# SY Cable

Application: Measuring and control cable to connect equipment in production lines / assembly lines and conveyor systems. Can be used both fixed and flexible installations.

Techincal Data:

| | | |
|---|---|---|
| 1 | Conductor | Plain annealed flexible copper. Class 5 |
| 2 | Insulation | PVC (Polyvinyl Chloride) |
| 3 | Sheath | PVC (Polyvinyl Chloride) |
| 4 | Bedding | PVC (Polyvinyl Chloride) |
| 5 | Armour | GSWB (Galvanised Steel Wired Braid) |

**Voltage Rating** 300/500V

**Conductor Operating Temperature** 0°C to +70°C

**Core Identification**
2 Core: Brown & Blue
3 Core: Brown, Blue & Green / Yellow
4 Core: Brown, Grey, Black & Green / Yellow
5 Core: Brown, Blue, Grey, Black & Green / Yellow

Alternative Core Identification
Black cores with white numbers.

**Sizes and Dimensions - 2 Cores**

| No Cores | Conductor Cross Section Area (mm²) | Cable Cross Section Area (mm²) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 2 | 0.75 | 40.72 | 7.2 | 20s | 3 | 79 | 26.00 |
| 2 | 1.0 | 45.36 | 7.6 | 20s | 3 | 91 | 19.50 |
| 2 | 1.5 | 55.42 | 8.4 | 20s | 4 | 112 | 19.30 |
| 2 | 2.5 | | 9.8 | 20s | 4 | 177 | |

**Sizes and Dimensions - 3 Cores**

| No Cores | Conductor Cross Section Area (mm²) | Cable Cross Section Area (mm²) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 3 | 0.75 | 44.18 | 7.5 | 20s | 3 | 91 | 26.0 |
| 3 | 1.0 | 49.02 | 7.9 | 20s | 4 | 104 | 19.5 |
| 3 | 1.5 | 60.82 | 8.8 | 20 | 4 | 130 | 13.3 |
| 3 | 2.5 | 83.32 | 10.3 | 20s | 5 | 184 | 7.98 |
| 3 | 4.0 | 111.22 | 11.9 | 20 | 5 | 253 | 4.95 |
| 3 | 6.0 | 149.57 | 13.8 | 20 | 6 | 355 | 3.30 |
| 3 | 10.0 | 221.67 | 16.8 | 25 | 7 | 545 | 1.91 |
| 3 | 16.0 | 307.90 | 19.8 | 32 | 8 | 849 | 1.21 |
| 3 | 25.0 | 459.96 | 24.2 | 40 | 10 | 1298 | 0.78 |
| 3 | 35.0 | 543.25 | 26.3 | 40 | 11 | 1626 | 0.554 |

**Sizes and Dimensions - 4 Cores**

| No Cores | Conductor Cross Section Area (mm²) | Cable Cross Section Area (mm²) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 4 | 0.75 | 51.53 | 8.1 | 20s | 4 | 106 | 26 |
| 4 | 1.0 | 59.45 | 8.7 | 20s | 4 | 127 | 11.5 |
| 4 | 1.5 | 69.40 | 9.4 | 20s | 4 | 154 | 13.3 |
| 4 | 2.5 | 96.77 | 11.1 | 20 | 5 | 220 | 7.98 |
| 4 | 4.0 | 130.70 | 12.9 | 20 | 6 | 308 | 4.95 |
| 4 | 6.0 | 176.71 | 15.0 | 25 | 6 | 435 | 3.30 |
| 4 | 10.0 | 263.02 | 18.3 | 32 | 8 | 673 | 1.91 |
| 4 | 16.0 | 376.68 | 21.9 | | | 1004 | 1.21 |
| 4 | 25.0 | 547.40 | 26.4 | 40 | 11 | 1607 | 0.78 |
| 4 | 35.0 | 716.31 | 30.2 | 40 | 12 | 2054 | 0.554 |
| 4 | 50.0 | 924.01 | 34.3 | 50 | 14 | 2605 | 0.3860 |
| 4 | 70.0 | 1164.16 | 38.5 | 50 | 16 | 3453 | 0.272 |
| 4 | 95.0 | 1452.20 | 43.0 | 63 | 18 | 4544 | 0.206 |

*The information contained within this datasheet is for guidance only. Please note the actual cable dimensions may very due to manufacturing tolerence.*

