



# SPECIAL CABLES

CATALOGUE 2024

# BICC CABLES

Cables Crafted With Trust

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# 1.0 BICC CABLES Background



**Andrew Fitch**  
Technical Manager  
Since 1996 - 2000

BICC CABLES is a prominent supplier of high-quality electrical cables, holding a substantial market presence in Egypt. Over the years, the company has consistently delivered durable and reliable solutions to meet the evolving needs of various sectors.

Our expertise covers all types of electrical cables, including Building Wires, Low Voltage Cables up to 3.3 kV and Medium Voltage Power Cables up to 36 kV (Copper & Aluminum), Control Cables, Instrument Cables, Fire Resistance & Fire Alarm Cables to Overhead Transmission Lines (AAC, AAAC, ABC, ACSR).

Originally under the ownership of BICC in the UK, the company was given the name “British Insulated Callender’s Cables” and has been actively contributing to the global cable sector since 1890.

BICC CABLES, a renowned division of Sharkia Holding Group, is globally recognized for its exceptional manufacturing, customer service, and innovation capabilities. With the backing of a team of seasoned professionals, the company is committed to offering high-quality products that meet international regulations and standards.

The BICC factory is situated at Abu Rawash Industrial Zone, KM. 28 Cairo – Alexandria Desert Road, Giza, Egypt. Established in 1996 as a joint venture between BICC Cables of the UK and other investors, the site initially focused on the production of low-voltage power cables. Over the years, it has undergone significant expansion, both in production capacity and market share.

This growth has been achieved through strategic investments, including the installation of new machinery. These improvements are dedicated to meet the evolving needs of our clients and ensuring the consistent supply of high-quality cable products.

## Our mission

Empower the world’s connections through innovative, reliable, and sustainable wiring solutions. We are committed to delivering high-quality products that exceed industry standards, ensuring the safety and success of our customers’ endeavors.

## Our vision

We envision a world seamlessly connected, where our cutting-edge solutions empower industries, communities, and individuals alike.

# 1.0 BICC CABLES Background

## Product Range

BICC CABLES Scope of production includes as follows:

- Low Voltage Power Cables (Copper, Tinned Copper & Aluminum)
- Medium Voltage cables up to 36 kV (Copper & Aluminum)
- Building Wires
- Control Cables
- Instrument Cables
- Solar Cables
- Fire Resistance & Fire Alarm Cables
- Overhead Transmission Lines (AAC, AAAC, ABC, ACSR).

This publication covers our range of production for Instrument, Control, Domestic, and Solar Cables.

## Product Quality

Quality Control in all steps of manufacturing is one of the priorities of BICC CABLES, keen to provide its customers with the best quality and meeting deadlines.

All our facilities operate under the highest ISO 9001:2015 Standards. We use the latest measuring devices (made in EU) for an effective application of quality standards.

Also, we are using only tried and tested materials and processes in full compliance with all the relevant British and International standards, we are very keen to purchase raw materials from the most accredited suppliers either from local market or from abroad.



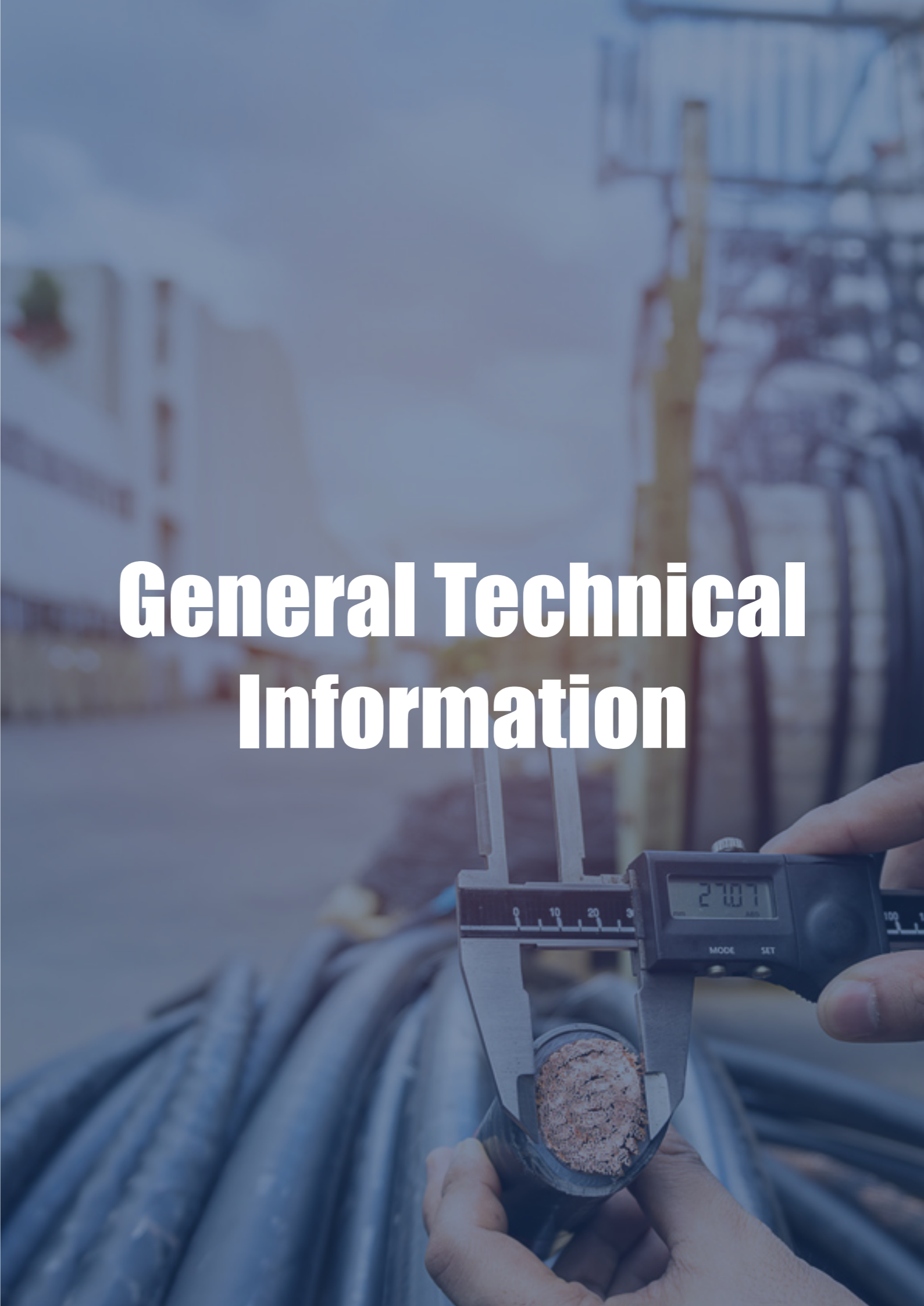
# 1.0 BICC CABLES Background



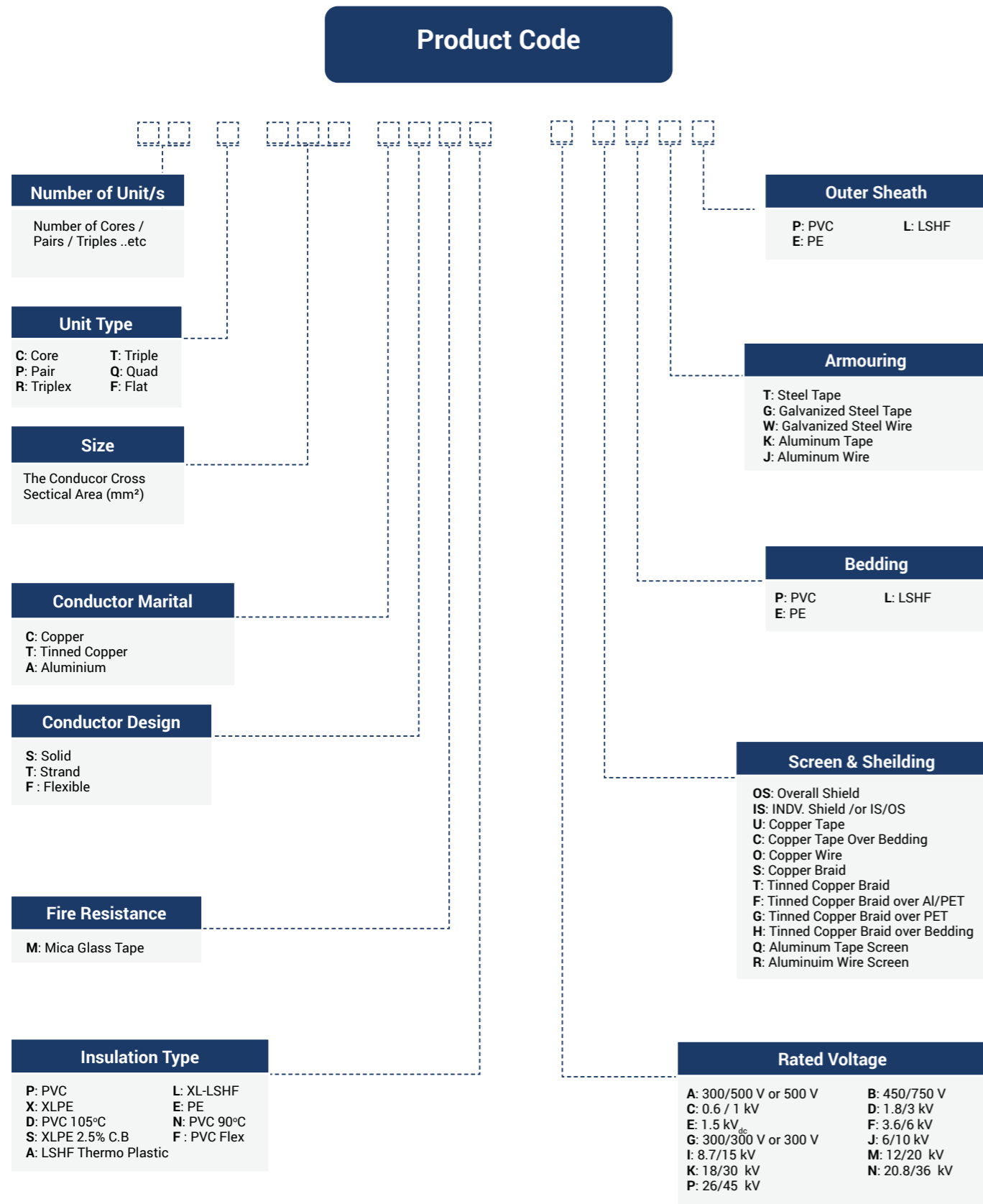
- Quality Management System ISO 9001:2015
- Environmental Management System (EMS) ISO 14001:2015
- Occupational Health & Safety Management System (OHS) ISO 45001:2018



# General Technical Information



# 2.0 General Technical Information



# 2.0 General Technical Information

## Installation

All cables in this publication can be used for outdoor applications but some reservations are necessary concerning cables without metal sheath for direct burial such as:

- Unarmored cables are not recommended for laying directly in the ground.
- Cables laid directly in the ground, particularly in sustained wet conditions, should have extruded bedding.
- For installations where there is water-logging or where it is likely to occur, advice should be obtained from our technical department. It may be desirable to recommend an alternative type of outer sheath for the cable (e.g. MDPE).

Bending radius shall be considered during installation where cables shall not be bent in radius smaller than that recommended noting that minimum bending radius as follows:

### Recommended Minimum Bending Radius

Cable Type	Minimum Bending Radius
Control or Instrument Cable in PVC Outer Sheath	10 Times of Cable Nominal Outer Diameter
Control or Instrument Cable in LSHF Outer Sheath	20 Times of Cable Nominal Outer Diameter



# 2.0 General Technical Information

## 2.1 Current Carrying Capacity

Current carrying capacity is the maximum current that can be continuously carried without exceeding its temperature rating. It is also known as ampacity.

The effect of resistance to current flow is heating and this is dependent upon the size of the conductor where increasing the conductor size increases the current carrying capacity.

**Conductor DC Resistance at 20°C**

Conductor Size (mm <sup>2</sup> )	DC Resistance at 20°C (Ω/km)
0.5	36.00
0.75	24.50
1	18.10
1.5	12.10
2	9.22
2.5	7.41
3	6.10
4	4.61

Also, current is affected with insulation material around the conductor where the higher the temperature resistance of the insulating material, the higher the ampacity.

A 90°C rated insulation (XLPE insulation) will have a higher current capacity than a 70°C rated insulation (PVC insulation).

Also, current rating is affected by installation environment & its temperature.

### Cables Installed in Free Air

For cables installed in free air (Reference method 11 on cable tray or method 13 in free air as IET Wiring Regulations BS 7671 - 18th Edition) & ambient temperature 40°C.

### Cables Laid in Ground & Installed in Single Way Ducts

Current rating is based on Ground temperature 35°C, soil thermal resistivity 1.2 °C m/W, depth of laying 0.5 m, all circuits are thermally independent.

# 2.0 General Technical Information

## 2.2 Derating Current Rating Factors

Current carrying capacity is affected by installation environment and several factors such as ambient or ground temperature, change in depth of laying, soil thermal resistivity or number of grouping of cables, the current rating must be multiplied by relevant rating factors as in the below tables.

**Current Rating Factors for Ambient Air Temperature (Cables Installed in Air)**

Ambient Air Temperature	25°C	30°C	35°C	40°C	45°C	50°C	55°C
XLPE Insulation	1.14	1.10	1.05	1	0.96	0.90	0.84
PVC Insulation	1.22	1.15	1.08	1	0.91	0.80	0.70

**Current Rating Factors for Ground Temperature (Cables Laid Direct in Ground)**

Ground Temperature	15°C	20°C	25°C	30°C	35°C	40°C	45°C
XLPE Insulation	1.16	1.13	1.08	1.03	1	0.95	0.88
PVC Insulation	1.25	1.19	1.13	1.06	1	0.93	0.84

**Current Rating Factors for Depth of Laying**

Depth of Laying (m)	Multicore	
	Direct Ground	In Single Way Ducts
0.50	1	1
0.60	0.99	0.99
0.80	0.97	0.97
1.00	0.95	0.96
1.25	0.94	0.95

# 2.0 General Technical Information

## Current Rating Factors for Variation in Soil Resistivity for Cables Laid in Ground or Duct

Type of Installation	Soil Thermal Resistivity in °Cm/W						
	0.8	0.9	1	1.2	1.5	2	2.5
Multicore Cables Laid Directly in Ground	1.09	1.06	1.04	1	0.93	0.84	0.77
Multicore Cables Installed in Single-Way Ducts	1.33	1.02	1.02	1	0.97	0.91	0.87

## Current Rating Factors for Number of Cables (Circuits) in Group for Cables in Horizontal Formation

Method of Installation	Number of Cables in group	Spacing Between Cable Centers				
		Touching	0.15 m	0.3 m	0.45 m	0.6 m
Cables Direct in Ground	2	0.81	0.87	0.91	0.93	0.94
	3	0.70	0.78	0.84	0.87	0.90
	4	0.63	0.74	0.81	0.86	0.89
	5	0.59	0.70	0.78	0.83	0.87
	6	0.55	0.67	0.76	0.82	0.86
Cables in Single Way Ducts	2	0.90	-	0.93	0.95	0.96
	3	0.82	-	0.87	0.90	0.93
	4	0.78	-	0.85	0.89	0.9
	5	0.76	-	0.82	0.87	0.90
	6	0.72	-	0.81	0.86	0.90

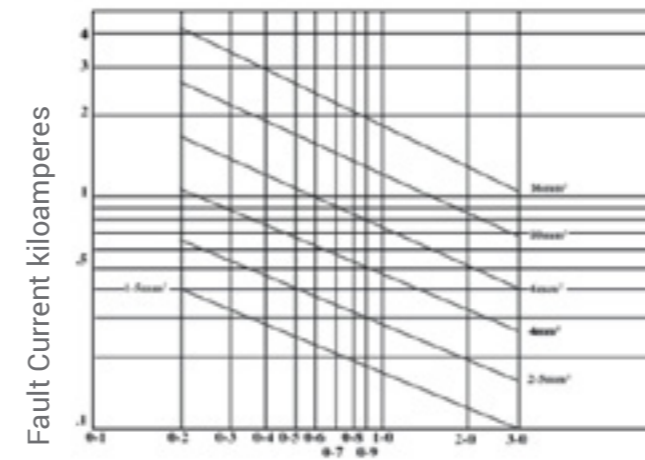
# 2.0 General Technical Information

## 2.3 Short Circuit Ratings

When cables are subjected to temperature higher than those permissible for continuous operation they may suffer damage. Therefore, in installation when there is possibility of the cables being overloaded by mistake or by accident, cables should be selected having regard to the characteristics of the device used or protection against excess current so that the effects of overloading are limited to a degree tolerable to or a relatively short period of operation.

