.14 | 0.23kg | CB025 | 185mm ² | 37/2.52 | 1.67kg | CB185 |
| 35mm ² | 7/2.52 | 0.32kg | CB035 | 240mm ² | 61/2.25 | 2.20kg | CB240 |
| 50mm ² | 19/1.78 | 0.43kg | CB050-FU | 300mm ² | 61/2.52 | 2.76kg | CB300-FU |
| 70mm ² | 19/2.14 | 0.62kg | CB070 | 400mm ² | 61/2.85 | 3.53kg | CB400-FU |
| 95mm ² | 19/2.52 | 0.86kg | CB095 | | | | |

Hard drawn stranded copper cable to BS 7884

| Cross-sectional area | Stranding no./mm Ø | Weight per metre | Part no. |
|----------------------|--------------------|------------------|----------|
| 70mm ² | 7/3.55 | 0.64kg | CB071 |

Green and yellow PVC insulated stranded copper cable



| Cross-sectional area | Stranding no./mm Ø | Weight per metre | Part no. | Cross-sectional area | Stranding no./mm Ø | Weight per metre | Part no. |
|----------------------|--------------------|------------------|----------|----------------------|--------------------|------------------|----------|
| 16mm ² | 7/1.70 | 0.19kg | CC016 | 120mm ² | 37/2.03 | 1.16kg | CC120-FU |
| 25mm ² | 7/2.14 | 0.29kg | CC025 | 150mm ² | 37/2.25 | 1.54kg | CC150-FU |
| 35mm ² | 7/2.52 | 0.41kg | CC035 | 185mm ² | 37/2.52 | 2.01kg | CC185 |
| 50mm ² | 19/1.78 | 0.53kg | CC050 | 240mm ² | 61/2.25 | 2.49kg | CC240 |
| 70mm ² | 19/2.14 | 0.73kg | CC070 | 300mm ² | 61/2.52 | 3.05kg | CC300 |
| 95mm ² | 19/2.52 | 1.00kg | CC095 | 400mm ² | 61/2.85 | 3.90kg | CC400-FU |

PVC covered soft drawn stranded copper cable to BS 6004. PVC colours to BS 6746C.

Bimetallic cable



| AWG | Cross-sectional area | Nominal diameter | Stranding no. wires/AWG | Weight per metre | Part no. |
|-----|----------------------|------------------|-------------------------|------------------|----------|
| 1/0 | 50mm ² | 9.96mm | 3/5 | 0.41kg | BC001 |
| 1 | 40mm ² | 8.86mm | 3/6 | 0.33kg | BC002 |
| 2 | 35mm ² | 7.9mm | 3/7 | 0.26kg | BC003 |
| 3 | 25mm ² | 7.04mm | 3/8 | 0.21kg | BC004 |
| 4 | 20mm ² | 6.27mm | 3/9 | 0.16kg | BC005 |
| 5 | 16mm ² | 5.59mm | 3/10 | 0.13kg | BC006 |
| 6 | 10mm ² | 4.42mm | 3/12 | 0.08kg | BC007 |
| 300 | 150mm ² | 15.6mm | 7/4 | 1.22kg | BC008 |
| 4/0 | 120mm ² | 13.9mm | 7/5 | 0.97kg | BC009 |
| 3/0 | 95mm ² | 12.3mm | 7/6 | 0.77kg | BC010 |
| 2/0 | 70mm ² | 11mm | 7/7 | 0.61kg | BC011 |
| 1/0 | 50mm ² | 9.78mm | 7/8 | 0.48kg | BC012 |
| 1 | 40mm ² | 8.71mm | 7/9 | 0.38kg | BC013 |
| 2 | 35mm ² | 7.77mm | 7/10 | 0.30kg | BC014 |

Copper/steel cable to ASTM B228.

40% conductivity supplied as standard. Other sizes also available. Contact Furse for details.