**Sizes and Dimensions - 5 Cores**

| No Cores | Conductor Cross Section Area (mm²) | Cable Cross Section Area (mm²) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 5 | 0.75 | 62.21 | 8.9 | 20s | 4 | 128 | 26 |
| 5 | 1.0 | 69.40 | 9.4 | 20s | 4 | 148 | 19.5 |
| 5 | 1.5 | 84.95 | 10.4 | 20s | 5 | 186 | 13.3 |
| 5 | 2.5 | 116.90 | 12.2 | 20 | 5 | 267 | 7.98 |
| 5 | 4.0 | 151.75 | 13.9 | 25 | 6 | 366 | 4.95 |
| 5 | 6.0 | 213.82 | 16.5 | 25 | 7 | 530 | 3.30 |
| 5 | 10.0 | 314.16 | 20.0 | 32 | 8 | 825 | 1.91 |
| 5 | 16.0 | 448.63 | 23.9 | 32 | 10 | 1217 | 1.21 |
| 5 | 25.0 | 651.44 | 28.8 | 40 | 12 | 1941 | 0.78 |
| 5 | 35.0 | 839.82 | 32.7 | 50 | 14 | 2559 | 0.554 |

**Sizes and Dimensions - 7 Cores**

| No Cores | Conductor Cross Section Area (mm²) | Cable Cross Section Area (mm²) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 7 | 0.75 | 70.88 | 9.5 | 20s | 4 | 152 | 26 |
| 7 | 1.0 | 84.95 | 10.4 | 20s | 5 | 187 | 19.5 |
| 7 | 1.5 | 107.51 | 11.7 | 20 | 5 | 242 | 13.3 |
| 7 | 2.5 | 143.14 | 13.5 | 20 | 6 | 340 | 7.98 |

**Sizes and Dimensions - 12 Cores**

| No Cores | Conductor Cross Section Area (mm²) | Cable Cross Section Area (mm²) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 12 | 0.75 | 132.73 | 13.0 | 20 | 6 | 273 | 26 |
| 12 | 1.0 | 136.85 | 13.2 | 20 | 6 | 303 | 19.5 |
| 12 | 1.5 | 179.08 | 15.1 | 25 | 6 | 398 | 13.3 |
| 12 | 2.5 | 243.28 | 17.6 | 25 | 7 | 571 | 7.98 |

**Sizes and Dimensions - 18 Cores**

| No Cores | Conductor Cross Section Area (mm²) | Cable Cross Section Area (mm²) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 18 | 0.75 | 176.71 | 15 | 25 | 6 | 370 | 26 |
| 18 | 1.0 | 198.56 | 15.9 | 25 | 7 | 437 | 19.5 |
| 18 | 1.5 | 243.29 | 17.6 | 25 | 8 | 553 | 13.3 |
| 18 | 2.5 | 333.29 | 20.6 | 32 | 9 | 803 | 7.98 |

*The information contained within this datasheet is for guidance only. Please note the actual cable dimensions may very due to manufacturing tolerence.*

**Sizes and Dimensions - 25 Cores**

| No Cores | Conductor Cross Section Area ($mm^2$) | Cable Cross Section Area ($mm^2$) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 25 | 0.75 | 243.28 | 17.6 | 25 | 8 | 504 | 26 |
| 25 | 1.0 | 265.90 | 18.4 | 32 | 8 | 586 | 19.5 |
| 25 | 1.5 | 333.29 | 20.6 | 32 | 9 | 753 | 13.3 |
| 25 | 2.5 | 459.96 | 24.2 | 32 | 10 | 1101 | 7.98 |

**Sizes and Dimensions - 34 Cores**

| No Cores | Conductor Cross Section Area ($mm^2$) | Cable Cross Section Area ($mm^2$) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 34 | 0.75 | 283.5 | 19 | 32 | 8 | 610 | 26 |
| 34 | 1.0 | 314.16 | 20 | 32 | 9 | 556 | 19.5 |
| 34 | 1.5 | 366.44 | 21.6 | 32 | 9 | 835 | 13.3 |
| 34 | 2.5 | 463.77 | 24.3 | 32 | 10 | 1126 | 7.98 |

**Sizes and Dimensions - 50 Cores**

| No Cores | Conductor Cross Section Area ($mm^2$) | Cable Cross Section Area ($mm^2$) | Overall Diameter (mm) | Gland Size | Cleat Size | Nominal Weight (kg/km) | Resistance of Copper Conductor (Ω/Km) at 20°C |
|---|---|---|---|---|---|---|---|
| 50 | 1.0 | 441.15 | 23.7 | 32 | 10 | 955 | 19.5 |
| 50 | 1.5 | 444.88 | 23.8 | 32 | 10 | 1046 | 13.3 |