### XLPE Insulated Cables

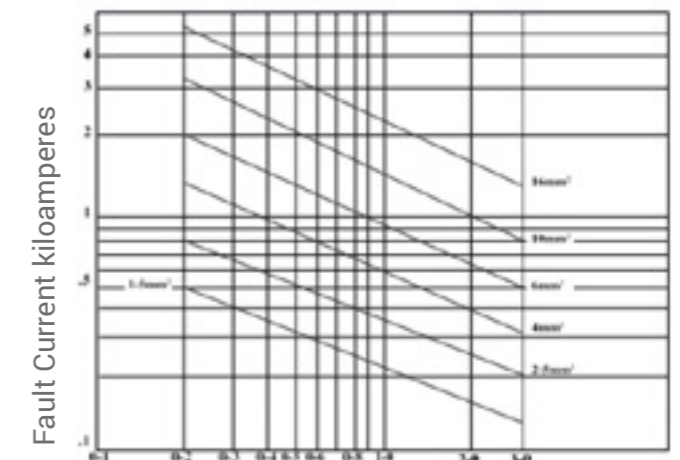
The values of fault current given in the graph are based on the cable being fully loaded at the start of the short circuit (conductor temperature 90°C) and a final conductor temperature of 250°C. It should be ensured that the accessories associated with the cable are also capable of operation at these values of fault current and temperature.



Duration of Short Circuit in Seconds for XLPE Insulated Cables

### PVC Insulated Cables

The values of fault current given in the graph are based on the cable being fully loaded at the start of the short circuit (conductor temperature 70°C) and a final conductor temperature of 160 °C.



Duration of Short Circuit in Seconds for PVC Insulated Cables

# 2.0 General Technical Information

## 2.4 Derating Factor for Number of Cores for Control Cables

Number of Cores	Derating Factor		
	Ground	Duct	Air
5	0.70	0.70	0.72
6	0.60	0.60	0.65
7	0.60	0.60	0.63
8	0.50	0.50	0.55
9	0.50	0.50	0.55
10	0.50	0.50	0.55
12	0.45	0.45	0.50
14	0.45	0.45	0.50
16	0.40	0.40	0.45
19	0.40	0.40	0.45
20	0.35	0.35	0.40
24	0.35	0.35	0.40
30	0.30	0.300	0.35
37	0.30	0.3	0.35
40	0.30	0.30	0.35



# Instrument Cables



# 3.0 Instrument Cables

## Application

These cables are used in diverse applications within industrial process manufacturing plant for control, communication, data (analog/digital) and voice transmission signals, industrial signaling and process control circuit required typically in process industries, oil, gas & petrochemical industry, fertilizers, cement, steel etc.

## Specification Standards

Standard specification Applied to Cable: BS EN 50288-7 (formerly BS 5308)

Standard specification Applied to Conductor: IEC 60228

Spread of Flame: Flame retardant as per IEC 60332-1

## Construction

### 1- Conductor

Copper (or Tinned Copper) in different flexibility degrees:

- Solid Copper Class 1
- Stranded Copper Class 2
- Flexible Copper Class 5

### 2- Insulation

- Cross-Linked Polyethylene (XLPE) 90°C.
- Polyvinyl Chloride (PVC) 70°C.
- Polyvinyl Chloride (PVC) 105°C (for fire alarm cables).
- Polyethylene (PE) 80°C.
- Low Smoke Halogen Free (LSHF) 90°C.

Considering the above the insulation materials can be divided into 2 classes:

#### A. Thermoplastic

These are the plastics which when heated their linear molecule chains drift apart and become soft and regain their original form on cooling. PVC and PE are thermoplastics materials and cannot be used at higher temperature. They can be recycled multiple times.

#### B. Thermoset (Cross-Linked)

These are plastics when initially heated, their linear molecule chains get interlinked and this is not reversible. Due to this they can be operated at higher temperature. CROSS-LINKED POLYETHYLENE, CROSS-LINKED HALOGEN FREE are thermosetting materials and they cannot be recycled.

### 3- Shielding

Shielding is a critical element in the design of instrumentation cables. The shielding layer in these cables serves to prevent external noise from interfering with signal transmission. To achieve this, a metallic foil shield is utilized in contact with a drain wire which is grounded to eliminate noise interference. The result is a robust control system that is able to transmit true signals without interruptions or noise interference. The shield is designed to provide (100%) full coverage even when the cable is flexed, ensuring maximum rejection of electromagnetic noise and optimal noise cancellation. The selection of the appropriate twisting of insulated conductors further enhances the noise cancellation capabilities of the cable this shielding can be:

- Individual Shield (IS): Shielding for each pair /triple in the multi pair/triple cables using Up to 50 µm Aluminum/ PET tape over tinned copper drain wires.
- Overall Shield (OS): Overall Shield for all pairs / triple or cores in cable using Up to 50 µm Aluminum/ PET tape over tinned copper drain wires.
- Combination of them (IS/OS)

# 3.0 Instrument Cables

## 4- Bedding

- Polyvinyl Chloride (PVC)
  - Low Smoke Halogen Free (LSHF)
- (For applications where Flame spread, minimal smoke and toxic gases emission are critical)

## 5- Armour

- Galvanized Steel wire Armour (SWA)  
One layer of round wires is applied helically over the bedding
- Steel Tape Armour (STA)  
Two Helix Galvanized Steel Tape applied over the bedding

## 6- Outer Sheath

- Polyvinyl Chloride (PVC)
- Low Smoke Halogen Free (LSHF)
- Polyethylene (PE)

## Note

- Instrument cables can be used for indoor applications, in raceways, direct burial applications and outdoor applications.
- Not allowed for direct connection to low impedance sources, e.g., public mains electricity supply.
- For any queries about other variants, please contact: [info@bicccables.com](mailto:info@bicccables.com)

## Sizes

This publication covers the following range:

- Conductor Cross Sectional Area: from 0.5 mm<sup>2</sup> up to 2.5 mm<sup>2</sup>.

\* Sizes in AWG also available from 18 AWG up to 12 AWG.

- Cores: From 2 Cores and up to 48 Cores
- Pairs: From Single Pair and up to 20 Pairs
- Triples: From Single Triple and up to 15 Triples

All variants regarding the number of Pairs, Triples and Quads also are available upon request.

## Core Identification

### Pair

- Single Pair: White & Black.
- Multi Pairs: White & Black with progressive numbers.

### Triple (Traid)

- Single Triple: White, Black & Red
- Multi Triple: White, Black & Red with progressive numbers.

**Multi Core:** Black with white numbers

\* Other special colors are available upon request.

## Rated Voltage

- 300 V
- 500 V

# 3.0 Instrument Cables

## Options Available

### Material

Where necessary, special features can be incorporated into the cable enabling it to have:

- Improved fire performance.
- Flame Retardant CAT A according to IEC 60332-3-22.
- Flame Retardant CAT C according to IEC 60332-3-24.
- Low smoke Halogen Free (LSHF) as per IEC 61034 & IEC 60754.
- Termite resistance.
- Resistance to oils, solvents or corrosive chemicals.

### Fire Alarm Cables

For applications where it is required to transmit signals to the notification (Indicating) device Circuits such as alarm Sounders or horns and other remote signaling equipment and since Fire alarm cables required to work under high Temperature up to 105°C, special material of PVC can be used to be compatible with such application.

### Fire Resistance Cables

For applications where it is required circuit integrity during a fire mainly in Fire Alarm systems, sprinkler systems in schools, hospitals, shopping malls, cinemas etc. Fire Resistance Cables are manufactured with Glass Backed Mica Tape applied over conductor and are used the circuit integrity is maintained for 1.5 hours at 750°C according IEC 60331 or 3 hours at 950°C CWZ according BS 6387.

\* For further about this type of cables please refer to **Fire Resistance Catalogue**

### Interference / Noise in Instrument & Signal Cables

The signals are in millivolts and milliamperes and hence they must be protected by suitably designed Instrument Cables to screen off any outside interference. Any distortion of the signals will lead to malfunctioning of the system. A noise free signal is important to avoid mistakes.

**The interference which is also called noise can be due to:**

- External source like nearby power lines, big motors, generators etc.
- Internal source like voltage or current in the other circuit of the same multi-pair cable.

**There are four basic types of interference which affect process instruments. They are:**

- ELECTRO STATIC
- ELECTRO MAGNETIC
- COMMON MODE
- CROSS TALK

### ELECTRO STATIC

Static noise is a type of distortion that occurs when an electrical field generated by an external voltage source couples into the signal-bearing circuit. To prevent static noise, it is necessary to shield the entire circuit. The best shielding is provided by wrapping Aluminum foil bonded with polyester around the cable as this provides 100% coverage., but they must cover both the transmitting and receiving ends of the circuit in order to reduce high levels of interference. The shield must also be grounded to ensure optimal performance

# 3.0 Instrument Cables

## ELECTRO MAGNETIC

Generally low frequency electromagnetic field due to power cables, motors, etc. can induce EMF into the instrumentation cable, which disrupt the normal current flow of a wire.

The twisting of conductors provides a good magnetic noise reduction. Other reductions are given by steel conduit, armours (high inductance material). In some particular cases low resisting screen (i.e. copper braids, copper tapes) may be necessary.

## COMMON MODE

Results from current flowing between different potential grounds located at various points within a system. To avoid this, ground the shield at one end only and it requires a carefully engineered and properly installed power and grounding system.

## CROSS TALK

This occurs with AC instrument signals, especially pulse type signals when more than one circuit is carried in the same cable. In case of multipair cables, the signal in a circuit gets coupled to a second circuit super imposing interference (noise) on a circuit. One way to combat this is to use pairs with staggered lay lengths in the same multi pair cables i.e., the lay lengths of two nearby pairs are different. The best way to eliminate this is to use individually shielded pairs in multipair cable. Moreover, these shields must be isolated from each other. The individual pair shield protects the pair from noise picked up from the adjacent pairs, as well as reduces the noise radiated by the pair it surrounds.

## Electrical Properties for Multicore / Single & Multi Pair

### Conductor DC Resistance

Size mm <sup>2</sup>	Multicore / Single Pair / Single Triad				Multi Pair / Multi Triad			
	Class 1 & Class 2		Class 5		Class 1 & Class 2		Class 5	
	Plain Ω/km	Tinned Ω/km	Plain Ω/km	Tinned Ω/km	Plain Ω/km	Tinned Ω/km	Plain Ω/km	Tinned Ω/km
0.5	36.00	36.70	39.00	40.10	36.70	37.40	39.78	40.90
0.75	24.50	24.80	26.00	26.70	25.00	25.30	26.52	27.33
1	18.10	18.20	19.50	20.00	18.50	18.60	19.89	20.40
1.5	12.10	12.20	13.30	13.70	12.30	12.40	13.56	13.97
2.5	7.410	7.560	7.980	8.210	7.560	7.710	8.140	8.370

### Dielectric Strength (Duration 1 minute.)

- For 300 V rating  $\geq 1,0 \text{ kV}_{ac}$  or  $\geq 2,0 \text{ kV}_{dc}$
- For 500 V rating  $\geq 2,0 \text{ kV}_{ac}$  or  $\geq 3,0 \text{ kV}_{dc}$

### Insulation Resistance

- PVC Insulated: 10 MΩ/km
- PE Insulated: 1000 MΩ/km
- XLPE Insulated: 1000 MΩ/km

### Mutual Capacitance

- PVC Insulated < 250 nf/km
- PE Insulated < 150 nf/km
- XLPE Insulated < 150 nf/km

### Inductance to Resistance (L/R)

- < 25 μH/Ω for up to 1 mm<sup>2</sup>
- < 40 μH/Ω for 1.5 mm<sup>2</sup>
- < 60 μH/Ω for 2.5 mm<sup>2</sup>

### Test Voltage

- Core/Core:  $2 \text{ kV}_{ac}$  for 1 min
- Core/Screen:  $1 \text{ kV}_{ac}$  for 1 min
- Rated Voltage: 500 V

# 3.0 Instrument Cables

Multi Pair / Triple, Non-Armoured, Overall Shielding, 300 V  
CU/PVC/OS/PVC

## Application:

Multi Pair / Triple Instrument Cables are used as Signal Carrier for Connecting Electrical Instrument Circuits.

## Construction:

### 1- Conductor

Stranded Copper Class 2

### 2-Insulation

Polyvinyl Chloride (PVC)

Alternative: Cross-Linked Polyethylene (XLPE)

### 3-Shielding

Overall Shielding

### 4-Sheath

Polyvinyl Chloride (PVC)



# 3.0 Instrument Cables

Multi Pair, Non-Armoured, Overall Shielding, 300 V  
CU/PVC/OS/PVC



Product Code	Number of Pairs	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
01P0.50CT0PGOS00P	1	0.5	0.26	4.97	38
02P0.50CT0PGOS00P	2			7.12	64
04P0.50CT0PGOS00P	4			8.15	97
06P0.50CT0PGOS00P	6			9.81	137
10P0.50CT0PGOS00P	10			12.50	213
15P0.50CT0PGOS00P	15			14.23	293
20P0.50CT0PGOS00P	20			16.01	379
01P0.75CT0PGOS00P	1	0.75	0.26	5.33	45
02P0.75CT0PGOS00P	2			7.71	79
04P0.75CT0PGOS00P	4			9.06	128
06P0.75CT0PGOS00P	6			10.69	176
10P0.75CT0PGOS00P	10			13.68	276
15P0.75CT0PGOS00P	15			15.82	392
20P0.75CT0PGOS00P	20			17.79	509
01P001CT0PGOS00P	1	1	0.26	5.89	52
02P001CT0PGOS00P	2			8.62	93
04P001CT0PGOS00P	4			10.17	153
06P001CT0PGOS00P	6			12.07	212
10P001CT0PGOS00P	10			15.52	334
15P001CT0PGOS00P	15			17.98	476
20P001CT0PGOS00P	20			20.24	620
01P01.5CT0PGOS00P	1	1.5	0.35	6.91	70
02P01.5CT0PGOS00P	2			10.17	127
04P01.5CT0PGOS00P	4			11.99	213
06P01.5CT0PGOS00P	6			14.29	298
10P01.5CT0PGOS00P	10			18.61	481
15P01.5CT0PGOS00P	15			21.53	688
20P01.5CT0PGOS00P	20			24.22	895

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Triple, Non-Armoured, Overall Shielding, 300 V

CU/PVC/OS/PVC

Product Code	Number of Triples	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
01T0.50CT0PGOS00P	1	0.5	0.26	5.21	46
02T0.50CT0PGOS00P	2			0.26	82
04T0.50CT0PGOS00P	4			0.26	134
06T0.50CT0PGOS00P	6			0.35	185
10T0.50CT0PGOS00P	10			13.88	291
12T0.50CT0PGOS00P	12			14.34	335
15T0.50CT0PGOS00P	15			16.08	414
01T0.75CT0PGOS00P	1	0.75	0.26	5.60	56
02T0.75CT0PGOS00P	2			8.48	102
04T0.75CT0PGOS00P	4			10.00	172
06T0.75CT0PGOS00P	6			12.07	246
10T0.75CT0PGOS00P	10			15.43	390
12T0.75CT0PGOS00P	12			15.94	451
15T0.75CT0PGOS00P	15			17.87	558
01T001CT0PGOS00P	1	1	0.26	6.21	66
02T001CT0PGOS00P	2			9.73	126
04T001CT0PGOS00P	4			11.28	207
06T001CT0PGOS00P	6			13.66	298
10T001CT0PGOS00P	10			17.54	474
12T001CT0PGOS00P	12			18.14	550
15T001CT0PGOS00P	15			20.35	681
01T01.5CT0PGOS00P	1	1.5	0.35	7.29	90
02T01.5CT0PGOS00P	2			11.26	169
04T01.5CT0PGOS00P	4			13.31	292
06T01.5CT0PGOS00P	6			16.15	422
10T01.5CT0PGOS00P	10			20.78	674
12T01.5CT0PGOS00P	12			21.71	796
15T01.5CT0PGOS00P	15			24.33	985

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Core, Non-Armoured, Overall Shielding, 300 V

CU/PVC/OS/PVC

Product Code	Number of Cores	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02C0.50CT0PGOS00P	2	0.5	0.26	4.97	38
03C0.50CT0PGOS00P	3			5.21	46
04C0.50CT0PGOS00P	4			5.61	54
05C0.50CT0PGOS00P	5			6.23	66
07C0.50CT0PGOS00P	7			6.69	84
12C0.50CT0PGOS00P	12			8.71	128
19C0.50CT0PGOS00P	19			9.93	187
24C0.50CT0PGOS00P	24	11.71	230		
02C0.75CT0PGOS00P	2	0.75	0.26	5.33	45
03C0.75CT0PGOS00P	3			5.80	58
04C0.75CT0PGOS00P	4			6.24	70
05C0.75CT0PGOS00P	5			6.72	82
07C0.75CT0PGOS00P	7			7.49	106
12C0.75CT0PGOS00P	12			9.66	169
19C0.75CT0PGOS00P	19			11.09	244
24C0.75CT0PGOS00P	24	12.99	308		
02C001CT0PGOS00P	2	1	0.26	5.89	52
03C001CT0PGOS00P	3			6.41	68
04C001CT0PGOS00P	4			6.92	83
05C001CT0PGOS00P	5			7.48	98
07C001CT0PGOS00P	7			8.33	127
12C001CT0PGOS00P	12			10.57	204
19C001CT0PGOS00P	19			12.49	296
24C001CT0PGOS00P	24	14.67	374		
02C01.5CT0PGOS00P	2	1.5	0.35	6.91	70
03C01.5CT0PGOS00P	3			7.29	90
04C01.5CT0PGOS00P	4			7.91	110
05C01.5CT0PGOS00P	5			8.58	131
07C01.5CT0PGOS00P	7			9.76	177
12C01.5CT0PGOS00P	12			12.73	287
19C01.5CT0PGOS00P	19			14.74	421
24C01.5CT0PGOS00P	24	17.33	531		

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Pair / Triple, Non-Armoured, Individual and Overall Shielded, 300 V  
CU/PVC/IS/OS/PVC

## Application:

Multi Pair / Triple instrument cables are used as signal carrier for connecting electrical instrument circuits.

## Construction:

### 1- Conductor

Stranded Copper Class 2

### 2- Insulation

Polyvinyl Chloride (PVC)

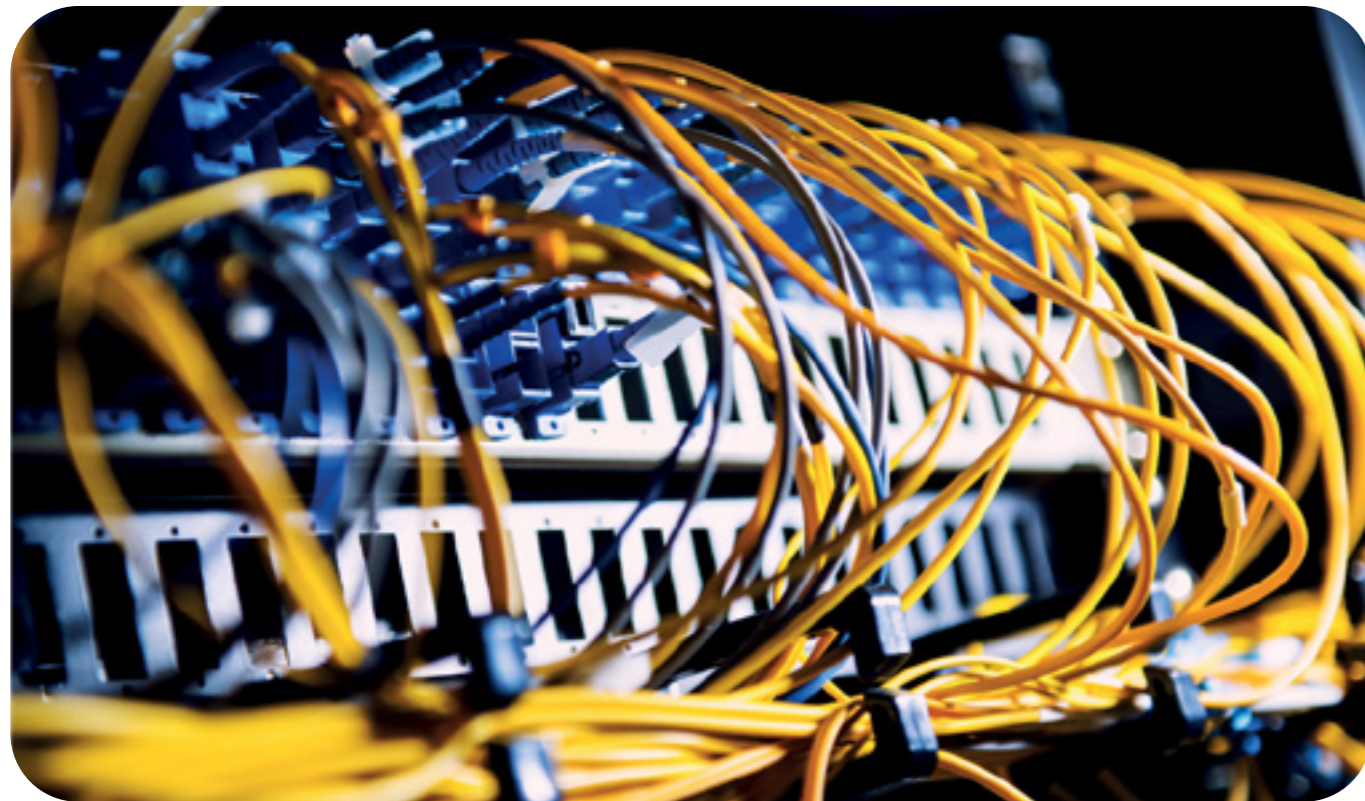
Alternative: Cross-Linked Polyethylene (XLPE)

### 3- Shielding

Individual and Overall Shielding

### 4- Sheath

Polyvinyl Chloride (PVC)



# 3.0 Instrument Cables

Multi Pair, Non-Armoured, Individual and Overall Shielded, 300 V  
CU/PVC/IS/OS/PVC



Product Code	Number of Pairs	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02P0.50CT0PGIS00P	2	0.5	0.26	8.11	86
04P0.50CT0PGIS00P	4			9.55	142
06P0.50CT0PGIS00P	6			11.30	196
10P0.50CT0PGIS00P	10			14.69	315
12P0.50CT0PGIS00P	12			15.16	363
20P0.50CT0PGIS00P	20			18.86	572
02P0.75CT0PGIS00P	2	0.75	0.26	8.95	105
04P0.75CT0PGIS00P	4			10.33	168
06P0.75CT0PGIS00P	6			12.46	241
10P0.75CT0PGIS00P	10			15.97	380
12P0.75CT0PGIS00P	12			16.49	438
20P0.75CT0PGIS00P	20			20.76	705
02P001CT0PGIS00P	2	1	0.26	9.95	123
04P001CT0PGIS00P	4			11.53	199
06P001CT0PGIS00P	6			13.96	285
10P001CT0PGIS00P	10			17.97	452
12P001CT0PGIS00P	12			18.77	532
20P001CT0PGIS00P	20			23.42	844
02P01.5CT0PGIS00P	2	1.5	0.35	11.41	154
04P01.5CT0PGIS00P	4			13.50	261
06P01.5CT0PGIS00P	6			16.35	375
10P01.5CT0PGIS00P	10			21.29	605
12P01.5CT0PGIS00P	12			22.00	701
20P01.5CT0PGIS00P	20			27.70	1127

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Triple, Non-Armoured, Individual and Overall Shielded, 300 V

CU/PVC/IS/OS/PVC

Product Code	Number of Triples	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02T0.50CT0PGIS00P	2	0.5	0.26	9.10	109
04T0.50CT0PGIS00P	4			10.50	175
06T0.50CT0PGIS00P	6			12.68	250
10T0.50CT0PGIS00P	10			16.27	395
12T0.50CT0PGIS00P	12			16.81	457
15T0.50CT0PGIS00P	15	0.75	0.26	18.81	565
02T0.75CT0PGIS00P	2			9.83	129
04T0.75CT0PGIS00P	4			11.59	219
06T0.75CT0PGIS00P	6			13.78	307
10T0.75CT0PGIS00P	10			17.93	497
12T0.75CT0PGIS00P	12	1	0.26	18.53	576
15T0.75CT0PGIS00P	15			20.73	712
02T001CT0PGIS00P	2			10.98	152
04T001CT0PGIS00P	4			12.97	260
06T001CT0PGIS00P	6			15.70	375
10T001CT0PGIS00P	10	1.5	0.35	20.23	596
12T001CT0PGIS00P	12			20.92	692
15T001CT0PGIS00P	15			23.42	856
02T01.5CT0PGIS00P	2			12.83	200
04T01.5CT0PGIS00P	4			15.17	344
06T01.5CT0PGIS00P	6	18.38	496		
10T01.5CT0PGIS00P	10	23.93	802		
12T01.5CT0PGIS00P	12	24.76	932		
15T01.5CT0PGIS00P	15	27.70	1152		

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Pair / Triple & Multi Core, Armoured, Overall Shielded, 300 V

CU/PVC/OS/SWA/PVC

## Application:

Multi Pair / Triple & Multi Core instrument cables are used as signal carrier for connecting electrical instrument circuits.

## Construction:

### 1- Conductor

Stranded Copper Class 2

### 2- Insulation

Polyvinyl Chloride (PVC)

Alternative: Cross-Linked Polyethylene (XLPE)

### 3- Shielding

Individual and Overall Shielding

### 4- Armour

Galvanized Round Steel Wire (SWA)

### 5- Sheath

Polyvinyl Chloride (PVC)



# 3.0 Instrument Cables

Multi Pair, Armoured, Overall Shielded, 300 V

CU/PVC/OS/SWA/PVC



Product Code	Number of Pairs	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight		
		mm <sup>2</sup>	mm	mm	kg/km		
01P0.50CT0PGOSPWP	1	0.5	0.26	1	182		
02P0.50CT0PGOSPWP	2			2	252		
04P0.50CT0PGOSPWP	4			4	313		
06P0.50CT0PGOSPWP	6			6	390		
10P0.50CT0PGOSPWP	10			10	533		
15P0.50CT0PGOSPWP	15			15	656		
20P0.50CT0PGOSPWP	20			20	791		
01P0.75CT0PGOSPWP	1			0.75	0.26	1	196
02P0.75CT0PGOSPWP	2					2	286
04P0.75CT0PGOSPWP	4					4	365
06P0.75CT0PGOSPWP	6	6	450				
10P0.75CT0PGOSPWP	10	10	625				
15P0.75CT0PGOSPWP	15	15	798				
20P0.75CT0PGOSPWP	20	20	1082				
01P001CT0PGOSPWP	1	1	0.26			1	212
02P001CT0PGOSPWP	2					2	322
04P001CT0PGOSPWP	4					4	413
06P001CT0PGOSPWP	6			6	515		
10P001CT0PGOSPWP	10			10	727		
15P001CT0PGOSPWP	15			15	1060		
20P001CT0PGOSPWP	20			20	1273		
01P01.5CT0PGOSPWP	1			1.5	0.35	1	257
02P01.5CT0PGOSPWP	2					2	388
04P01.5CT0PGOSPWP	4					4	524
06P01.5CT0PGOSPWP	6	6	662				
10P01.5CT0PGOSPWP	10	10	1080				
15P01.5CT0PGOSPWP	15	15	1381				
20P01.5CT0PGOSPWP	20	20	1856				

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Triple, Armoured, Overall Shielded, 300 V

CU/PVC/OS/SWA/PVC

Product Code	Number of Triples	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight		
		mm <sup>2</sup>	mm	mm	kg/km		
01T0.50CT0PGOSPWP	1	0.5	0.26	9.87	191		
02T0.50CT0PGOSPWP	2			12.66	290		
04T0.50CT0PGOSPWP	4			14.05	372		
06T0.50CT0PGOSPWP	6			15.72	460		
10T0.50CT0PGOSPWP	10			18.94	646		
12T0.50CT0PGOSPWP	12			19.40	699		
15T0.50CT0PGOSPWP	15			21.34	827		
01T0.75CT0PGOSPWP	1			0.75	0.26	10.26	214
02T0.75CT0PGOSPWP	2					13.34	325
04T0.75CT0PGOSPWP	4					14.86	431
06T0.75CT0PGOSPWP	6	17.13	558				
10T0.75CT0PGOSPWP	10	20.49	777				
12T0.75CT0PGOSPWP	12	21.20	862				
15T0.75CT0PGOSPWP	15	23.83	1132				
01T001CT0PGOSPWP	1	1	0.26			10.87	233
02T001CT0PGOSPWP	2					14.59	378
04T001CT0PGOSPWP	4					16.14	495
06T001CT0PGOSPWP	6			18.72	647		
10T001CT0PGOSPWP	10			23.50	1044		
12T001CT0PGOSPWP	12			24.10	1134		
15T001CT0PGOSPWP	15			26.51	1345		
01T01.5CT0PGOSPWP	1			1.5	0.35	11.95	284
02T01.5CT0PGOSPWP	2					16.12	457
04T01.5CT0PGOSPWP	4					18.37	633
06T01.5CT0PGOSPWP	6	21.41	835				
10T01.5CT0PGOSPWP	10	26.94	1351				
12T01.5CT0PGOSPWP	12	27.87	1500				
15T01.5CT0PGOSPWP	15	31.39	1946				

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Core, Armoured, Overall Shielded, 300 V

CU/PVC/OS/SWA/PVC

Product Code	Number of Cores	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02C0.50CT0PGOSPWP	2	0.5	0.26	2	181
03C0.50CT0PGOSPWP	3			3	191
04C0.50CT0PGOSPWP	4			4	212
05C0.50CT0PGOSPWP	5			5	233
07C0.50CT0PGOSPWP	7			7	271
12C0.50CT0PGOSPWP	12			12	358
19C0.50CT0PGOSPWP	19			19	448
24C0.50CT0PGOSPWP	24			24	526
02C0.75CT0PGOSPWP	2	0.75	0.26	2	196
03C0.75CT0PGOSPWP	3			3	218
04C0.75CT0PGOSPWP	4			4	242
05C0.75CT0PGOSPWP	5			5	263
07C0.75CT0PGOSPWP	7			7	302
12C0.75CT0PGOSPWP	12			12	421
19C0.75CT0PGOSPWP	19			19	526
24C0.75CT0PGOSPWP	24			24	642
02C001CT0PGOSPWP	2	1	0.26	2	212
03C001CT0PGOSPWP	3			3	242
04C001CT0PGOSPWP	4			4	270
05C001CT0PGOSPWP	5			5	293
07C001CT0PGOSPWP	7			7	349
12C001CT0PGOSPWP	12			12	479
19C001CT0PGOSPWP	19			19	608
24C001CT0PGOSPWP	24			24	745
02C01.5CT0PGOSPWP	2	1.5	0.35	2	257
03C01.5CT0PGOSPWP	3			3	284
04C01.5CT0PGOSPWP	4			4	325
05C01.5CT0PGOSPWP	5			5	360
07C01.5CT0PGOSPWP	7			7	430
12C01.5CT0PGOSPWP	12			12	614
19C01.5CT0PGOSPWP	19			19	793
24C01.5CT0PGOSPWP	24			24	1090

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Pair / Triple, Armoured, Individual and Overall Shielded, 300 V

CU/PVC/IS/OS/SWA/PVC

## Application:

Multi Pair / Triple instrument cables are used as signal carrier for connecting electrical instrument circuits.