*The information contained within this datasheet is for guidance only. Please note the actual cable dimensions may very due to manufacturing tolerence.*

Table 4F3A - Flexible Cable
Non Armoured
(Copper Condustores)

CURRENT CARRYING CAPACITY (amperes) and MASS SUPPORTABLE (kg)

| Conductor Cross - Sectional Area | Current Carrying Capacity | | Maximum mass supported by Twin flexible cable (see regulations 522.7.2 and 559.6.1.5) |
|---|---|---|---|
| | Single - Phase a.c. | Three - Phase a.c. | |
| ($mm^2$) | (A) | (A) | (kg) |
| 0.5 | 3 | 3 | 2 |
| 0.75 | 6 | 6 | 3 |
| 1 | 10 | 10 | 5 |
| 1.25 | 13 | - | 5 |
| 1.5 | 16 | 16 | 5 |
| 2.5 | 25 | 20 | 5 |
| 4 | 32 | 25 | 5 |

*The above table is in accordance with Table 4F3A of the 17th Edition of IET Wiring Regulations*

Rating Factors for Ambient Temperature

| 60°C Thermoplastic or Thermosetting Insulated Cable | | | | | |
|---|---|---|---|---|---|
| Ambient Temperature | 35°C | 40°C | 45°C | 50°C | 55°C |
| Rating Factor | 0.91 | 0.82 | 0.71 | 0.58 | 0.41 |

| 90°C Thermoplastic or Thermosetting Insulated Cable | | | | | |
|---|---|---|---|---|---|
| Ambient Temperature | 35 to 50°C | 55°C | 60°C | 65°C | 70°C |
| Rating Factor | 1.0 | 0.96 | 0.83 | 0.67 | 0.47 |

| 150°C Flexible Cable | | | | | | |
|---|---|---|---|---|---|---|
| Ambient Temperature | 35 to 120°C | 125°C | 130°C | 135°C | 140°C | 145°C |
| Rating Factor | 1.0 | 0.96 | 0.85 | 0.74 | 0.60 | 0.42 |

| Glass Fibre Flexible Cable | | | | | | |
|---|---|---|---|---|---|---|
| Ambient Temperature | 35 to 150°C | 155°C | 160°C | 165°C | 170°C | 175°C |
| Rating Factor | 1.0 | 0.92 | 0.82 | 0.71 | 0.57 | 0.40 |

Table 4F3B

VOLTAGE DROP (per ampere per meter) Conductor Operating Temperature: 60°C

| Conductor Cross - Sectional Area ($mm^2$) | d.c or Single - Phase a.c. (mV/A/m) | Three - Phase a.c. mV/A/m) |
|---|---|---|
| 0.5 | 93 | 80 |
| 0.75 | 62 | 54 |
| 1 | 46 | 40 |
| 1.25 | 37 | - |
| 1.5 | 32 | 27 |
| 2.5 | 19 | 16 |
| 4 | 12 | 10 |

*This table above is in accordance with Table 4F3B of the 17th Edition of IET Wiring Regulations*

Note: *The tabulated values above are for the 60°C thermoplastic or thermosetting insulated flexible cables and for other types of flexible cable they are to be multiplied by the following factors:

| | | |
|---|---|---|
| For | 90°C thermoplastic or thermosetting | 1.09 |
| | 150°C | 1.31 |
| | 185°C Glass Fibre | 1.43 |

Table 4F1A

Ambient Temperature: 30°C
Conductor Operating Temperature: 60°C

CURRENT CARRYING CAPACITY (amperes)

| Conductor Cross - Sectional Area | Single - Phase a.c. or d.c. | Three - Phase a.c. | Single Phase a.c. or d.c. |
|---|---|---|---|
| | 1 two - core cable, with or without protective conductor | 1 three - core, four - core or five - core cable | 2 single - core cables, touching |
| ($mm^2$) | (A) | (A) | (A) |
| 4 | 30 | 26 | - |
| 6 | 39 | 34 | - |
| 10 | 51 | 47 | - |
| 16 | 73 | 63 | - |
| | | | |
| 25 | - | 83 | - |
| 35 | - | 102 | 140 |
| 50 | - | 124 | 175 |
| 70 | - | 158 | 216 |
| 95 | - | 192 | 258 |
| | | | |
| 120 | - | 222 | 302 |
| 150 | - | 255 | 347 |
| 185 | - | 291 | 394 |
| 240 | - | 343 | 471 |
| 300 | - | 394 | 541 |
| | | | |
| 400 | - | - | 644 |
| 500 | - | - | 738 |
| 630 | - | - | 861 |

Notes:

1. The current ratings tabulated are for cables in free air but my also be used for cables resting on a surface. If the cable is to be wound on a drum on load the ratings should be reduced in accordance with NOTE 2 below and for cables which may be covered, NOTE 3 below.