## Construction:

### 1- Conductor

Stranded Copper Class 2

### 2- Insulation

Polyvinyl Chloride (PVC)

Alternative: Cross-Linked Polyethylene (XLPE)

### 3- Shielding

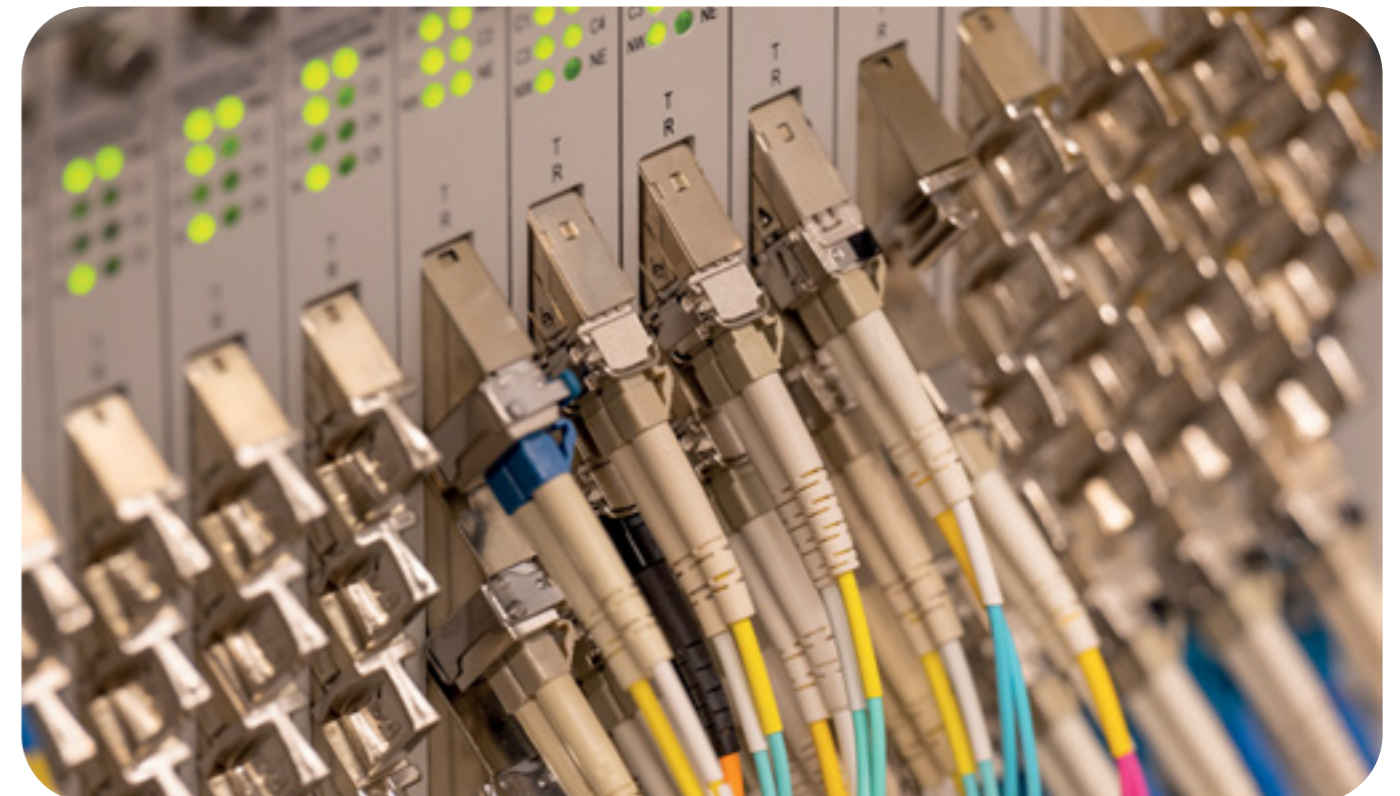
Individual and Overall Shielding

### 4- Armour

Galvanized Round Steel Wire (SWA)

### 5- Sheath

Polyvinyl Chloride (PVC)





# 3.0 Instrument Cables

Multi Pair, Armoured, Individual and Overall Shielded, 300 V

CU/PVC/IS/OS/SWA/PVC



Product Code	Number of Pairs	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02P0.50CT0PGISPWP	2	0.5	0.26	12.97	302
04P0.50CT0PGISPWP	4			14.41	392
06P0.50CT0PGISPWP	6			16.16	484
10P0.50CT0PGISPWP	10			19.75	687
12P0.50CT0PGISPWP	12			20.22	743
20P0.50CT0PGISPWP	20			25.02	1185
02P0.75CT0PGISPWP	2	0.75	0.26	13.81	342
04P0.75CT0PGISPWP	4			15.19	435
06P0.75CT0PGISPWP	6			17.52	560
10P0.75CT0PGISPWP	10			21.23	791
12P0.75CT0PGISPWP	12			21.75	859
20P0.75CT0PGISPWP	20			26.92	1382
02P001CT0PGISPWP	2	1	0.26	14.81	381
04P001CT0PGISPWP	4			16.39	489
06P001CT0PGISPWP	6			19.02	642
10P001CT0PGISPWP	10			23.93	1026
12P001CT0PGISPWP	12			24.73	1132
20P001CT0PGISPWP	20			29.58	1592
02P01.5CT0PGISPWP	2	1.5	0.35	16.27	443
04P01.5CT0PGISPWP	4			18.56	603
06P01.5CT0PGISPWP	6			21.61	795
10P01.5CT0PGISPWP	10			27.45	1296
12P01.5CT0PGISPWP	12			28.16	1407
20P01.5CT0PGISPWP	20			34.96	2230

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Triple, Armoured, Individual and Overall Shielded , 300 V

CU/PVC/IS/OS/SWA/PVC

Product Code	Number of Triples	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02T0.50CT0PGISPWP	2	0.5	0.26	13.96	346
04T0.50CT0PGISPWP	4			15.36	442
06T0.50CT0PGISPWP	6			17.74	577
10T0.50CT0PGISPWP	10			21.53	814
12T0.50CT0PGISPWP	12			22.07	885
15T0.50CT0PGISPWP	15			24.97	1177
02T0.75CT0PGISPWP	2	0.75	0.26	14.69	382
04T0.75CT0PGISPWP	4			16.65	522
06T0.75CT0PGISPWP	6			18.84	657
10T0.75CT0PGISPWP	10			23.89	1070
12T0.75CT0PGISPWP	12			24.69	1185
15T0.75CT0PGISPWP	15			26.89	1379
02T001CT0PGISPWP	2	1	0.26	15.84	434
04T001CT0PGISPWP	4			18.03	594
06T001CT0PGISPWP	6			20.76	769
10T001CT0PGISPWP	10			26.39	1249
12T001CT0PGISPWP	12			27.08	1370
15T001CT0PGISPWP	15			29.58	1604
02T01.5CT0PGISPWP	2	1.5	0.35	17.89	528
04T01.5CT0PGISPWP	4			20.23	724
06T01.5CT0PGISPWP	6			24.34	1083
10T01.5CT0PGISPWP	10			30.29	1578
12T01.5CT0PGISPWP	12			31.82	1913
15T01.5CT0PGISPWP	15			34.96	2255

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Pair / Triple, Non-Armoured, Overall Shielded, 500 V  
CU/PVC/OS/PVC

## Application:

Multi Pair / Triple instrument cables are used as signal carrier for connecting electrical instrument circuits.

## Construction:

### 1- Conductor

Stranded Copper Class 2

### 2- Insulation

Polyvinyl Chloride (PVC)

Alternative: Cross-Linked Polyethylene (XLPE)

### 3- Shielding

Overall Shielding

### 4- Sheath

Polyvinyl Chloride (PVC)



# 3.0 Instrument Cables

Multi Pair, Non-Armoured, Overall Shielded, 500 V  
CU/PVC/OS/PVC



Product Code	Number of Pairs	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
01P0.50CT0PAOS00P	1	0.5	0.44	5.73	45
02P0.50CT0PAOS00P	2			8.03	74
04P0.50CT0PAOS00P	4			9.46	117
06P0.50CT0PAOS00P	6			11.39	165
10P0.50CT0PAOS00P	10			14.54	255
15P0.50CT0PAOS00P	15			16.59	349
20P0.50CT0PAOS00P	20			18.66	452
01P0.75CT0PAOS00P	1	0.75	0.44	6.09	53
02P0.75CT0PAOS00P	2			8.82	93
04P0.75CT0PAOS00P	4			10.17	145
06P0.75CT0PAOS00P	6			12.27	205
10P0.75CT0PAOS00P	10			15.72	321
15P0.75CT0PAOS00P	15			18.18	454
20P0.75CT0PAOS00P	20			20.44	589
01P001CT0PAOS00P	1	1	0.44	6.65	61
02P001CT0PAOS00P	2			9.74	108
04P001CT0PAOS00P	4			11.28	171
06P001CT0PAOS00P	6			13.65	244
10P001CT0PAOS00P	10			17.56	384
15P001CT0PAOS00P	15			20.33	546
20P001CT0PAOS00P	20			22.88	708
01P01.5CT0PAOS00P	1	1.5	0.44	7.11	73
02P01.5CT0PAOS00P	2			10.50	132
04P01.5CT0PAOS00P	4			12.39	220
06P01.5CT0PAOS00P	6			14.98	316
10P01.5CT0PAOS00P	10			19.26	499
15P01.5CT0PAOS00P	15			22.3	712
20P01.5CT0PAOS00P	20			25.09	927
01P02.5CT0PAOS00P	1	2.5	0.53	8.29	100
02P02.5CT0PAOS00P	2			12.63	191
04P02.5CT0PAOS00P	4			14.93	328
06P02.5CT0PAOS00P	6			18.08	472
10P02.5CT0PAOS00P	10			23.53	762
15P02.5CT0PAOS00P	15			27.25	1093
20P02.5CT0PAOS00P	20			30.65	1425

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Triple, Non-Armoured, Overall Shielded, 500 V

CU/PVC/OS/PVC

Product Code	Number of Triples	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
01T0.50CT0PAOS00P	1	0.5	0.44	6.02	55
02T0.50CT0PAOS00P	2			9.06	99
04T0.50CT0PAOS00P	4			10.46	155
06T0.50CT0PAOS00P	6			12.64	221
10T0.50CT0PAOS00P	10			16.19	347
12T0.50CT0PAOS00P	12			16.73	399
15T0.50CT0PAOS00P	15			18.76	493
01T0.75CT0PAOS00P	1			0.75	0.44
02T0.75CT0PAOS00P	2	9.73	120		
04T0.75CT0PAOS00P	4	11.48	200		
06T0.75CT0PAOS00P	6	13.66	280		
10T0.75CT0PAOS00P	10	17.74	451		
12T0.75CT0PAOS00P	12	18.34	522		
15T0.75CT0PAOS00P	15	20.55	645		
01T001CT0PAOS00P	1	1	0.44		
02T001CT0PAOS00P	2			10.77	141
04T001CT0PAOS00P	4			12.73	238
06T001CT0PAOS00P	6			15.42	342
10T001CT0PAOS00P	10			19.81	542
12T001CT0PAOS00P	12			20.50	628
15T001CT0PAOS00P	15			22.99	777
01T01.5CT0PAOS00P	1			1.5	0.44
02T01.5CT0PAOS00P	2	11.84	180		
04T01.5CT0PAOS00P	4	13.77	302		
06T01.5CT0PAOS00P	6	16.72	437		
10T01.5CT0PAOS00P	10	21.74	708		
12T01.5CT0PAOS00P	12	22.50	824		
15T01.5CT0PAOS00P	15	25.23	1020		
01T02.5CT0PAOS00P	1	2.5	0.53		
02T02.5CT0PAOS00P	2			14.03	258
04T02.5CT0PAOS00P	4			16.63	455
06T02.5CT0PAOS00P	6			20.42	671
10T02.5CT0PAOS00P	10			26.54	1087
12T02.5CT0PAOS00P	12			27.47	1269
15T02.5CT0PAOS00P	15			30.80	1572

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Core, Non-Armoured, Overall Shielded, 500 V

CU/PVC/OS/PVC

Product Code	Number of Cores	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02C0.50CT0PAOS00P	2	0.5	0.44	5.73	45
03C0.50CT0PAOS00P	3			6.02	55
04C0.50CT0PAOS00P	4			6.49	65
05C0.50CT0PAOS00P	5			6.99	76
07C0.50CT0PAOS00P	7			7.79	97
12C0.50CT0PAOS00P	12			10.08	153
19C0.50CT0PAOS00P	19			11.79	223
24C0.50CT0PAOS00P	24			13.59	274
02C0.75CT0PAOS00P	2	0.75	0.44	6.09	53
03C0.75CT0PAOS00P	3			6.41	65
04C0.75CT0PAOS00P	4			6.92	79
05C0.75CT0PAOS00P	5			7.48	93
07C0.75CT0PAOS00P	7			8.33	120
12C0.75CT0PAOS00P	12			10.83	192
19C0.75CT0PAOS00P	19			12.69	283
24C0.75CT0PAOS00P	24			14.87	357
02C001CT0PAOS00P	2	1	0.44	6.65	61
03C001CT0PAOS00P	3			7.01	76
04C001CT0PAOS00P	4			7.60	92
05C001CT0PAOS00P	5			8.23	109
07C001CT0PAOS00P	7			9.37	146
12C001CT0PAOS00P	12			11.99	228
19C001CT0PAOS00P	19			14.09	339
24C001CT0PAOS00P	24			16.55	428
02C01.5CT0PAOS00P	2	1.5	.44	7.11	73
03C01.5CT0PAOS00P	3			7.51	93
04C01.5CT0PAOS00P	4			8.16	114
05C01.5CT0PAOS00P	5			9.05	140
07C01.5CT0PAOS00P	7			10.06	183
12C01.5CT0PAOS00P	12			13.15	297
19C01.5CT0PAOS00P	19			15.44	443
24C01.5CT0PAOS00P	24			18.13	559
02C02.5CT0PAOS00P	2	2.5	0.53	8.29	100
03C02.5CT0PAOS00P	3			8.98	135
04C02.5CT0PAOS00P	4			9.78	168
05C02.5CT0PAOS00P	5			10.65	201
07C02.5CT0PAOS00P	7			12.03	273
12C02.5CT0PAOS00P	12			15.80	446
19C02.5CT0PAOS00P	19			18.59	671
24C02.5CT0PAOS00P	24			21.87	847

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Pair / Triple, Non-Armoured, Individual and Overall Shielded, 500 V

CU/PVC/IS/OS/PVC

## Application:

Multi Pair/Triple instrument cables are used as signal carrier for connecting electrical instrument circuits.

## Construction:

### 1- Conductor

Stranded Copper Class 2

### 2- Insulation

Polyvinyl Chloride (PVC)

Alternative: Cross-Linked Polyethylene (XLPE)

### 3- Shielding

Individual and Overall Shielding

### 4- Sheath

Polyvinyl Chloride (PVC)



# 3.0 Instrument Cables

Multi Pair, Non-Armoured, Individual and Overall Shielded, 500 V

CU/PVC/IS/OS/PVC



Product Code	Number of Pairs	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02P0.50CT0PAIS00P	2	0.5	0.44	9.31	101
04P0.50CT0PAIS00P	4			10.76	158
06P0.50CT0PAIS00P	6			13.00	225
10P0.50CT0PAIS00P	10			16.89	360
12P0.50CT0PAIS00P	12			17.43	413
20P0.50CT0PAIS00P	20	0.75	0.44	21.71	649
02P0.75CT0PAIS00P	2			9.95	118
04P0.75CT0PAIS00P	4			11.73	196
06P0.75CT0PAIS00P	6			14.16	280
10P0.75CT0PAIS00P	10			18.17	440
12P0.75CT0PAIS00P	12	1	0.44	18.77	508
20P0.75CT0PAIS00P	20			23.62	815
02P001CT0PAIS00P	2			10.95	134
04P001CT0PAIS00P	4			12.94	224
06P001CT0PAIS00P	6			15.65	320
10P001CT0PAIS00P	10	20.16	505		
12P001CT0PAIS00P	12	21.04	593		
20P001CT0PAIS00P	20	26.27	937		
02P01.5CT0PAIS00P	2	1.5	0.44	11.96	164
04P01.5CT0PAIS00P	4			13.93	268
06P01.5CT0PAIS00P	6			16.88	386
10P01.5CT0PAIS00P	10			22.00	623
12P01.5CT0PAIS00P	12			22.94	732
20P01.5CT0PAIS00P	20	28.85	1174		
02P02.5CT0PAIS00P	2	2.5	0.53	14.26	229
04P02.5CT0PAIS00P	4			16.66	383
06P02.5CT0PAIS00P	6			20.43	562
10P02.5CT0PAIS00P	10			26.60	907
12P02.5CT0PAIS00P	12			27.51	1052
20P02.5CT0PAIS00P	20	34.85	1710		

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Triple, Non-Armoured, Individual and Overall Shielded, 500 V

CU/PVC/IS/OS/PVC

Product Code	Number of Triples	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02T0.50CT0PAIS00P	2	0.5	0.44	10.24	122
04T0.50CT0PAIS00P	4			12.09	202
06T0.50CT0PAIS00P	6			14.60	289
10T0.50CT0PAIS00P	10			18.76	454
12T0.50CT0PAIS00P	12			19.39	524
15T0.50CT0PAIS00P	15			21.70	647
02T0.75CT0PAIS00P	2	0.75	0.44	11.18	152
04T0.75CT0PAIS00P	4			12.97	248
06T0.75CT0PAIS00P	6			15.70	356
10T0.75CT0PAIS00P	10			20.43	575
12T0.75CT0PAIS00P	12			21.12	665
15T0.75CT0PAIS00P	15			23.62	822
02T001CT0PAIS00P	2	1	0.44	12.31	174
04T001CT0PAIS00P	4			14.33	287
06T001CT0PAIS00P	6			17.39	413
10T001CT0PAIS00P	10			22.68	668
12T001CT0PAIS00P	12			23.66	785
15T001CT0PAIS00P	15			26.26	957
02T01.5CT0PAIS00P	2	1.5	0.44	13.25	211
04T01.5CT0PAIS00P	4			15.67	364
06T01.5CT0PAIS00P	6			19.00	525
10T01.5CT0PAIS00P	10			24.76	850
12T01.5CT0PAIS00P	12			25.82	1001
15T01.5CT0PAIS00P	15			28.87	1236
02T02.5CT0PAIS00P	2	2.5	0.53	15.83	300
04T02.5CT0PAIS00P	4			18.75	525
06T02.5CT0PAIS00P	6			22.99	772
10T02.5CT0PAIS00P	10			29.94	1250
12T02.5CT0PAIS00P	12			30.98	1458
15T02.5CT0PAIS00P	15			34.87	1820

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Pair / Triple & Multi Core, Armoured, Overall Shielded, 500 V

CU/PVC/OS/SWA/PVC

## Application:

Multi Pair / Triple & Multi Core instrument cables are used as signal carrier for connecting electrical instrument circuits.

## Construction:

### 1- Conductor

Stranded Copper Class 2

### 2- Insulation

Polyvinyl Chloride (PVC)

Alternative: Cross-Linked Polyethylene (XLPE)

### 3- Shielding

Individual and Overall Shielding

### 4- Armour

Galvanized Round Steel Wire (SWA)

### 5- Sheath

Polyvinyl Chloride (PVC)



# 3.0 Instrument Cables

Multi Pair, Armoured, Overall Shielded, 500 V

CU/PVC/OS/SWA/PVC



Product Code	Number of Pairs	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight		
		mm <sup>2</sup>	mm	mm	kg/km		
01P0.50CT0PAOSPWP	1	0.5	0.44	10.39	204		
02P0.50CT0PAOSPWP	2			12.89	289		
04P0.50CT0PAOSPWP	4			14.32	362		
06P0.50CT0PAOSPWP	6			16.45	462		
10P0.50CT0PAOSPWP	10			19.60	625		
15P0.50CT0PAOSPWP	15			21.85	776		
20P0.50CT0PAOSPWP	20			24.82	1062		
01P0.75CT0PAOSPWP	1			0.75	0.44	10.75	219
02P0.75CT0PAOSPWP	2					13.68	324
04P0.75CT0PAOSPWP	4					15.03	405
06P0.75CT0PAOSPWP	6	17.33	524				
10P0.75CT0PAOSPWP	10	20.98	725				
15P0.75CT0PAOSPWP	15	24.34	1051				
20P0.75CT0PAOSPWP	20	26.60	1253				
01P001CT0PAOSPWP	1	1	0.44			11.31	241
02P001CT0PAOSPWP	2					14.60	360
04P001CT0PAOSPWP	4					16.14	459
06P001CT0PAOSPWP	6			18.71	593		
10P001CT0PAOSPWP	10			23.52	954		
15P001CT0PAOSPWP	15			26.49	1209		
20P001CT0PAOSPWP	20			29.04	1442		
01P01.5CT0PAOSPWP	1			1.5	0.44	11.77	261
02P01.5CT0PAOSPWP	2					15.36	399
04P01.5CT0PAOSPWP	4					17.45	540
06P01.5CT0PAOSPWP	6	20.04	695				
10P01.5CT0PAOSPWP	10	25.42	1124				
15P01.5CT0PAOSPWP	15	28.66	1445				
20P01.5CT0PAOSPWP	20	32.15	1911				
01P02.5CT0PAOSPWP	1	2.5	0.53			13.15	322
02P02.5CT0PAOSPWP	2					17.69	518
04P02.5CT0PAOSPWP	4					19.99	706
06P02.5CT0PAOSPWP	6			24.24	1068		
10P02.5CT0PAOSPWP	10			29.89	1535		
15P02.5CT0PAOSPWP	15			34.51	2177		
20P02.5CT0PAOSPWP	20			38.91	2880		

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Triple, Armoured, Overall Shielded, 500 V

CU/PVC/OS/SWA/PVC

Product Code	Number of Triples	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight		
		mm <sup>2</sup>	mm	mm	kg/km		
01T0.50CT0PAOSPWP	1	0.5	0.44	10.68	221		
02T0.50CT0PAOSPWP	2			13.92	336		
04T0.50CT0PAOSPWP	4			15.32	423		
06T0.50CT0PAOSPWP	6			17.7	547		
10T0.50CT0PAOSPWP	10			21.45	765		
12T0.50CT0PAOSPWP	12			21.99	827		
15T0.50CT0PAOSPWP	15			24.92	1104		
01T0.75CT0PAOSPWP	1			0.75	0.44	11.07	239
02T0.75CT0PAOSPWP	2					14.59	372
04T0.75CT0PAOSPWP	4					16.54	498
06T0.75CT0PAOSPWP	6	18.72	629				
10T0.75CT0PAOSPWP	10	23.90	1035				
12T0.75CT0PAOSPWP	12	24.50	1120				
15T0.75CT0PAOSPWP	15	26.71	1310				
01T001CT0PAOSPWP	1	1	0.44			11.67	264
02T001CT0PAOSPWP	2					15.63	416
04T001CT0PAOSPWP	4					17.79	565
06T001CT0PAOSPWP	6			20.48	730		
10T001CT0PAOSPWP	10			25.97	1182		
12T001CT0PAOSPWP	12			26.66	1293		
15T001CT0PAOSPWP	15			29.15	1512		
01T01.5CT0PAOSPWP	1			1.5	0.44	12.17	289
02T01.5CT0PAOSPWP	2					16.90	486
04T01.5CT0PAOSPWP	4					18.83	652
06T01.5CT0PAOSPWP	6	21.98	865				
10T01.5CT0PAOSPWP	10	27.90	1413				
12T01.5CT0PAOSPWP	12	28.86	1558				
15T01.5CT0PAOSPWP	15	32.29	2005				
01T02.5CT0PAOSPWP	1	2.5	0.44			13.64	362
02T02.5CT0PAOSPWP	2					19.09	615
04T02.5CT0PAOSPWP	4					21.89	882
06T02.5CT0PAOSPWP	6			26.58	1335		
10T02.5CT0PAOSPWP	10			33.80	2148		
12T02.5CT0PAOSPWP	12			34.73	2355		
15T02.5CT0PAOSPWP	15			39.06	3028		

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Core, Armoured, Overall Shielded, 500 V CU/PVC/OS/SWA/PVC

Product Code	Number of Cores	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02C0.50CT0PAOSPWP	2	0.5	0.44	10.39	204
03C0.50CT0PAOSPWP	3			10.68	221
04C0.50CT0PAOSPWP	4			11.15	239
05C0.50CT0PAOSPWP	5			11.65	263
07C0.50CT0PAOSPWP	7			12.65	306
12C0.50CT0PAOSPWP	12			14.94	413
19C0.50CT0PAOSPWP	19			16.85	528
24C0.50CT0PAOSPWP	24			18.65	623
02C0.75CT0PAOSPWP	2	0.75	0.44	10.75	219
03C0.75CT0PAOSPWP	3			11.07	239
04C0.75CT0PAOSPWP	4			11.58	266
05C0.75CT0PAOSPWP	5			12.34	294
07C0.75CT0PAOSPWP	7			13.19	342
12C0.75CT0PAOSPWP	12			15.69	467
19C0.75CT0PAOSPWP	19			17.75	610
24C0.75CT0PAOSPWP	24			19.93	735
02C001CT0PAOSPWP	2	1	0.44	11.31	241
03C001CT0PAOSPWP	3			11.67	263
04C001CT0PAOSPWP	4			12.26	293
05C001CT0PAOSPWP	5			13.09	330
07C001CT0PAOSPWP	7			14.23	391
12C001CT0PAOSPWP	12			17.05	540
19C001CT0PAOSPWP	19			19.15	696
24C001CT0PAOSPWP	24			21.81	854
02C01.5CT0PAOSPWP	2	1.5	0.44	11.77	261
03C01.5CT0PAOSPWP	3			12.37	294
04C01.5CT0PAOSPWP	4			13.02	330
05C01.5CT0PAOSPWP	5			13.91	377
07C01.5CT0PAOSPWP	7			14.92	443
12C01.5CT0PAOSPWP	12			18.21	632
19C01.5CT0PAOSPWP	19			20.70	840
24C01.5CT0PAOSPWP	24			24.09	1144
02C02.5CT0PAOSPWP	2	2.5	0.53	13.15	322
03C02.5CT0PAOSPWP	3			13.84	372
04C02.5CT0PAOSPWP	4			14.64	421
05C02.5CT0PAOSPWP	5			15.51	475
07C02.5CT0PAOSPWP	7			17.09	585
12C02.5CT0PAOSPWP	12			21.06	851
19C02.5CT0PAOSPWP	19			24.75	1281
24C02.5CT0PAOSPWP	24			28.03	1552

# 3.0 Instrument Cables

Multi Pair / Triple, Armoured, Individual and Overall Shielded, 500 V

CU/PVC/IS/OS/SWA/PVC

## Application:

Multi Pair / Triple instrument cables are used as signal carrier for connecting electrical instrument circuits

## Construction:

### 1- Conductor

Stranded Copper Class 2

### 2- Insulation

Polyvinyl Chloride (PVC)

Alternative: Cross-Linked Polyethylene (XLPE)

### 3- Shielding

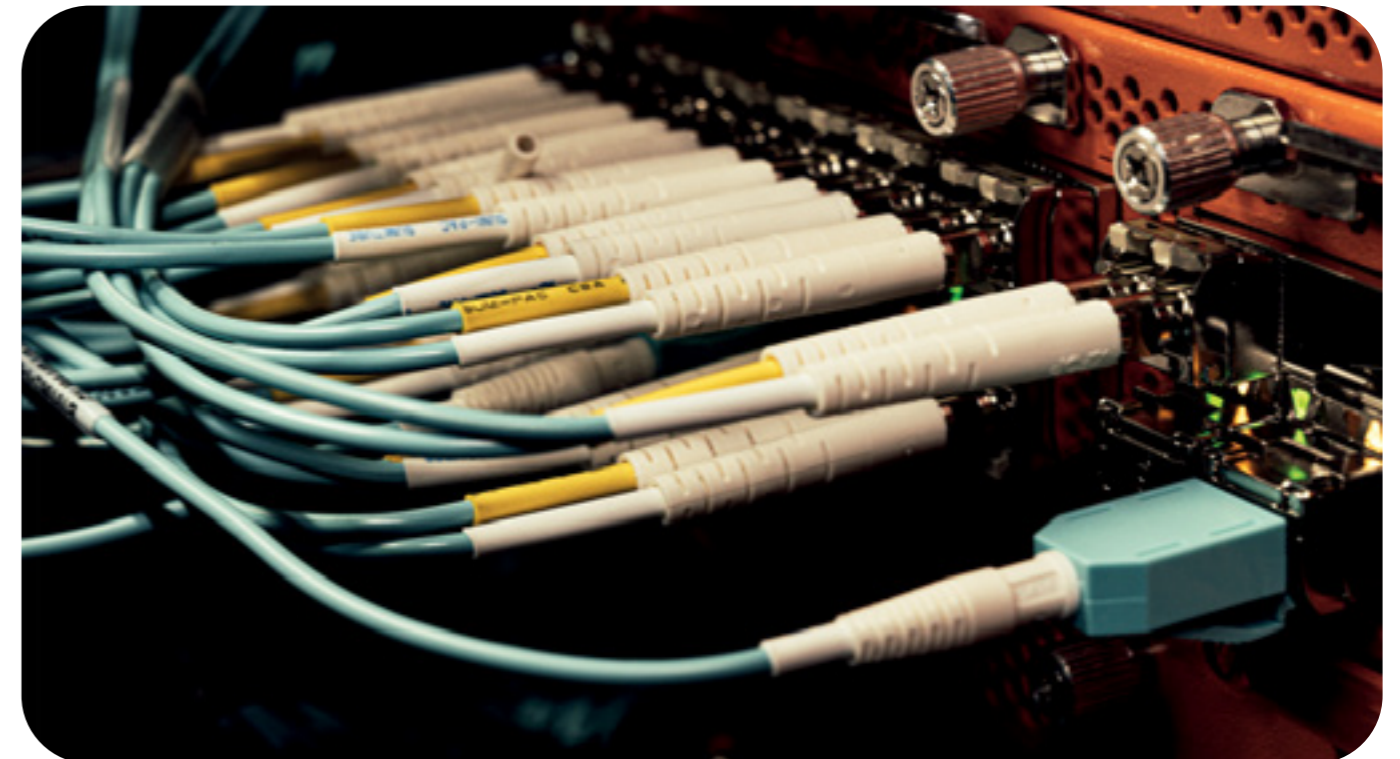
Individual and Overall Shielding

### 4- Armour

Galvanized Round Steel Wire (SWA)