2. Flexible cables wound on feeling drums.
The current ratings of cable used on reeling drums are to be reduced by the following factors:

a) Radial Type drum
Ventilated: 85%
Unventillated 75%

b) Ventilated Cylindrical
1 Layer of cable: 85%
2 Layer of cable: 65%
3 Layer of cable: 45%
4 Layer of cable: 35%

A radial type drum is one where spiral layers of cable are accommodated between closely spaced flanges; If fitted with solid flanges the ratings given above should be reduced and the drum is described as non-ventilated. If the flanges have suitable apertures the drum is described as ventilated.
A ventilated cylindrical cable drum is one where layers of cable are accommodated between widely spaced flanges and the drum and end flanges have suitable ventilating apertures.

3. Where cable may be covered over or coiled up whilst on load, or the air movement over the cable restricted, the current rating should be reduced.
It is not possible to specify the amount of reduction be the table of rating factors for reeling drums can be used as a guide.

**Table 4F1B**

**VOLTAGE DROP (per ampere per meter)** **Conductor Operating Temperature: 60°C**

| Conductor Cross - Sectional Area | Two-Core Cable, d.c. | Two-core cable, single-phase a.c. | | | 1 three-core, four-core or five-core, three phase a.c. | | | 2 Single-core cables, touching | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | d.c. | Single-phase a.c | | |
| (mm²) | (mV/A/m) | (mV/A/m) | | | (mV/A/m) | | | - | - | | |
| 4 | 12 | 12 | | | 10 | | | - | - | | |
| 6 | 7.8 | 7.8 | | | 6.7 | | | - | - | | |
| 10 | 4.6 | 4.6 | | | 4.0 | | | - | - | | |
| 16 | 2.9 | 2.9 | | | 2.5 | | | - | - | | |
| | | | | | | | | | | | |
| | | r | x | z | r | x | z | | r | x | z |
| 25 | 1.80 | 1.80 | 0.175 | 1.85 | 1.55 | 0.150 | 1.55 | - | - | - | - |
| 35 | - | - | - | - | 1.10 | 0.150 | 1.15 | 1.31 | 1.31 | 0.21 | 1.32 |
| 50 | - | - | - | - | 0.83 | 0.145 | 0.84 | 0.91 | 0.91 | 0.21 | 0.93 |
| 70 | - | - | - | - | 0.57 | 0.140 | 0.58 | 0.64 | 0.64 | 0.20 | 0.67 |
| 95 | - | - | - | - | 0.42 | 0.135 | 0.44 | 0.49 | 0.49 | 0.195 | 0.53 |
| | | | | | | | | | | | |
| 120 | - | - | - | - | 0.33 | 0.135 | 0.36 | 0.38 | 0.38 | 0.190 | 0.43 |
| 150 | - | - | - | - | 0.27 | 0.130 | 0.30 | 0.31 | 0.31 | 0.190 | 0.36 |
| 185 | - | - | - | - | 0.22 | 0.130 | 0.26 | 0.25 | 0.25 | 0.190 | 0.32 |
| 240 | - | - | - | - | 0.170 | 0.130 | 0.21 | 0.190 | 0.195 | 0.185 | 0.27 |
| 300 | - | - | - | - | 0.135 | 0.125 | 0.185 | 0.150 | 0.155 | 0.180 | 0.24 |
| | | | | | | | | | | | |
| 400 | - | - | - | - | - | - | - | 0.115 | 0.120 | 0.175 | 0.21 |
| 500 | - | - | - | - | - | - | - | 0.090 | 0.099 | 0.170 | 0.20 |
| 630 | - | - | - | - | - | - | - | 0.068 | 0.079 | 0.170 | 0.185 |

*This table above is in accordance with Table 4E4B of the 17th Edition of IET Wiring Regulations*