### 5- Sheath

Polyvinyl Chloride (PVC)



# 3.0 Instrument Cables

Multi Pair, Armoured, Individual and Overall Shielded, 500 V

CU/PVC/IS/OS/SWA/PVC



Product Code	Number of Pairs	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02P0.50CT0PAISPWP	2	0.5	0.44	14.17	345
04P0.50CT0PAISPWP	4			15.62	432
06P0.50CT0PAISPWP	6			18.06	559
10P0.50CT0PAISPWP	10			22.15	794
12P0.50CT0PAISPWP	12			23.39	973
20P0.50CT0PAISPWP	20			28.07	1366
02P0.75CT0PAISPWP	2	0.75	0.44	14.81	377
04P0.75CT0PAISPWP	4			16.79	501
06P0.75CT0PAISPWP	6			19.22	638
10P0.75CT0PAISPWP	10			24.33	1037
12P0.75CT0PAISPWP	12			24.93	1119
20P0.75CT0PAISPWP	20			29.98	1588
02P001CT0PAISPWP	2	1	0.44	15.81	415
04P001CT0PAISPWP	4			18.00	557
06P001CT0PAISPWP	6			20.91	724
10P001CT0PAISPWP	10			26.32	1157
12P001CT0PAISPWP	12			27.20	1273
20P001CT0PAISPWP	20			33.33	1963
02P01.5CT0PAISPWP	2	1.5	0.44	17.02	475
04P01.5CT0PAISPWP	4			18.99	624
06P01.5CT0PAISPWP	6			22.14	820
10P01.5CT0PAISPWP	10			28.36	1343
12P01.5CT0PAISPWP	12			29.30	1480
20P01.5CT0PAISPWP	20			36.31	2337
02P02.5CT0PAISPWP	2	2.5	0.53	19.32	592
04P02.5CT0PAISPWP	4			21.92	810
06P02.5CT0PAISPWP	6			26.59	1227
10P02.5CT0PAISPWP	10			33.86	1968
12P02.5CT0PAISPWP	12			34.77	2138
20P02.5CT0PAISPWP	20			43.31	3376

The above data is approximate and subject to manufacturing tolerance.

# 3.0 Instrument Cables

Multi Triple, Armoured, Individual and Overall Shielded, 500 V

CU/PVC/IS/OS/SWA/PVC

Product Code	Number of Triples	Conductor Cross Sectional Area	Minimum Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
02T0.50CT0PAISPWP	2	0.5	0.44	15.1	388
04T0.50CT0PAISPWP	4			17.15	514
06T0.50CT0PAISPWP	6			19.66	660
10T0.50CT0PAISPWP	10			24.92	1066
12T0.50CT0PAISPWP	12			25.55	1160
15T0.50CT0PAISPWP	15			28.06	1365
02T0.75CT0PAISPWP	2	0.75	0.44	16.24	442
04T0.75CT0PAISPWP	4			18.03	582
06T0.75CT0PAISPWP	6			20.96	761
10T0.75CT0PAISPWP	10			26.59	1239
12T0.75CT0PAISPWP	12			27.48	1358
15T0.75CT0PAISPWP	15			29.98	1595
02T001CT0PAISPWP	2	1	0.44	17.37	493
04T001CT0PAISPWP	4			19.39	651
06T001CT0PAISPWP	6			23.35	973
10T001CT0PAISPWP	10			29.04	1413
12T001CT0PAISPWP	12			30.02	1559
15T001CT0PAISPWP	15			33.32	1983
02T01.5CT0PAISPWP	2	1.5	0.44	18.31	552
04T01.5CT0PAISPWP	4			20.93	768
06T01.5CT0PAISPWP	6			25.16	1148
10T01.5CT0PAISPWP	10			31.82	1831
12T01.5CT0PAISPWP	12			33.08	2023
15T01.5CT0PAISPWP	15			36.33	2400
02T02.5CT0PAISPWP	2	2.5	0.53	21.09	705
04T02.5CT0PAISPWP	4			24.91	1136
06T02.5CT0PAISPWP	6			29.35	1521
10T02.5CT0PAISPWP	10			37.40	2440
12T02.5CT0PAISPWP	12			39.24	2940
15T02.5CT0PAISPWP	15			43.33	3486

The above data is approximate and subject to manufacturing tolerance.



# Control Cables

## 4.0 Control Cables

### ELECTRICAL TECHNICAL INFORMATION

Cable Parameters Calculation Guide

#### 1. NOMINAL VOLTAGE

The Nominal Voltage is to be expressed with two values of alternative current  $U_0/U$  in V (volt)

**$U_0$ :** The rated r.m.s. power frequency voltage between each conductor and earth or metallic screen.

**$U$ :** The rated r.m.s. power frequency voltage between any two conductors for which cables and accessories are redesigned.

**$U_m$ :** The maximum r.m.s. power frequency voltage between any two conductors. It is the highest voltage that can be sustained under normal operating conditions at any time and in any point in a system.

#### 2. RESISTANCE

The values of conductor DC resistance are dependent on temperature as given below:

$$R_{\theta} = R_{20} [1 + \alpha (\theta - 20)] \quad \Omega/\text{km}$$

where,

**$R_{\theta}$**  : The conductor DC resistance at  $\theta^{\circ}\text{C}$   $\Omega/\text{km}$

**$R_{20}$**  : The conductor DC resistance at  $20^{\circ}\text{C}$   $\Omega/\text{km}$

**$\theta$**  : Operating temperature  $^{\circ}\text{C}$

**$\alpha$**  : Temperature coefficient  $1/^{\circ}\text{C}$

= 0.00393 for Copper

= 0.00403 for Aluminum

Generally, the DC resistance is based on IEC 60228 and to calculate the AC resistance of the conductor at the operating temperature as the following:

$$R_{AC} = R_{\theta} (1 + Y_s + Y_p) \quad \Omega/\text{km}$$

where,

**$Y_s$**  : Skin effect factor

**$Y_p$**  : Proximity effect factor

Generally, AC resistance is based on IEC 60287

#### 3. CAPACITANCE

$$C = \frac{\epsilon_r}{(18 \ln (D/d))} \quad \mu\text{F}/\text{km}$$

Where,

**$C$**  : Capacitance  $\mu\text{F}/\text{km}$

**$\epsilon$**  : Relative permittivity of insulation material

**$\epsilon_r$**  = 8 for PVC

= 2.5 for XLPE

**$D$**  : Diameter over insulation mm

**$d$**  : Diameter under Insulation mm

# 4.0 Control Cables

## ELECTRICAL TECHNICAL INFORMATION

Cable Parameters Calculation Guide

### 4. INDUCTANCE

$$L = K + 0.2 \ln (2S/d) \text{ mH/km}$$

where,

- L** : The Inductance mH/km
- K** : Constant depend on number of wires mH/km
- d** : Conductor diameter mm
- S** : Axial Spacing between cables (Trefoil formation)  
=1.26 x axial spacing between cables in case of flat

### 5. REACTANCE

The inductive reactance per phase of a cable may be obtained by the formula

$$X = 2 \pi f L \times 10^{-3} \text{ } \Omega/\text{km}$$

where,:

- X** : The Cable Reactance Ω/km
- L** : The Inductance mH/km
- f** : Frequency Hz

### 6. IMPEDANCE

$$Z = \sqrt{X^2 + R_{AC}^2} \text{ } \Omega/\text{km}$$

where,

- Z** : Phase impedance of cable Ω/km
- R<sub>AC</sub>** : AC resistance at operating temperature Ω/km
- X** : Reactance Ω/km

### 7. INSULATION RESISTANCE

$$R = \frac{\rho}{2 \pi L} * \ln \left( \frac{D}{d} \right) \text{ } \Omega/\text{km}$$

where,

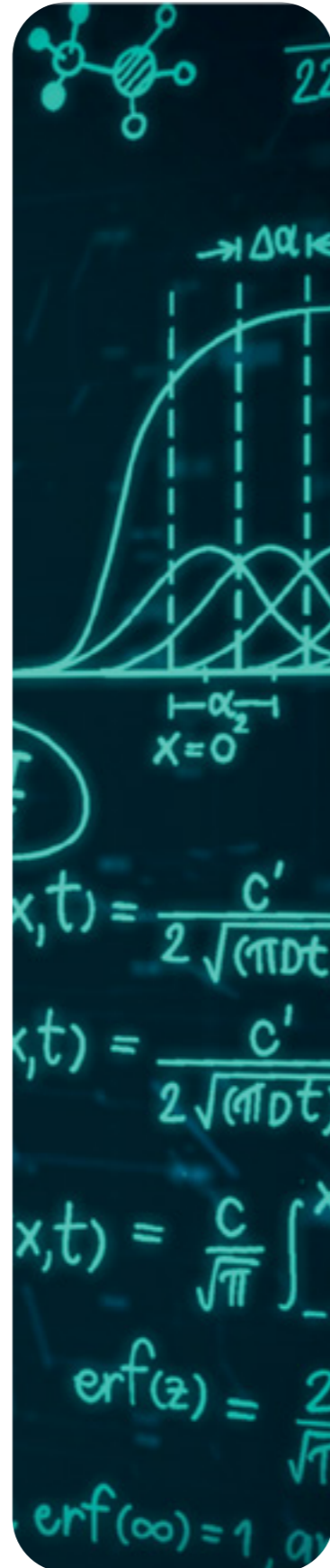
- D** : Insulated conductor diameter mm
- d** : Conductor diameter mm

### 8. CHARGING CURRENT

$$I_c = 2\pi f C U_o \times 10^{-6} \text{ A/km}$$

where,

- I<sub>c</sub>** : Charging Current A/km
- C** : Capacitance to neutral μF/Km
- f** : Frequency Hz
- U<sub>o</sub>** : Rated Phase Voltage V



# 4.0 Control Cables

## ELECTRICAL TECHNICAL INFORMATION

Cable Parameters Calculation Guide

### 9. DIELECTRIC LOSSES

$$D = 2\pi f C U_o^2 \tan \delta \times 10^{-6} \text{ watt/km/phase}$$

where,

- D** : Dielectric losses watt/km/phase
- U<sub>o</sub>** : Voltage between phase and earth V
- C** : Capacitance to neutral μF/km
- tan δ** : Dielectric power factor

### 10. SHORT CIRCUIT CURRENT

$$I_{sc(t)} = I_{sc(1)} / \sqrt{t} \text{ kA}$$

where,:

- I<sub>sc(t)</sub>** : Short Circuit current for t seconds kA
- I<sub>sc(1)</sub>** : Short Circuit current for 1 seconds kA
- t** : Duration Sec

### 6. IMPEDANCE

When the current flows in conductor, there is a voltage drop between the ends of the conductor. For low voltage cable network of normal operation, it is advisable of a voltage drop of 3-5 %. To calculate voltage drop as the following:

1-for single phase circuit:

$$V_d = 2 * I * l ( R \cos \phi + X \sin \phi )$$

2-for three phase circuit :

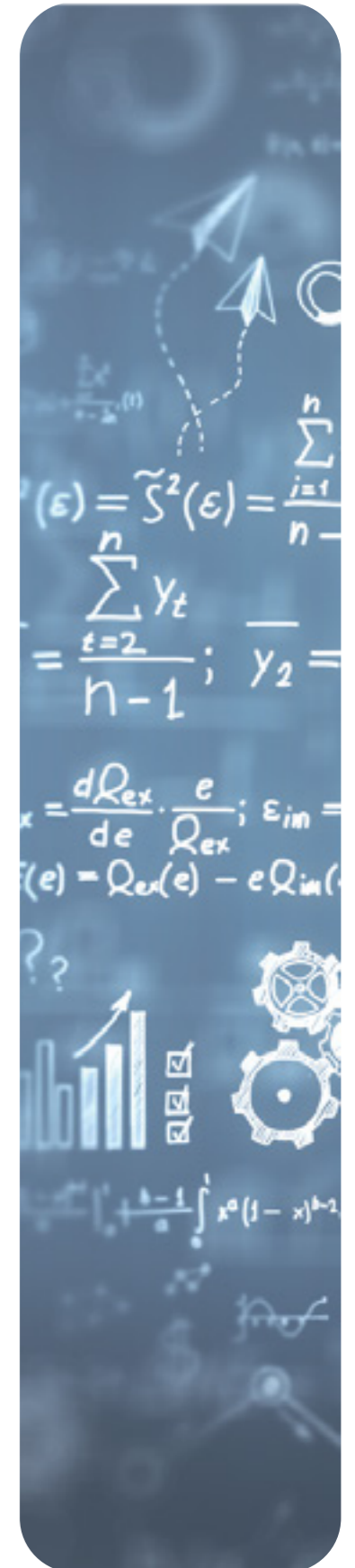
$$V_d = \sqrt{3} * I * l ( R \cos \phi + X \sin \phi )$$

where,

- V<sub>d</sub>** : Phase impedance of cable V
- I** : AC resistance at operating temperature A
- R** : Reactance Ω/km
- X** : Reactance Ω/km
- l** : Length km
- cos φ** : Power factor

#### Relation Between cosφ and sinφ

<b>cosφ</b>	1.0	0.9	0.8	0.71	0.6	0.5
<b>sinφ</b>	0.0	0.44	0.6	0.71	0.8	0.87



# 4.0 Control Cables

## Electrical Technical Information

### Application:

Control Cables are commonly used as interconnecting cables for control devices, e.g. on machine tools, conveyor or assembly lines, transporting equipment, production lines and construction of industrial plants.

### Design Specification Standards

Standard specification Applied to Cable: IEC 60502-1

Standard specification Applied to Conductor: IEC 60228

Spread of Flame: Flame retardant as per IEC 60332-1

### Construction

#### 1- Conductor: Copper (or Tinned Copper)

The conductor Construction is complying with the requirements of IEC 60228 In different flexibility degrees:

- Solid Copper Class 1
- Stranded Copper Class 2
- Flexible Copper Class 5

#### 2- Insulation

- Cross Linked Polyethylene (XLPE) 90°C.
- Polyvinyl Chloride (PVC) 70°C.

#### 3- Cable Assembly

The insulated cores are laid up together to form the laid-up cable cores.

Extruded suitable polymer compound or non-hygroscopic polypropylene filler is applied (when required) between laid up cores to provide a circular shape to the cable. Polypropylene tape(s) or PETP (Polyester) tape(s) may be used as a barrier tape over the laid up cores. Such tape(s) will bind the cores together and prevent them from opening out, acts as a separator between different polymers used in a cable and works as a heat barrier between the cores and the extruded bedding.

#### 4- Inner Sheath

It could be also called inner jacket, which serves as a bedding under metallic layer to protect the laid-up cores and as an inner sheath.

The bedding is an extruded compound depending on the sheathing compound and customer requirements such as :

- Polyvinyl Chloride (PVC)
- Low Smoke Zero Halogen (LSHF)

For applications where Flame spread, minimal smoke and toxic gases emission are critical

# 4.0 Control Cables

## Electrical Technical Information

### 5- Collective Metallic Layer (Optional)

- Copper Tape Screen (CT)
- Copper Wires Screen (CW)

applied directly over the inner sheath where required to cancel out the electromagnetic field outside the cables & provide a low resistance path for charging current to flow to ground. It also carries out the short circuit fault current.

### 6- Separation Sheath

It serves as a bedding under armour to protect the screen and as an inner sheath. The bedding is an extruded (PVC or LSHF) compound depending on the sheathing compound and customer requirements.

### 7- Armour

it is recommended to have armour for the cable intended for Direct Burial application.

The armour provides mechanical protection against crushing forces. Armour also can serve as an Earth Continuity Conductor (ECC). The armouring type could be:

- One layer of Galvanized Round Steel Wires (SWA) applied helically over the bedding.
- Double Steel Tape (STA) applied over each other, with a suitable overlap, one layer covers the gap of the other layer and it is applied over the bedding.

### 8- Outer Sheath

It is the outer protection part of the cable against the surrounding environment, several materials can be used as over sheath based on the intended application as below:

- General purpose PVC Type ST2 compound as specified in IEC 60502-1, or its equivalent PVC Type 9 to BS 7655-4.2.
- Polyethylene PE compound fulfill the requirements of IEC 60502-1 for cables that require to be abrasion resistant, protected against water ingress
- Halogen Free Flame-Retardant compounds complying with ST8 to IEC 60502-1 or Types LTS 1 & LTS 4 to BS 7655 if the cables require to be low smoke, low fume and low toxic gas emitting in case of fire.
- Cables to this category are complying with the requirements of BS 6724. The standard sheath color is Black. Any other color can also be provided as per customer request and in this case, UV can be provided upon request.
- When the cable is required to be anti-termite / anti-vermin, a special additive can be added to the sheathing compound.
- All cables produced PVC and LSHF Cables are flame retardant to IEC 60332-1.

Whenever a requirement for more severe tests as IEC 60332-3-24 CAT C is needed, a Special jacketing compound will be used.

# 4.0 Control Cables

## Electrical Technical Information

### Sizes:

- This publication covers the following range
- Number of Cores: From 5 Cores up to 48 cores.
  - Conductor Cross Sectional Area: from 1.5 mm<sup>2</sup> up to 4 mm<sup>2</sup>.

### Core Identification

- Two Cores:** Red, Black  
**Three Cores:** Red, Yellow, Blue  
**Four Cores:** Red, Yellow, Blue, Black  
**Five Cores:** Red, Yellow, Blue, Black, Y/G  
**More than 5 Cores:** Black with white numbers.  
 \* Other special colors are available upon request.

### Rated Voltage

600/1000 V

### Options Available

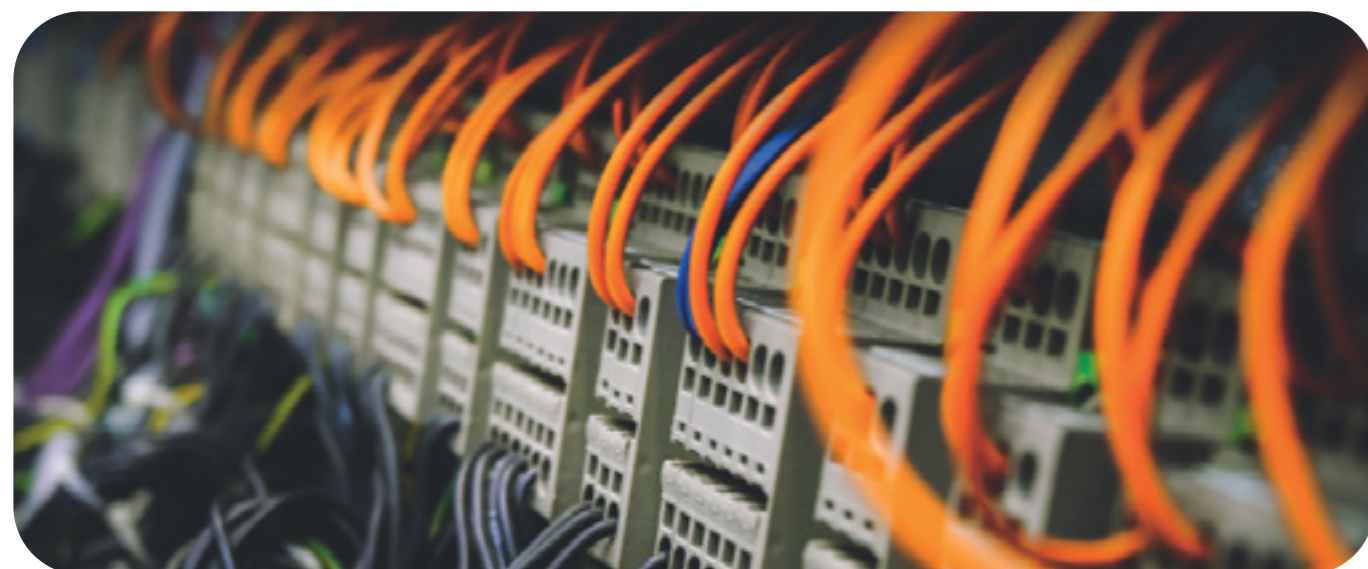
**Sizes:** All sizes are available upon request.

### Material:

Where necessary, special features can be incorporated into the cable enabling it to have:

- Improved fire performance.
- Low smoke and fume (Halogen free).
- Termite, Oils, Solvents or Corrosive Chemical Resistance.

For environment where emissions of smoke and toxic gases are critical, insulation, bedding and outer sheath material can be: Low Smoke Zero Halogen which has abbreviations of **LSOH**, **LSOH & LSZH** (the 3 abbreviations are the same material) with No halogen content and controlled emission of smoke. Also, it is the same as Low Smoke Halogen Free (**LSHF**).



# 4.0 Control Cables

## Control Cables, Non-Armoured, PVC Insulated, 600/1000 V

CU/PVC/PVC

### Application:

Control cables used as interconnecting cables for control devices.

### Cable Construction:

- 1-Conductor: Stranded Copper Class 2
- 2-Insulation: Polyvinyl Chloride (PVC)
- 3-Sheath: Polyvinyl Chloride (PVC)



Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
05C01.5CT0PC000P	5	1.5	0.8	11.3	209
07C01.5CT0PC000P	7			12.8	242
12C01.5CT0PC000P	12			16.4	379
19C01.5CT0PC000P	19			19.0	552
27C01.5CT0PC000P	27			22.5	755
37C01.5CT0PC000P	37			25.1	993
48C01.5CT0PC000P	48			28.9	1273
05C02.5CT0PC000P	5			2.5	0.8
07C02.5CT0PC000P	7	13.9	318		
12C02.5CT0PC000P	12	18.0	506		
19C02.5CT0PC000P	19	20.9	749		
27C02.5CT0PC000P	27	24.9	1030		
37C02.5CT0PC000P	37	28.1	1379		
48C02.5CT0PC000P	48	32.1	1752		
05C004CT0PC000P	5	4	1.0		
07C004CT0PC000P	7			16.9	481
12C004CT0PC000P	12			22.1	780
19C004CT0PC000P	19			25.9	1168
27C004CT0PC000P	27			31.3	1629
37C004CT0PC000P	37			35.3	2190

The above data is approximate and subject to manufacturing tolerance.

# 4.0 Control Cables

## Control Cables, Non-Armoured, XLPE Insulated, 600/1000 V

CU/XLPE/PVC

### Application:

Control cables used as interconnecting cables for control devices.

### Cable Construction:

- 1-Conductor: Stranded Copper Class 2
- 2-Insulation: Cross-Linked Polyethylene (XLPE)
- 3-Sheath: Polyvinyl Chloride (PVC)



Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
05C01.5CT0XC000P	5	1.5	0.7	10.8	179
07C01.5CT0XC000P	7			12.2	208
12C01.5CT0XC000P	12			15.5	322
19C01.5CT0XC000P	19			18.0	464
27C01.5CT0XC000P	27			21.3	632
37C01.5CT0XC000P	37			23.7	827
48C01.5CT0XC000P	48			27.1	1045
05C02.5CT0XC000P	5			2.5	0.7
07C02.5CT0XC000P	7	13.3	279		
12C02.5CT0XC000P	12	17.1	441		
19C02.5CT0XC000P	19	19.9	647		
27C02.5CT0XC000P	27	23.7	889		
37C02.5CT0XC000P	37	26.5	1175		
48C02.5CT0XC000P	48	30.4	1509		
05C004CT0XC000P	5	4	0.7		
07C004CT0XC000P	7			15.1	397
12C004CT0XC000P	12			19.6	639
19C004CT0XC000P	19			22.9	954
27C004CT0XC000P	27			27.4	1319
37C004CT0XC000P	37			30.9	1772

The above data is approximate and subject to manufacturing tolerance.

# 4.0 Control Cables

## Control Cables, Armoured, PVC Insulated, 600/1000 V

CU/PVC/SWA/PVC

### Application:

Control cables used as interconnecting cables for control devices, armoured cables are used in environment where mechanical damage is expected to occur.

### Cable Construction:

- 1-Conductor: Stranded Copper Class 2
- 2-Insulation: Polyvinyl Chloride (PVC)
- 3-Armour: Galvanized Round Steel Wire (SWA)
- 4-Sheath: Polyvinyl Chloride (PVC)



Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
05C01.5CT0PC0PWP	5	1.5	0.8	16.1	454
07C01.5CT0PC0PWP	7			17.1	519
12C01.5CT0PC0PWP	12			21.4	828
19C01.5CT0PC0PWP	19			24.7	1204
27C01.5CT0PC0PWP	27			28.2	1520
37C01.5CT0PC0PWP	37			31.0	1849
48C01.5CT0PC0PWP	48			35.4	2451
05C02.5CT0PC0PWP	5			2.5	0.8
07C02.5CT0PC0PWP	7	18.9	706		
12C02.5CT0PC0PWP	12	23.0	1002		
19C02.5CT0PC0PWP	19	26.6	1458		
27C02.5CT0PC0PWP	27	30.8	1886		
37C02.5CT0PC0PWP	37	33.8	2301		
48C02.5CT0PC0PWP	48	38.8	3064		
05C004CT0PC0PWP	5	4	1.0		
07C004CT0PC0PWP	7			21.9	953
12C004CT0PC0PWP	12			27.8	1527
19C004CT0PC0PWP	19			31.8	2045
27C004CT0PC0PWP	27			38.0	2912
37C004CT0PC0PWP	37			42.0	3621

The above data is approximate and subject to manufacturing tolerance.

# 4.0 Control Cables

## Control Cables, Armoured , XLPE Insulated, 600/1000 V

CU/XLPE/SWA/PVC

### Application:

Control cables used as interconnecting cables for control devices, armoured cables are used in environment where mechanical damage is expected to occur.

### Cable Construction:

- 1-Conductor: Stranded Copper Class 2
- 2-Insulation: Cross-Linked Polyethylene (XLPE)
- 3-Armour: Galvanized Round Steel Wire (SWA)
- 4-Sheath: Polyvinyl Chloride (PVC)



Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
05C01.5CT0XC0PWP	5	1.5	0.7	15.1	417
07C01.5CT0XC0PWP	7			16.5	472
12C01.5CT0XC0PWP	12			20.5	757
19C01.5CT0XC0PWP	19			23.0	960
27C01.5CT0XC0PWP	27			27.0	1359
37C01.5CT0XC0PWP	37			29.4	1630
48C01.5CT0XC0PWP	48			33.0	1960
05C02.5CT0XC0PWP	5			2.5	0.7
07C02.5CT0XC0PWP	7	18.3	655		
12C02.5CT0XC0PWP	12	22.1	913		
19C02.5CT0XC0PWP	19	25.8	1320		
27C02.5CT0XC0PWP	27	29.4	1692		
37C02.5CT0XC0PWP	37	32.4	2071		
48C02.5CT0XC0PWP	48	37.1	2762		
05C004CT0XC0PWP	5	4	0.7		
07C004CT0XC0PWP	7			20.1	821
12C004CT0XC0PWP	12			25.3	1310
19C004CT0XC0PWP	19			28.6	1722
27C004CT0XC0PWP	27			33.3	2252
37C004CT0XC0PWP	37			37.6	3028

The above data is approximate and subject to manufacturing tolerance.

# 4.0 Control Cables

## Control Cables, Copper Tape Screened, PVC Insulated, 600/1000 V

CU/PVC/CT/PVC

### Application:

For interconnecting of control devices and are designed to be complete with copper tape screen applied helically after bedding.

### Cable Construction:

- 1-Conductor: Stranded Copper Class 2
- 2-Insulation: Polyvinyl Chloride (PVC)
- 3-Screen: Copper Tape Screen (CT)
- 4-Sheath: Polyvinyl Chloride (PVC)



Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
05C01.5CT0PCCP0P	5	1.5	0.8	13.3	302
07C01.5CT0PCCP0P	7			14.8	346
10C01.5CT0PCCP0P	10			17.9	460
12C01.5CT0PCCP0P	12			18.4	512
14C01.5CT0PCCP0P	14			19.1	567
16C01.5CT0PCCP0P	16			20.0	630
19C01.5CT0PCCP0P	19			21.0	705
24C01.5CT0PCCP0P	24			24.0	864
30C01.5CT0PCCP0P	30	25.3	1014		
37C01.5CT0PCCP0P	37	27.1	1195		
05C02.5CT0PCCP0P	5	2.5	0.8	14.4	372
07C02.5CT0PCCP0P	7			15.9	431
10C02.5CT0PCCP0P	10			19.4	580
12C02.5CT0PCCP0P	12			20.0	651
14C02.5CT0PCCP0P	14			20.9	728
16C02.5CT0PCCP0P	16			21.9	813
19C02.5CT0PCCP0P	19			22.9	918
24C02.5CT0PCCP0P	24			26.4	1129
30C02.5CT0PCCP0P	30	27.8	1339		
37C02.5CT0PCCP0P	37	30.1	1604		
05C004CT0PCCP0P	5	4	1.0	17.1	535
07C004CT0PCCP0P	7			18.9	619
10C004CT0PCCP0P	10			23.4	845
12C004CT0PCCP0P	12			24.1	958
14C004CT0PCCP0P	14			25.3	1083
16C004CT0PCCP0P	16			26.6	1213
19C004CT0PCCP0P	19			27.9	1376
24C004CT0PCCP0P	24			32.6	1719
30C004CT0PCCP0P	30	34.4	2057		
37C004CT0PCCP0P	37	37.3	2472		

The above data is approximate and subject to manufacturing tolerance.

# 4.0 Control Cables

## Control Cables, Copper Tape Screened, XLPE Insulated, 600/1000 V

CU/XLPE/CT/PVC

### Application:

For interconnecting of control devices and are designed to be complete with copper tape screen applied helically after bedding.

### Cable Construction:

- 1-Conductor: Stranded Copper Class 2
- 2-Insulation: Cross-Linked Polyethylene (XLPE)
- 3-Screen: Copper Tape Screen (CT)
- 4-Sheath: Polyvinyl Chloride (PVC)



Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	kg/km
05C01.5CT0XCCP0P	5	1.5	0.7	12.8	267
07C01.5CT0XCCP0P	7			14.2	307
10C01.5CT0XCCP0P	10			17.1	405
12C01.5CT0XCCP0P	12			17.5	448
14C01.5CT0XCCP0P	14			18.2	495
16C01.5CT0XCCP0P	16			19.1	546
19C01.5CT0XCCP0P	19			20.0	609
24C01.5CT0XCCP0P	24			22.8	744
30C01.5CT0XCCP0P	30			24.0	868
37C01.5CT0XCCP0P	37			25.7	1018
05C02.5CT0XCCP0P	5	2.5	0.7	13.9	334
07C02.5CT0XCCP0P	7			15.3	387
10C02.5CT0XCCP0P	10			18.6	519
12C02.5CT0XCCP0P	12			19.1	580
14C02.5CT0XCCP0P	14			20.0	645
16C02.5CT0XCCP0P	16			20.9	718
19C02.5CT0XCCP0P	19			21.9	808
24C02.5CT0XCCP0P	24			25.2	993
30C02.5CT0XCCP0P	30			26.5	1172
37C02.5CT0PCCP0P	37			28.5	1388
05C004CT0XCCP0P	5	4	0.7	15.5	444
07C004CT0XCCP0P	7			17.1	520
10C004CT0XCCP0P	10			21.0	706
12C004CT0XCCP0P	12			21.6	798
14C004CT0XCCP0P	14			22.6	898
16C004CT0XCCP0P	16			23.7	1003
19C004CT0XCCP0P	19			24.9	1139
24C004CT0XCCP0P	24			28.8	1407
30C004CT0XCCP0P	30			30.6	1696
37C004CT0XCCP0P	37			32.9	2019

The above data is approximate and subject to manufacturing tolerance.

# Domestic Cables

# 5.0 Domestic Cables

**H03VV-F / H03VVH2-F / H03V2V2-F / H03V2V2H2-F**

**Light Duty Cables**

To BS EN 50525-2-11 300/300 V

**H05VV-F / H05VVH2-F / H05V2V2-F / H05V2V2H2-F**

**Ordinary Duty Cables**

To BS EN 50525-2-11 300/500 V

(H) Flexible cable manufactured according to a harmonized standard

(05) for rated voltage 300/500 V

(03) for rated voltage 300/300 V

(V) PVC insulation TI2

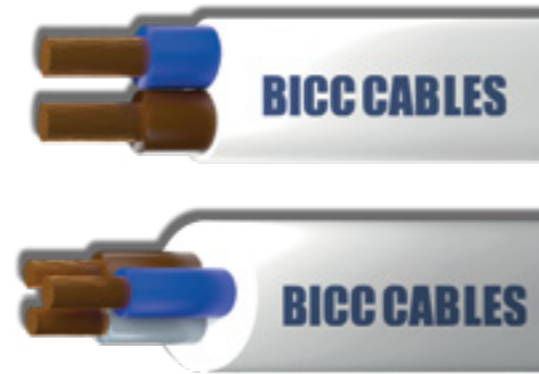
(V2) Heat resistant (90 °C) TI3 PVC insulation

(V) PVC sheath TM2

(V2) Heat resistant (90 °C) TM3 PVC sheath

(H2) Flat cable

(-F) Multi-wire flexible conductors



# 5.0 Domestic Cables

**H03VV-F / H03V2V2-F / 218-Y**

To BS EN 50525-2-11 300/300 V

## Application:

Light duty cable for use in domestic premises, kitchens and offices.

For use with light portable appliances such as radios, table lamps and office equipment.

## Construction:

### 1-Conductor

Flexible plain annealed copper Class 5 as per BS EN 60228

### 2-Sizes

- Circular cables – 0.5 mm<sup>2</sup> and 0.75 mm<sup>2</sup> – 2, 3, and 4 cores

- Flat cables – 0.5 mm<sup>2</sup> and 0.75 mm<sup>2</sup> – 2 cores Only.

### 3-Insulation

Polyvinyl Chloride (PVC) Type TI2 to EN 50363-3

### 4-Sheath

Polyvinyl Chloride (PVC) Type TM2 to EN 50363-4-1

\* Outer sheath varies as per standard and according to application

## Flexible Cable, PVC Insulated, PVC Sheathed, 300/300 V

CU/PVC/PVC

Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Sheathing Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	mm	kg/km
02C00.5CF0FG000P	2	0.5	0.5	0.6	5.0	38
02C0.75CF0FG000P	2	0.75	0.5	0.6	5.4	46
03C00.5CF0FG000P	3	0.5	0.5	0.6	5.3	45
03C0.75CF0FG000P	3	0.75	0.5	0.6	5.7	55
04C00.5CF0FG000P	4	0.5	0.5	0.6	5.8	54
04C0.75CF0FG000P	4	0.75	0.5	0.6	6.2	67

The above data is approximate and subject to manufacturing tolerance.



# 5.0 Domestic Cables

H05VV-F / H05V2V2-F / 309-Y

To BS EN 50525-2-11 300/500 V

## Application:

Ordinary duty PVC cable for use in domestic appliances, kitchens and offices. For use with light portable appliances such as table lamps and office equipment. Generally unsuitable for outdoor use or industrial applications.

## Construction:

### 1-Conductor

Flexible plain annealed copper Class 5 as per BS EN 60228

### 2-Sizes

- Circular cables – 0.75 mm<sup>2</sup> to 4 mm<sup>2</sup> – 2, 3, 4 and 5 cores
- Flat cables – 0.75 mm<sup>2</sup> to 1.5 mm<sup>2</sup> – 2 cores Only

### 3-Insulation

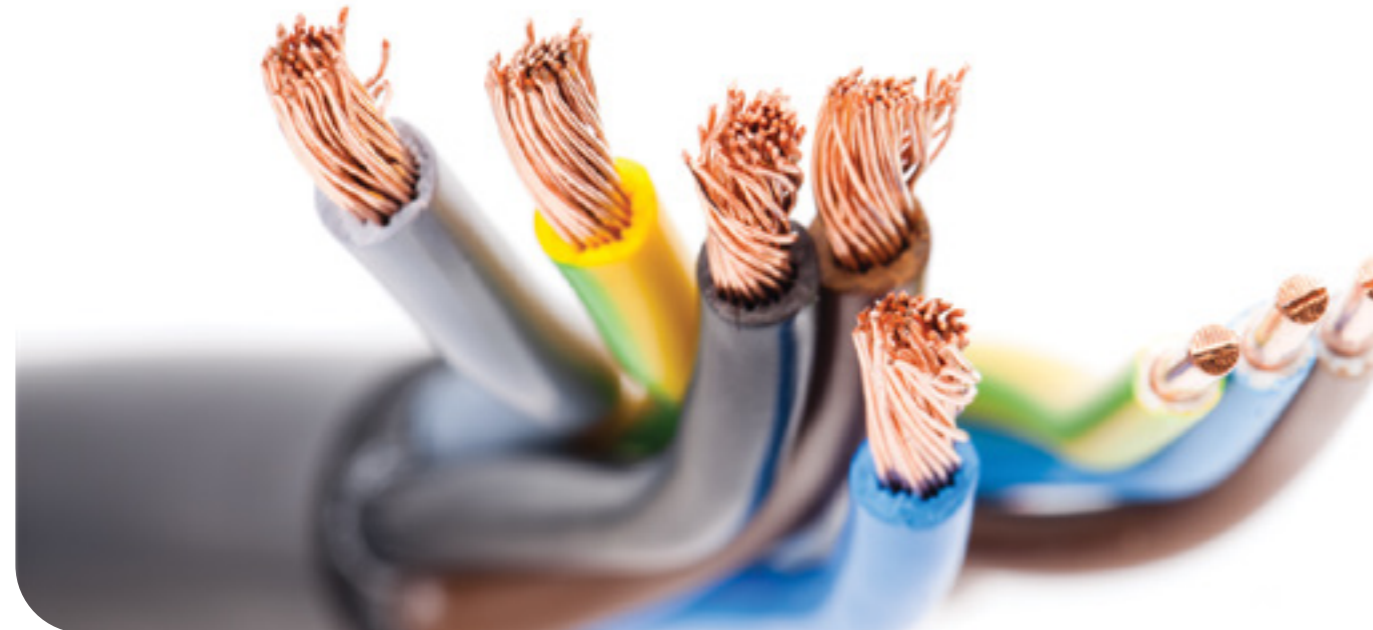
Polyvinyl Chloride (PVC) Type T12 to EN 50363-3

### 4-Sheath

Polyvinyl Chloride (PVC) Type TM2 to EN 50363-4-1

\* Outer sheath varies as per standard and according to application

\* Cables with more than 5 cores and cross-sec. more than 4 mm<sup>2</sup> are only available in adaption designation 05VV-F.



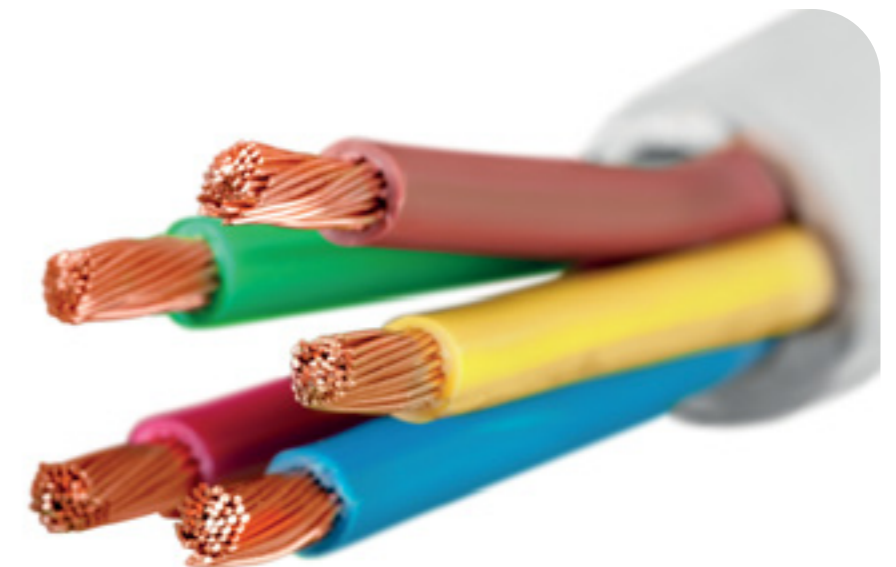
# 5.0 Domestic Cables

Flexible Cables, PVC Insulated, PVC Sheathed, 300/500 V

CU/PVC/PVC

Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Sheathing Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	mm	kg/km
02C0.75CF0PA000P	2	0.75	0.6	0.8	6.2	57
02C001CF0PA000P		1	0.6	0.8	6.5	66
02C01.5CF0PA000P		1.5	0.7	0.8	7.5	89
02C02.5CF0PA000P		2.5	0.8	1	9.1	135
02C004CF0PA000P		4	0.8	1.1	10.4	183
03C0.75CF0PA000P	3	0.75	0.6	0.8	6.5	67
03C001CF0PA000P		1	0.6	0.8	6.9	78
03C01.5CF0PA000P		1.5	0.7	0.9	8.2	111
03C02.5CF0PA000P		2.5	0.8	1.1	9.9	167
03C004CF0PA000P		4	0.8	1.2	11.3	229
04C0.75CF0PA000P	4	0.75	0.6	0.8	7.1	81
04C001CF0PA000P		1	0.6	0.9	7.7	98
04C01.5CF0PA000P		1.5	0.7	1	9.1	138
04C02.5CF0PA000P		2.5	0.8	1.1	10.8	203
04C004CF0PA000P		4	0.8	1.2	12.4	279
05C0.75CF0PA000P	5	0.75	0.6	0.9	8.0	98
05C001CF0PA000P		1	0.6	0.9	8.4	115
05C01.5CF0PA000P		1.5	0.7	1.1	10.1	167
05C02.5CF0PA000P		2.5	0.8	1.2	12.0	245
05C004CF0PA000P		4	0.8	1.4	13.9	344

The above data is approximate and subject to manufacturing tolerance.



# 5.0 Domestic Cables

## H03VVH2-F / H03V2V2H2-F

Flat Flexible Cables, PVC Insulated, PVC Sheathed, 300/300 V

CU/PVC/PVC To BS EN 50525-2-11

Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Sheathing Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	(H x W) mm	kg/km
02F00.5CF0PR000P	2	0.5	0.5	0.6	3.08 X 4.96	29
02F0.75CF0PR000P	2	0.75	0.5	0.6	3.28 X 5.36	36

The above data is approximate and subject to manufacturing tolerance.

## H05VVH2-F / H05V2V2H2-F

Flat Flexible Cables, PVC Insulated, PVC Sheathed, 300/500 V

CU/PVC/PVC To BS EN 50525-2-11

Product Code	Number of Cores	Conductor Cross Sectional Area	Insulation Thickness	Sheathing Thickness	Overall Cable Diameter	Approx. Cable Weight
		mm <sup>2</sup>	mm	mm	(H x W) mm	kg/km
02F0.75CF0PA000P	2	0.75	0.6	0.8	3.88 X 6.16	45
02F001CF0PA000P	2	1	0.6	0.8	4.05 X 6.5	51
02F01.5CF0PA000P	2	1.5	0.7	0.8	4.54 X 7.48	64

The above data is approximate and subject to manufacturing tolerance.

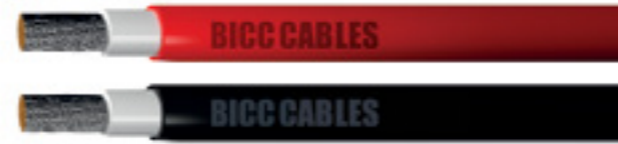


**PhotoVoltaic /  
Solar Cable  
H1Z2Z2-K (1.5kV DC)**

# 6.0 PhotoVoltaic / Solar Cable

## H1Z2Z2-K (1.5kV DC)

Generally, to BS EN 50618 and IEC 62930



### Application:

The BICC © PV H1Z2Z2-K cable is suitable for both fixed and mobile solar installations (solar farms, rooftop solar installations and floating plants). It is a highly flexible cable compatible with all major connectors and specially designed for the connection of photovoltaic panels.

This versatile single-conductor cable is designed to meet the varying needs of the solar industry. Suitable for wet, damp and humid locations.

### Cable Construction:

#### 1-Conductor

Flexible Tinned annealed copper Class 5 as per IEC 60228

#### 2-Insulation

Cross-Linked special Polyolefin (XLPO)

#### 3-Sheath

Cross-Linked special Polyolefin (XLPO)

### Characteristics:

#### 1-Voltage

1.5/1.5 kV<sub>dc</sub>

1.0/1.0 kV<sub>ac</sub>

#### 2- Maximum Permissible Voltage

1.8/1.8 kV<sub>dc</sub>

1.2/1.2 kV<sub>ac</sub>

#### 3- Ambient Temperature in Operation

-40 °C to +90 °C

#### 4- Maximum Temperature of Conductor

20 °C based on EN 60216-1 (20,000 hr)

#### 5- Short Circuit Temperature

+250 °C FOR 5 sec

# 6.0 PhotoVoltaic / Solar Cable

## H1Z2Z2-K (1.5kV DC)

Product Code	Conductor Cross Sectional Area	Insulation Thickness	Sheathing Thickness	Overall Cable Diameter	Approx. Cable Weight
	mm <sup>2</sup>	mm	mm	mm	kg/km
01C01.5TF0LE000L	1.5	0.7	0.8	4.54	34
01C02.5TF0LE000L	2.5	0.7	0.8	4.97	45
01C004TF0LE000L	4	0.7	0.8	5.45	59
01C006TF0LE000L	6	0.7	0.8	6.30	81
01C010TF0LE000L	10	0.7	0.8	7.05	122
01C016TF0LE000L	16	0.7	0.9	8.50	183
01C025TF0LE000L	25	0.9	1.0	10.7	287

### Current Carrying Capacity

Current Carrying Capacity of PV Cables			
Nominal Cross Sectional Area mm <sup>2</sup>	Current Carrying Capacity According to Method of Installation		
	Single Cable Free in Air	Single Cable on a Surface	Two Loaded Cables Touching, on a Surface
	A	A	A
1.5	30	29	24
2.5	41	39	33
4	55	52	44
6	70	67	57
10	98	93	79
16	132	125	107
25	176	167	142

\*Ambient temperature: 60 °C

\*max. conductor temperature: 120 °C

Current Rating Conversion Factors for Different Ambient Temperatures	
Ambient Temperature °C	Conversion Factor
UP TO 60	1
70	0.92
80	0.84
90	0.75

#### Groups

For installation in groups the reduction factors for current rating according to HD 52:2011-5-60364, Table B.52.17 shall apply.

#### Short-circuit-temperature

The permitted short-circuit-temperature is 250 °C referring to a period of 5 s.

# Partners of Success



# BICC CABLES

Cables Crafted With Trust

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